PLANNING COMMISSIONERS

JEFFREY BARNES
Chair

PATRICIA KORZEC
Vice-Chair

RAY L. BAKER
Commissioner

JEFFREY SIMS
Commissioner

ALVIN DEJOHNETTE
Commissioner

VACANT
Commissioner

VACANT
Commissioner

PLANNING COMMISSION
Regular Meeting

Agenda

Thursday, April 26, 2018 at 7:00 PM
City Hall Council Chamber – 14177 Frederick Street

CALL TO ORDER

ROLL CALL

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

APPROVAL OF AGENDA

CONSENT CALENDAR

All matters listed under Consent Calendar are considered to be routine and all will be enacted by one roll call vote. There will be no discussion of these items unless Members of the Planning Commission request specific items be removed from the Consent Calendar for separate action.

APPROVAL OF MINUTES

NONE

PUBLIC COMMENTS PROCEDURE

Any person wishing to address the Commission on any matter, either under the Public Comments section of the Agenda or scheduled items or public hearings, must fill out a "Request to Speak" form available at the door. The completed form must be submitted to the Secretary prior to the Agenda item being called by the Chairperson. In speaking to the Commission, member of the public may be limited to three minutes per person, except for the applicant for entitlement. The Commission may establish an overall time limit for comments on a particular Agenda item. Members of the public must direct their questions to the Chairperson of the Commission and not to other members of the Commission, the applicant, the Staff, or the audience.

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 Guy Pegan, ADA Coordinator, at 951.413.3120 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.

NON-PUBLIC HEARING ITEMS

PUBLIC HEARING ITEMS

1.	Case:	PEN17-0044 – Master Plot Plan, PEN17-0045 – Plot Plan, and PEN17-0046 – Conditional Use Permit
	Applicant:	Western States Engineering
	Owner:	Royal Excel Enterprises
	Representative:	Western States Engineering
	Location:	Southwest corner of Moreno Beach Drive and John F. Kennedy Drive
	Case Planner:	Jeff Bradshaw
	Council District:	4
	Proposal:	Moreno Beach Commercial Center - proposal to develop a commercial center with a gas station, convenience store, a detached self serve car wash and retail/restaurant space

STAFF RECOMMENDATION

A. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-23, and thereby:

1. **CERTIFY** that the Mitigated Negative Declaration prepared for Master Plot Plan PEN17-0044, Plot Plan PEN17-0045 and Conditional Use Permit PEN17-0046 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A; and

2. **APPROVE** the Mitigation Monitoring Program prepared for Master Plot Plan PEN17-0044, Plot Plan PEN17-0045 and Conditional Use Permit PEN17-0046, attached hereto as Exhibit B.

B. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-24, and thereby:

1. **APPROVE** Master Plot Plan PEN17-0044 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

C. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-25, and thereby:

1. **APPROVE** Plot Plan PEN17-0045 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

D. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-26, and thereby:

1. **APPROVE** Conditional Use Permit PEN17-0046 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

2. Case: PEN18-0061

Applicant:	City of Moreno Valley
Owner:	City of Moreno Valley
Representative:	Community Development Department
Location:	Citywide
Case Planner:	Claudia Manrique
Council District:	All
Proposal:	An amendment to the City's Temporary Use Permit (TUP) regulations (Section 9.02.150 of the Municipal Code) adding "safe and sane" fireworks sales as a permitted temporary use

STAFF RECOMMENDATION

Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-28, and thereby recommend that the City Council:

1. **CERTIFY** that application PEN18-0061 (Municipal Code Amendment), which will allow provisions for sales of safe and sane fireworks as a temporary land use in the City, qualifies as a Class 4 categorical exemption in accordance with CEQA Guidelines, Section 15304 (Minor Alternations to Land).

2. **APPROVE** PEN18-0061, a proposed amendment to Title 9 of the City Municipal Code adding provisions for sales of safe and sane fireworks as a temporary land use in the City.

OTHER COMMISSION BUSINESS

STAFF COMMENTS

PLANNING COMMISSIONER COMMENTS

ADJOURNMENT

Planning Commission Regular Meeting, May 24, 2018 at 7:00 P.M., City of Moreno Valley, City Hall Council Chamber, 14177 Frederick Street, Moreno Valley, CA 92553.

PLANNING COMMISSION

STAFF REPORT

Meeting Date: April 26, 2018

MORENO BEACH COMMERCIAL CENTER - PROPOSAL TO DEVELOP A COMMERCIAL CENTER WITH A GAS STATION, CONVENIENCE STORE, A DETACHED SELF SERVE CAR WASH AND RETAIL/RESTAURANT SPACE

Case:	PEN17-0044 – Master Plot Plan, PEN17-0045 – Plot Plan, and PEN17-0046 – Conditional Use Permit
Applicant:	Western States Engineering
Owner:	Royal Excel Enterprises
Representative:	Western States Engineering
Location:	Southwest corner of Moreno Beach Drive and John F. Kennedy Drive
Case Planner:	Jeff Bradshaw
Council District:	4

SUMMARY

The property owner, Royal Excel Enterprises, is proposing a development plan for the Moreno Beach Commercial Center Project, which will convert the currently vacant 2.45 acre project site into a multi-use retail center including a service station with six covered gas pump islands, a 7,616 square foot retail building with space for a convenience store and two restaurants, and a 3,526 square foot drive-through car wash building with associated parking/vacuum stations.

PROJECT DESCRIPTION

Background

The Moreno Beach Commercial Center project was originally scheduled for a public hearing on the Planning Commission's April 12, 2018 agenda. At the request of the applicant, Western States Engineering, Inc., this item was continued to the Planning Commission's April 26, 2018 public hearing agenda, in order to allow time for the applicant to conduct community outreach and meet with residents to discuss the project.

Based on community input and staff conversations with the applicant, conditions of approval from Planning and the Police Department have been added to address concerns with the operation of a convenience store with beer and wine sales.

The staff report for this project includes the updated conditions of approval as Exhibits to Resolutions 2018-24, 2018-25, and 2018-26 (see Attachments 7, 9 and 11).

A prior commercial center that included two buildings totaling 14,000 square feet and one pad for a future building of up to 2,600 square feet was approved for this site by the Planning Commission in September 2006. That entitlement was subsequently considered and approved by the City Council at a public hearing in November 2006.

Project

The Moreno Beach Commercial Center Project proposes to develop the 2.45 acre project site with a service station, a three tenant retail building and a drive-through car wash.

The project site is located within the Moreno Valley Ranch Specific Plan (SP 193) with a zoning designation of Commercial (C). Design guidelines for architecture and landscape are provided in SP 193, and site development standards for the commercial development are based on the Neighborhood Commercial (NC) development standards set forth in Title 9 of the City Municipal Code. Permitted and conditionally permitted uses allowed at the project site are based on City's Neighborhood Commercial (NC) regulations. Based on the NC regulations a Conditional Use Permit, approved by the Planning Commission, is required for service stations located within 300 feet of a residence or residential district.

The project, as presented, is consistent with the site's General Plan designation of Commercial, all applicable General Plan policies and the Commercial zoning district regulations of the Moreno Valley Ranch Specific Plan (SP 193) and City's Municipal Code.

Master Plot Plan PEN17-0044

The Master Plot Plan proposes to develop the 2.45 acre site with building pads for a 7,616 square foot retail building, a 3,520 square foot canopy with six gas pump islands, and a 3,526 square foot car wash building. Common amenities in the center include reciprocal access and reciprocal parking, shared drive aisles, two outdoor seating areas, pedestrian pathways, a shared trash enclosure and common area landscape on a single parcel (Assessor's Parcel Number: 304-240-004). The project has been conditioned to record an easement(s) for shared access and shared parking.

The approved color palette for the buildings include earth tones and ledge stone veneer with exposed rafter tails and wood trellis features, concrete tile roof with aluminum glazing, and stucco trims and moldings. The building design for the project will incorporate a contemporary style design with architectural elements including cantilevered roof elements, vertical tower features, wood trellises and decorative sconces.

Plot Plan PEN17-0045

The Plot Plan application proposes to establish restaurant uses in two units of a 7,616 square foot retail building. The proposed restaurant spaces are 1,632 square feet and 2,584 square feet respectively; the remaining 3,400 square feet is proposed as a convenience store as further described below.

Conditional Use Permit PEN17-0046

Conditional Use Permit (CUP) PEN17-0046 is required to allow development of a service station to include a 3,520 square canopy area over six gas pump islands, and a convenience store which would include beer and wine sales within the 3,400 square foot unit of the 7,616 square foot retail building. A 290 square foot mezzanine is proposed within the convenience store space to be used for office use accessory to the convenience store. The CUP application also covers the separate 3,526 square foot automated car wash building. The car wash use includes ten canopy covered vacuum stations.

Due to the proximity of existing single-family residences, the conditional use permit has been conditioned to require the car wash be constructed with automatic car wash doors with a minimum Sound Transmission Class (STC) rating of 14 STC at the entrance and exit, which would be closed prior to operating the car wash for each car to be washed. All vacuum and blower motors must be located within the car wash building and the operational hours of the car wash will be limited to between 8:00 a.m. and 10:00 p.m.

Site and Surrounding Area

The proposed project site is located at the southwest corner of John F. Kennedy Drive and Moreno Beach Drive within the Moreno Valley Ranch Specific Plan (SP 193) and is zoned Commercial (C). The area to the west of the proposed project includes a maintenance yard for the Moreno Valley Ranch Golf Club, Fairway Park, and the Landmark Middle School. The school is more than 1,000 feet to the west of the site. There are two large high density, multiple-family residential parcels to the east and north of the project. These lots are developed with apartments and condominiums. The area directly south of the proposed project is zoned residential and completely developed. There also are residential tracts to the northeast and northwest of the proposed commercial project.

Access/Parking

The primary access to the proposed development will be from a driveway on Moreno Beach Drive near the southeast corner of the site. Moreno Beach Drive is a divided arterial with a raised median along the site's frontage, so turning movements at this driveway will be limited to right-in/right-out. The site can also be accessed from driveways on John F. Kennedy Drive and Via Entrada with pedestrian access available from the cul-de-sac on Via Sonata.

The proposed project as designed satisfies all parking requirements of the City's Municipal Code including ADA accessible parking, customer parking, employee parking and parking for fuel efficient vehicles. Based on the combination of uses on the site (service station, retail, restaurant and car wash), a total of 72 parking spaces are required; 73 parking spaces are proposed.

Staff has reviewed the driveways and interior drive aisles within the site for adequate truck maneuvering and turnaround for delivery trucks and trash pick-up. The Fire Prevention Bureau has reviewed and approved fire truck access.

Design/Landscaping

This proposed project, as designed and conditioned, conforms to all development standards of the Moreno Valley Ranch Commercial zone and Municipal Code required design guidelines for service station and retail development.

Signage is not a part of this approval. Conditions of approval are included to ensure signage will be reviewed and approved under separate administrative permit(s).

The proposed project has been designed to meet required landscape standards and objectives set forth in the City's Municipal Code and the Moreno Valley Ranch Specific Plan. Proposed project landscaping includes landscape setback areas along the site's perimeter street frontage, parking lot landscape, street trees and landscape treatments around the perimeter of the site, buildings and outdoor recreation areas and a screening tree row along the site's southern property line.

REVIEW PROCESS

During the review process, the project was reviewed several times by the Project Review Staff Committee. Staff provided comments and proposed conditions of approval regarding the proposed project in writing to the applicant. City staff worked with the applicant to address site design concerns related to access, water quality, storm run-off and compatibility with the adjacent existing residences. Revised plans were submitted in January and March 2018. Upon review of revised plans, subsequent submittals, and completion of required consultation with local Native American Tribal groups and the preparation of a Preliminary Water Quality Management Plan, staff made a determination to schedule this project for a public hearing before Planning Commission on April 12, 2018.

ENVIRONMENTAL

Planning staff has reviewed the project against the California Environmental Quality Act Guidelines in order to make a determination of an appropriate environmental clearance determination for the project.

An Initial Study was prepared by Sagecrest Planning+Environmental. City staff reviewed the initial study and based on a thorough analysis of potential environmental impacts determined that a Mitigated Negative Declaration for the proposed project would serve as the appropriate environmental documentation for the project. The Mitigated Negative Declaration represents the City's independent judgment and analysis. The proposed project will not have a significant effect on the environment with the implementation of mitigation measures identified. Technical studies prepared for the environmental analysis included a traffic study, a geotechnical study, a cultural and paleontological resources assessment, a biological assessment, a preliminary hydrology study, a preliminary water quality management plan, an air quality/greenhouse gas analysis and a noise study.

Mitigation measures have been introduced with the project to ensure compliance with City General Plan policies and other requirements related to Noise, Biological Resources, Traffic, Cultural Resources and Tribal Cultural Resources. A Mitigation Monitoring Program has been prepared to ensure implementation of the mitigation measures (Exhibit B to Resolution 2018-23).

Public notice of the availability of the Initial Study / Mitigated Negative Declaration was published in the newspaper for a 20-day review period consistent with requirements of the CEQA Guidelines.

NOTIFICATION

The public hearing notice for this project was published in the local newspaper on March 23, 2018. Staff also sent out public notices to all property owners of record within 300 feet of the proposed project site on March 29, 2018. The public hearing notice for this project was posted on the site on April 2, 2018.

As of the date of report preparation, staff has received no phone calls or correspondence in response to the noticing for this project.

REVIEW AGENCY COMMENTS

Staff has coordinated with outside agencies and where applicable, conditions of approval have been included to address concerns from the responding agencies.

STAFF RECOMMENDATION

A. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-23, and thereby:

   1. **CERTIFY** that the Mitigated Negative Declaration prepared for Master Plot Plan PEN17-0044, Plot Plan PEN17-0045 and Conditional Use Permit PEN17-0046 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A; and

   2. **APPROVE** the Mitigation Monitoring Program prepared for Master Plot Plan PEN17-0044, Plot Plan PEN17-0045 and Conditional Use Permit PEN17-0046, attached hereto as Exhibit B.

B. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-24, and thereby:

   1. **APPROVE** Master Plot Plan PEN17-0044 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

C. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-25, and thereby:

   1. **APPROVE** Plot Plan PEN17-0045 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

D. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-26, and thereby:

   1. **APPROVE** Conditional Use Permit PEN17-0046 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

Prepared by:
Jeffrey Bradshaw
Associate Planner

Approved by:
Albert Armijo
Interim Planning Manager

ATTACHMENTS

1. Public Hearing Notice
2. 300' Radius Map
3. Resolution 2018-23 - Environmental Determination
4. Exhibit A to Resolution 2018-23 - Initial Study / Mitigated Negative Declaration

5. Exhibit B to Resolution 2018-23 - Mitigation Monitoring Program
6. Resolution 2018-24 - Master Plot Plan
7. Exhibit A to Resolution 2018-24 - Conditions of Approval
8. Resolution 2018-25 - Plot Plan
9. Exhibit A to Resolution 2018-25 - Conditions of Approval
10. Resolution 2018-26 - Conditional Use Permit
11. Exhibit A to Resolution 2018-26 - Conditions of Approval
12. Site Plan
13. Preliminary Grading Plan
14. Architectural Plans
15. Color Renderings
16. Aerial Map
17. Air Quality and Greenhouse Gas Emissions Impact Analysis
18. Letter Report of Findings for a MSHCP Burrowing Owl Habitat Assessment
19. Cultural and Paleontological Resources Assessment
20. Geotechnical Investigation
21. Prelimiary Water Quality Managment Plan
22. Noise Impact Analysis
23. Focused Traffic Impact
24. Hydrology Study

HISTORY:

04/12/18 **Planning Commission** **CONTINUED**
Next: 04/26/18

Motion to continue to April 26, 2018

Notice of
PUBLIC HEARING

This may affect your property. Please read.

Notice is hereby given that a Public Hearing will be held by the Planning Commission of the City of Moreno Valley on the following item(s):

CASES: PEN17-0044 (Master Plot Plan), PEN17-0045 (Plot Plan), PEN17-0046 (Conditional Use Permit)

APPLICANT: Western States Engineering

OWNER: Royal Excel Enterprises

REPRESENTATIVE: Western States Engineering

LOCATION: Southwest corner of Moreno Beach Drive and John F. Kennedy Drive

PROPOSAL: The Moreno Beach Commercial Center proposes to develop a 2.45 acre site which is located in the Moreno Valley Ranch Specific Plan (SP 193) and is zoned Commercial (C) with surrounding properties developed with single-family homes and apartments. Applications for this project include a Master Plot Plan for the center and a Conditional Use Permit for a gas station and a 3,400 square foot convenience store with a 290 square foot mezzanine for office. The service station will include a 3,526 square foot drive-through car wash and a 3,520 square foot canopy with six pump islands. Also included is a Plot Plan for two restaurants of 1,632 and 2,584 square feet. The site design will include canopy covered vacuum stations and common shaded customer seating areas. A total of 72 parking spaces are required with 73 spaces provided.

ENVIRONMENTAL DETERMINATION: Mitigated Negative Declaration

COUNCIL DISTRICT: 4

STAFF RECOMMENDATION: Approval

Any person interested in any listed proposal can contact the Community Development Department, Planning Division, at 14177 Frederick St., Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Fridays from 7:30 a.m. to 4:30 p.m.), or may telephone (951) 413-3206 for further information. The associated documents will be available for public inspection at the above address.

In the case of Public Hearing items, any person may also appear and be heard in support of or opposition to the project or recommendation of adoption of the Environmental Determination at the time of the Hearing.

The Planning Commission, at the Hearing or during deliberations, could approve changes or alternatives to the proposal.

If you challenge any of these items in court, you may be limited to raising only those items you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the Planning Commission at, or prior to, the Public Hearing.

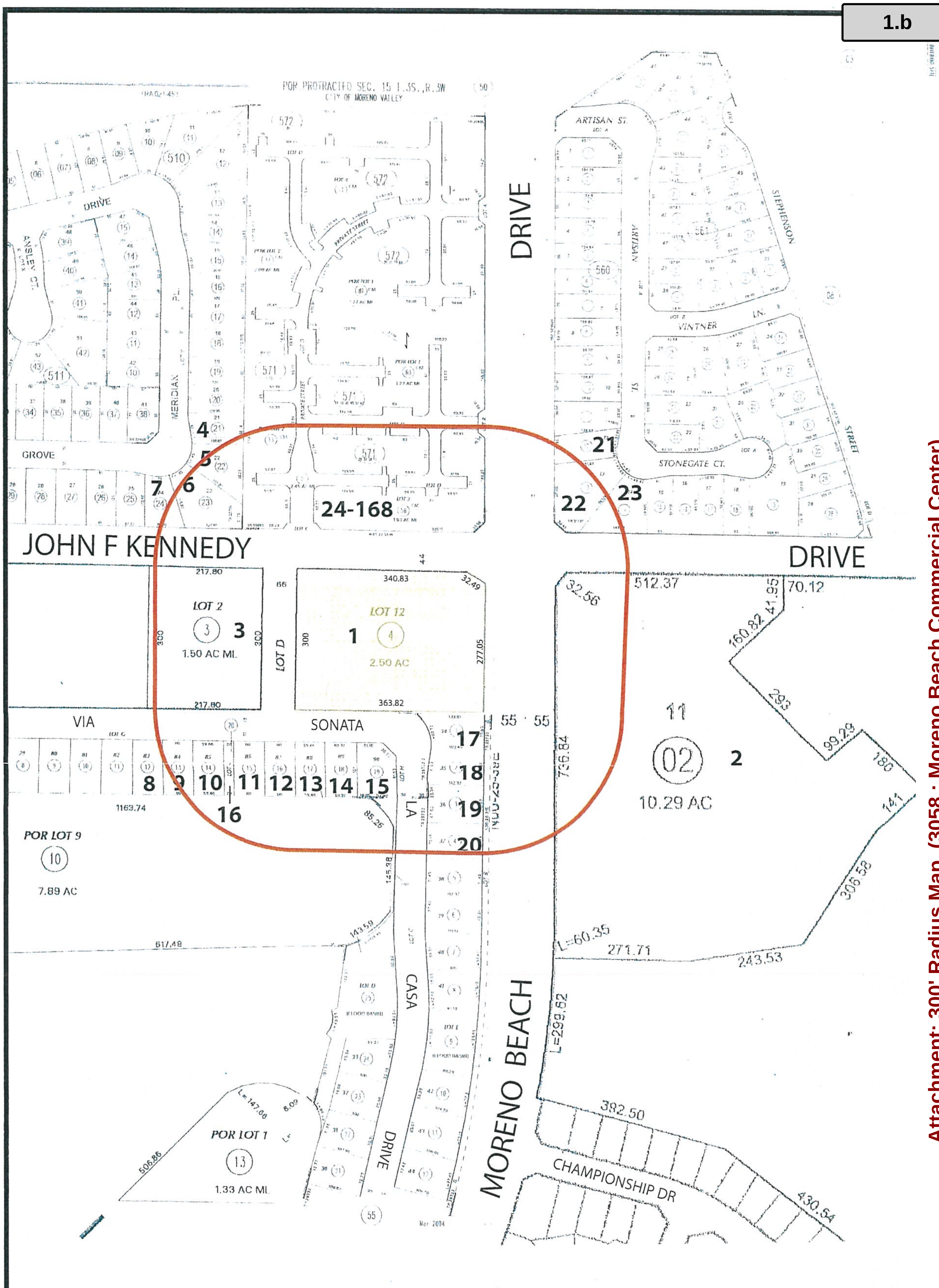
LOCATION N

PLANNING COMMISSION HEARING

City Council Chamber, City Hall
14177 Frederick Street
Moreno Valley, Calif. 92553

DATE AND TIME: April 12, 2018 at 7 PM
CONTACT PLANNER: Jeff Bradshaw
PHONE: (951) 413-3224

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 Guy Pegan, ADA Coordinator, at 951.413.3120 at least 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.



300 FT. RADIUS MAP

MORENO BEACH DRIVE & JOHN F KENNEDY DRIVE
APN: 304-240-004

QMS Quality Mapping Service
14549 Archwood St. Suite 301
Van Nuys, California 91405
Phone (818) 997-7949 - Fax (818) 997-0351
qmapping@qesqms.com

CASE NO:
DATE: 04-07-17
SCALE: 1" = 200'

QMS 17-136

NORTH

Attachment: 300' Radius Map (3058 : Moreno Beach Commercial Center)

PLANNING COMMISSION RESOLUTION NO. 2018-23

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, CERTIFYING THE MITIGATED NEGATIVE DECLARATION AND APPROVING THE MITIGATION MONITORING AND REPORTING PROGRAM FOR THE MORENO BEACH COMMERCIAL CENTER PROJECT (PEN17-0044, PEN17-0045 and PEN17-0046).

WHEREAS, the applicant, Western States Engineering, filed applications for the Moreno Beach Commercial Center Project ("Project"), which include Master Plot Plan PEN17-0044, Plot Plan PEN17-0045, and Conditional Use Permit PEN17-0046. The Project shall not be approved unless the Final Mitigated Negative Declaration (PEN17-0047) is certified and approved; and

WHEREAS, the applications for the Project have been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, an Initial Study, supporting technical studies, and Mitigated Negative Declaration for the Project were prepared, consistent with the California Environmental Quality Act (CEQA); and

WHEREAS, a 20-day public review period of the Initial Study and Mitigated Negative Declaration commenced on March 23, 2018 and concluded on April 11, 2018. The public notice for the Mitigated Negative Declaration was mailed to interested parties, public agencies as well as published in the local newspaper on March 23, 2018; and

WHEREAS, the City, in conducting its own independent analysis of the Final Mitigated Negative Declaration, determined that a Mitigated Negative Declaration is an appropriate environmental determination for the Project as there is substantial evidence that demonstrates the Project with mitigation would not result in any significant environmental impacts; and

WHEREAS, a Mitigation Monitoring and Reporting Program (MMRP) has been prepared in accordance with CEQA Guidelines, and is designed to ensure compliance with the identified mitigation measures outlined in the Final Mitigated Negative Declaration through Project implementation; and

WHEREAS, The City of Moreno Valley, Community Development Department, located at 14177 Frederick Street, Moreno Valley, California 92552 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based; and

WHEREAS, the Planning Commission of the City of Moreno Valley considered the Project, including all environmental documentation, at a public hearing held on April 12, 2018; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA), and based on the Initial Study including all supporting technical evidence, it was determined that the project impacts are expected to be less than significant with mitigation, and approval of a Mitigated Negative Declaration is an appropriate environmental determination for the Project.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This Planning Commission specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on April 12, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:

1. Independent Judgment and Analysis - City staff prepared the Mitigated Negative Declaration/Initial Study and related technical studies prepared for the Moreno Beach Commercial Center. The documents were properly circulated for public review in accordance with the California Environmental Quality Act Guideline. The Mitigated Negative Declaration/Initial Study has been completed along with the Mitigation Monitoring and Reporting Program (MMRP) to ensure compliance with all mitigation through project implementation. All environmental documents that comprise the Mitigated Negative Declaration, including all technical studies were independently reviewed by the City. On the basis of the whole record, there is no substantial evidence that the Project as designed, conditioned, and mitigated, will have a significant effect on the environment. The Mitigated Negative Declaration prepared and completed, in accordance with the CEQA Guidelines, reflects the independent judgment and analysis of the City.

THEREFORE THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY APPROVE Resolution No. 2018-23, and:

1. **CERTIFY** that the Mitigated Negative Declaration prepared for Master Plot Plan PEN17-0044, Plot Plan PEN17-0045 and Conditional Use Permit PEN17-0046 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A and

2. **APPROVE** the Mitigation Monitoring Program prepared for Master Plot Plan PEN17-0044, Plot Plan PEN17-0045 and Conditional Use Permit PEN17-0046, attached hereto as Exhibit B.

APPROVED AND ADOPTED this 12th day of April, 2018.

AYES:
NOES:
ABSTAIN:

____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

____
Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

____
City Attorney

Exhibit A and Exhibit B

MORENO BEACH COMMERCIAL CENTER
S.W.C. JFK & MORENO BEACH DRIVE
MITIGATED NEGATIVE DECLARATION
PLOT PLAN: PEN17-0044

Prepared By:

SAGECREST
planning+environmental
2400 E. Katella Ave., Suite 800
Anaheim, CA 92806

MARCH 2018

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviation	Definition
AB	Assembly Bill
ADT	Average Daily Traffic
AP	Alquist-Priolo
Afy	acre feet per year
AQ	Air Quality
AQMP	Air Quality Management Plan
ASTs	above ground storage tanks
Basin	South Coast Air Basin
BMPs	Best Management Practices
C-Store	Convenience Store
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
Cfs	cubic feet per second
CGS	California Geologic Survey
CHSC	California Health and Safety Code
City	City of Moreno Valley
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Value
CO	carbon monoxide
County	Orange County
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibels
DIF	Development Impact Fee
DOC	Department of Conservation
DPM	Diesel particulate matter
EDR	Environmental Data Resources, Inc.
EMWD	Eastern Municipal Water District
EO	Executive Order
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FEIR	Final Environmental Impact Report
FHWA	Federal Highway Administration
FTIP	Federal Transportation Improvement Program
GHG	greenhouse gas

Acronyms/Abbreviation	Definition
IS	Initial Study
Leq	Equivalent sound level
LOS	level of service
LSTs	Localized Significant Thresholds
MM	Mitigation Measure
MND	Mitigated Negative Declaration
$MTCO_2e$	million metric tons of carbon dioxide equivalent
MVFD	Moreno Valley Fire Department
Mw	Moment Magnitude
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NIA	Noise Impact Analysis
NO_x	Nitrogen oxide
NPDES	National Pollution Discharge Elimination System
OSHA	Occupational Safety and Health Administration
$PM_{2.5}$	fine particulate matter
PM_{10}	Respirable particulate matter
Ppm	parts per million
PPV	peak particle velocity
QSR	Quick Service Restaurant
RCNM	Roadway Construction Noise Model
RMP	Risk Management Plan
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SWPPP	Storm Water Pollution Prevention Plan

Acronyms/Abbreviation	Definition
USTs	underground storage tanks
VOC	volatile organic compound

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SECTION 1.0 INITIAL STUDY/ENVIRONMENTAL CHECKLIST

1. Project Title:	Moreno Valley Commercial Center
2 Lead Agency Name and Address:	City of Moreno Valley 14177 Frederick Street Moreno Valley, CA 92552
3. Contact Person and Phone Number:	Jeff Bradshaw, (951) 413-3224
4. Project Location:	The Project site is located in the City of Moreno Valley at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive.
5. Project Sponsor's Name and Address:	Royal Excel Enterprises 7033 Canoga Ave., #2 Canoga Park, CA 91303
6. General Plan Designation:	Commercial
7. Zoning:	Commercial

8. Description of the Project:

The Proposed Project is a Conditional Use Permit to construct a 76 gas station, convenience store (C-store), quick service restaurant (QSR), sit-down restaurant and automatic carwash located on a 2.5-acre site located at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive in the City of Moreno Valley (Figure 1 Project Location and Boundary Map).

The Project site is vacant and relatively flat. The site has been mowed and is void of most vegetation. A few non-native grasses and ruderal plant species occur along the fence. Ornamental trees occur along the sidewalks adjacent to Via Entrada to the west and Via Sonata to the south. A shallow depression occurs in the northeast corner of the site.

The Proposed Project would consist of a 12-vehicle fueling position gas station with a 4,600-square foot canopy, a 3,400-square foot C-Store, and a 3,518-square foot carwash. The Proposed Project would also include a 2,584-square foot sit-down restaurant, a 1,632-square foot QSR, and a 74-space parking lot (including 64 regular, six clean air and four handicap accessible spaces). The Proposed Site Plan is shown in Figure 2. The Project would also include an outdoor patio and seating area south of the sit-down restaurant, landscaping along the perimeter, hardscape, on-site stormwater management improvements, signs, a trash enclosure, an air & water unit, area lighting, and a class II bicycle parking rack with a five-bike capacity. Biorention basins would be provided in the linear landscape strips along the north, west and south property lines as shown in the Preliminary Grading Plan (Figure 3). Operational hours are anticipated to be 24-hours per day, 7 days per week with operation expected to start in 2018.

The Project applicant would incorporate two Project Design Features to ensure compliance with applicable plans adopted for the purpose of reducing greenhouse gas emissions (GHG). These include the following:

Project Design Feature 1
The project applicant shall institute a transportation demand program that is open to all employees. The transportation demand program shall include a board in the employee break room that details information on ride sharing, bus routes, bicycling to work, and any other alternative transportation methods available to the Project site. The project applicant shall designate an employee to be responsible for maintaining the board and for coordinating employees interested in participating in the ride sharing portion of the program.

Project Design Feature 2
The project applicant shall provide separate onsite bins for disposal of recyclables and trash.

Project Construction

The project construction process consists of site preparation, grading, building construction, and paving. Project grading is anticipated to begin early Summer 2018 with project construction commencing late Summer 2018. Project buildout is expected to be completed by Winter 2018.

- Site Preparation: The site preparation phase would consist of removing any vegetation, tree stumps, and stones.
- Grading: The grading phase would occur after the completion of the site preparation phase.
- Building Construction: The building construction would occur after the completion of the grading phase.
- Paving: The paving phase would occur after the completion of the building construction phase. The paving phase would include the paving of approximately three acres of onsite roads.
- Architectural Coating: The application of architectural coatings would occur after the completion of the paving phase.

Although the paving and architectural coating phases are projected to occur consecutively after the completion of the building construction phase, it is possible that all three phases may occur concurrently.

9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)
The Project site is located in the southeast portion of the City of Moreno Valley at the southwest corner of John F. Kennedy Drive and Moreno Beach Drive. Surrounding land uses include single-family residential uses to the north, south and east; and a municipal storage yard to the west, as shown in Figure 1. Further west of the storage yard is Fairway Park and Landmark Middle School. The Project site is approximately half a mile north and west of the Upland Game Hunting Area and 2.5 miles south of State Route (SR) 60. In Addition, Lake Perris is approximately 8 miles to the south.

10. Other public agencies whose approval is required (e.g. permits, financing approval, or participation agreement).
Santa Ana Regional Water Quality Control Board (NPDES Permit); Eastern Municipal Water District (domestic water and sewer system design).

11. 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, has consultation begun?

Yes, the City of Moreno Valley has conducted the consultation pursuant to Public Resources Code section 21090.3.1.

Legend:

Project

N

Figure 1: Project Location and Bou

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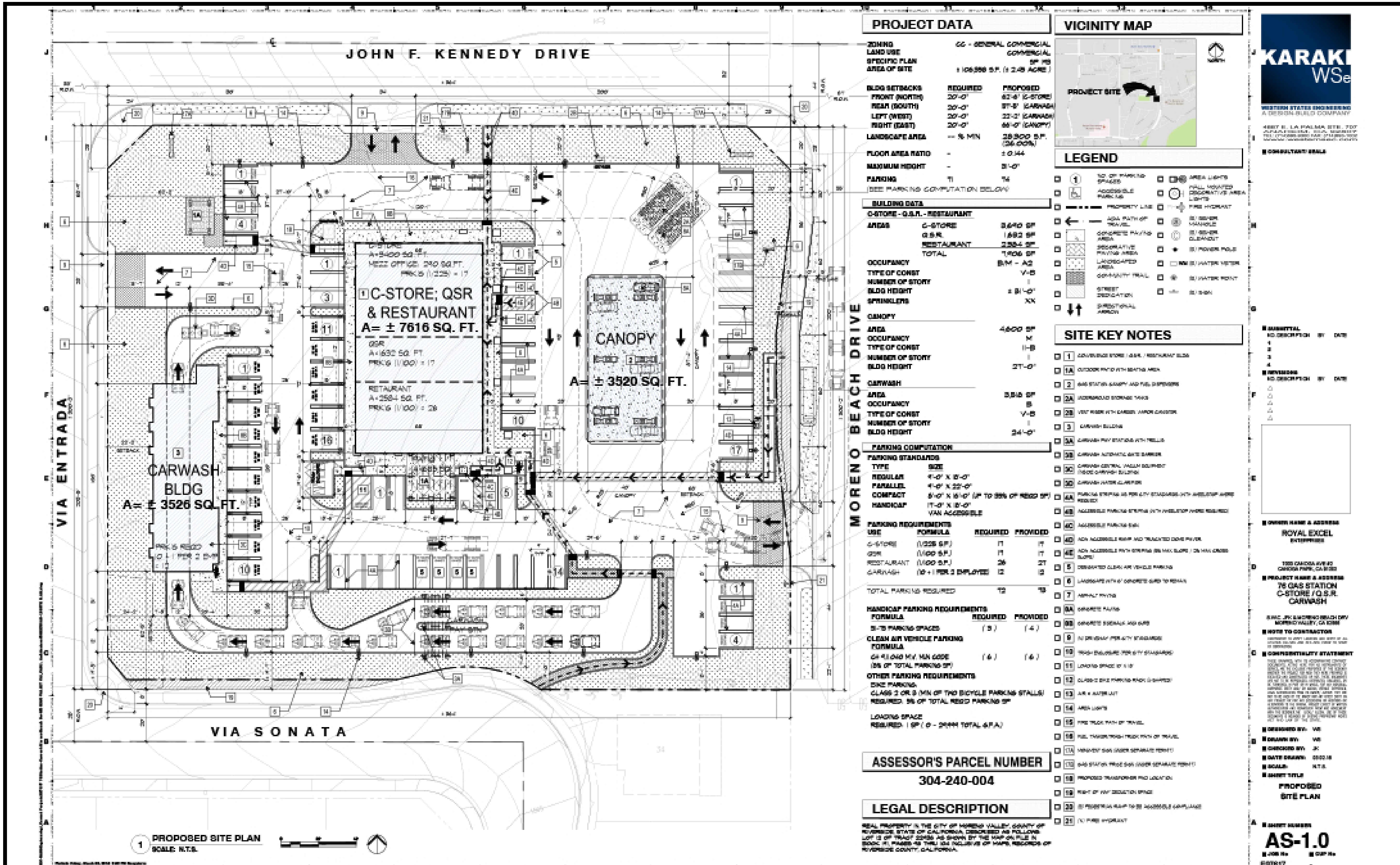

Figure 2: Conceptual Site Plan

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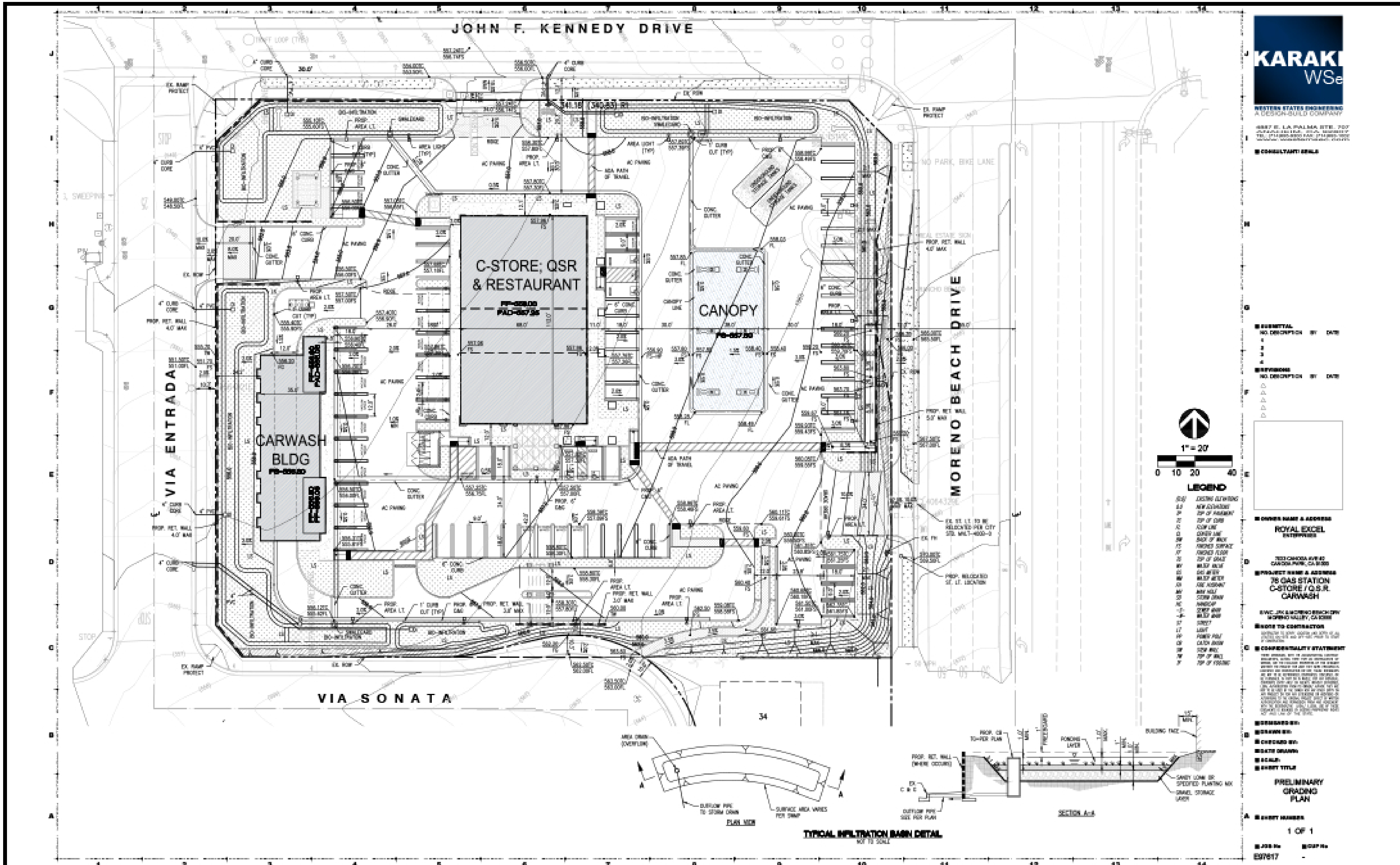

Figure 3: Preliminary Grading Plan

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SECTION 2.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT COMPLIANCE

This document evaluates the environmental impacts associated with the development and occupancy of a 76 gas station, convenience store, quick service restaurant (QSR), restaurant and carwash, as well as the associated infrastructure (Proposed Project) on an approximately 2.5 acre Project site. The project applicant is Royal Excel Enterprises (Applicant).

The Proposed Project is considered to be a project under the California Environmental Quality Act (Public Resource Code § 21000 et seq.: "CEQA"). The primary purpose of CEQA is to inform the public and decision makers as to the potential impacts of a project and to allow an opportunity for public input to ensure informed decision-making. CEQA requires all state and local government agencies to consider the environmental effects of projects over which they have discretionary authority. CEQA also requires each public agency to mitigate or avoid any significant environmental impacts resulting from the implementation of projects subject to CEQA.

The City of Moreno Valley, as the lead agency for the Proposed Project, is responsible for preparing environmental documentation in accordance with CEQA to determine if approval of the discretionary actions requested and subsequent development of the Proposed Project could have a significant impact on the environment.

2.1 California Environmental Quality Act Compliance

As provided in Public Resources Code Section 21064.5, a Mitigated Negative Declaration may be prepared for a project that is subject to CEQA when an Initial Study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed Negative Declaration and Initial Study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.

Based on the Initial Study (IS) prepared for the Proposed Project, a Mitigated Negative Declaration (MND) has been prepared for the Proposed Project.

The MND has been prepared in conformance with Section 15070(b) of the State CEQA Guidelines. The purpose of the MND and the Initial Study Checklist/Environmental Evaluation is to identify any potentially significant impacts associated with the Proposed Project and incorporate mitigation measures into the Proposed Project as necessary to eliminate the potentially significant effects of the Proposed Project or to reduce the effects to a level of insignificance.

2.2 Content and Format of a Mitigated Negative Declaration

The Draft MND is an informational document intended to disclose to agencies and to the public the environmental consequences of approving and implementing the Proposed Project. This MND includes the following:

Section 1.0 Initial Study/Environmental Checklist: This section provides information as contained in the City of Moreno Valley's Initial Study/Environmental Checklist, including a detailed description of the Proposed Project evaluated in this MND.

Section 2.0, Environmental Impact Analysis: This section introduces CEQA and defines the purposes for preparation of an MND and information pertaining to the public review process.

Section 3.0, Environmental Impact Analysis: This section provides a determination of the level of significance of the Proposed Project's environmental effects, a detailed analysis of environmental issues and concerns surrounding the project, and corresponding mitigation measures to lessen potentially significant impacts.

Section 4.0, References: This section provides a list of references used to prepare the MND.

2.3 Public Review Process

Pursuant to State CEQA Guidelines Section 15105(b), the Draft MND will be available for a 20-day public review and comment period from March 23, 2018 to April 11, 2018 on the City of Moreno Valley's website (www.moval.org, go to the Planning Department and click on the link to Current Environmental Documents) and at the following locations:

City of Moreno Valley
Planning Department
14177 Frederick St.
Moreno Valley, CA 92552

Moreno Valley Public Library
Central Library
25480 Alessandro Blvd.
Moreno Valley, CA 92553

In reviewing the Draft MND, affected public agencies and the interested public should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment, as well as ways in which the significant effects of the project are proposed to be avoided or mitigated.

Comments may be made on the Draft MND in writing before the end of the comment period. Following the close of the public comment period, the County will consider this MND and comments thereto in determining whether to approve the Proposed Project. Written comments on the Draft MND should be sent to the following address by April 11, 2018:

City of Moreno Valley Planning Department
Attn: Jeff Bradshaw, Planner
14177 Frederick Street
Moreno Valley, CA 92552
(951) 413-3206
jeffreyb@moval.org

SECTION 3.0 EVALUATION OF ENVIRONMENTAL IMPACTS

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.

☐ Aesthetics	☐ Agriculture & Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☒ Noise
☐ Paleontological Resources	☐ Population/Housing	☐ Public Services
☐ Recreation	☒ Transportation/Traffic	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ 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 impact" 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.

Signature ______________________ Date ______________

3.1 Aesthetics

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant: A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. The City of Moreno Valley lies on a relatively flat valley floor surrounded by rugged hills and mountains. The City is afforded outstanding scenic vistas of the Box Springs Mountains and Reche Canyon area to the north, the "Badlands" to the east, and the Mount Russell area to the south.

Moreno Peak is part of a prominent landform located south of State Route 60 along Moreno Beach Drive. This landform only rises a few hundred feet above the valley floor but has a unique location near the center of the valley. Moreno Beach Drive, the main route to Lake Perris from State Route 60, offers views of Moreno Peak and panoramic view of Moreno Valley.

The Project site is relatively flat like most of the valley floor. Moreno Beach Drive forms the eastern boundary of the site. The setback distance from Moreno Beach Drive to the 24-foot high carwash (the nearest building from the street) is 22 feet, which exceeds the minimum 10-foot setback requirement. Due to the low profile and sufficient setback, the Project would not block any views of the hill/mountain backdrops viewed from Moreno Beach Drive or elsewhere on the site, and the Project would not have a substantial adverse effect on a scenic vista. Impacts would be less than significant.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact: The Project is not located on or within close proximity of a state scenic highway and therefore will not substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. There are no existing rock outcroppings or historic buildings present on the site. Therefore, no impacts would occur and no mitigation measures are required.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less Than Significant: The Project will not substantially degrade the existing visual character or quality of the site and its surroundings. The Project site is located in an urbanized area within a commercial land use district. The Project site is currently vacant and would be developed with a cohesively designed gas station, c-store/restaurant building and carwash. The Municipal Code contains design guidelines that regulate the aesthetic quality of new development with respect to structures, signs, walls, landscaping and other improvements. Existing regulations also require night lighting for non-residential developments to be shielded where appropriate to reduce the intensity of light that spills on neighboring properties. No structures are being proposed that would diminish the existing visual character of the area or block views of the mountains. The project is consistent with the intended land use for the area and meets development standards guiding the visual character of the site, including standards designed to ensure the compatibility of the site with adjacent residential uses. The Project maintains a suitable +/-20-foot landscape buffer along the perimeter. The stone veneer and stucco siding of the convenience store, screening of exterior mechanical equipment, and setbacks for both fuel pumping stations from the property line help contribute to an aesthetic quality of the site. While the Project will markedly change the visual quality of the Project site from a vacant lot to a gas station, c-store/restaurant building and carwash, it would not degrade the existing visual character or quality of the site or surroundings. Impacts would be less than significant.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant: The Project will not create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area because all lighting proposed onsite will be designed in accordance with the Municipal Code, which regulates lighting and glare. Specifically, Section 9.10.110 (Light and Glare) specifies that “no operation, activity, sign or lighting fixture shall create illumination which exceeds 0.5 foot candles minimum maintained on any adjacent property, whether the illumination is direct or indirect light from the source. All lighting shall be designed to project down-ward and shall not create glare on adjacent properties.” This standard code requirement will ensure that the Project will not create a new source of substantial light or glare. Proposed lighting is located along the inner edge of the landscape buffer along the perimeter of the site, which would not interfere with on-coming traffic on adjacent roadways nor cause a nuisance to adjacent properties. A professionally prepared outdoor lighting plan will be required as a standard requirement for this project. Impacts are considered less than significant.

3.2 Agriculture and Forestry Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

Would the project:	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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a) *Would the project 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?*

No Impact: According to the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program Important Farmland map database (DOC 2017), the project is designated as Urban and Built-Up Land. The Project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, there would be no impact, as the Proposed Project would not convert farmland to non-agricultural use.

b) *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact: The subject property is not designated or zoned for agricultural use and the Project does not conflict with any agricultural land use or Williamson Act land conservation contract. Therefore, no impacts would occur and no mitigation measures are required.

c) *Would the project 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))?*

No Impact: Public Resources Code 12220 (g) defines forestland as that which "can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." CA Government Code 51104 (g) identifies a timberland production zone as "an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses." The Project site is located within an urbanized area, and is not located near or adjacent to forestland, timberland, or timberland zoned Timberland Production. As such the Proposed Project would not conflict with existing zoning for, or cause rezoning of forestland or timberland. No impacts associated with forestland or timberland zoning would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact: The Project would not result in the loss of forest land or conversion of forest land to non-forest use. The Project area has never been designated as forest land or timberland. The Project does not include forest land. Therefore, no impacts would occur and no mitigation measures are required.

e) Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact: The Project will not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to a non-agricultural use because there are no parcels within the vicinity of the subject property that are designated as Farmland of any kind or used for agricultural purposes. Therefore, no impacts would occur and no mitigation measures are required.

3.3 Air Quality

Would the project:	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?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

The following analysis is based on an Air Quality (AQ) and Greenhouse Gas Emissions (GHG) Impact Analysis provided in Appendix A (*Air Quality and Greenhouse Gas Emissions Impact Analysis*, Vista Environmental, January 2018).

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant: The Project area is located within the South Coast Air Basin (SCAB), regulated by the South Coast Air Quality Management District (SCAQMD). The air quality plan that applies to the Proposed Project is the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the Proposed Project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

A Proposed Project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

CRITERION 1 - INCREASE IN THE FREQUENCY OR SEVERITY OF VIOLATIONS?

Based on the air quality modeling analysis contained in the AQ and GHG Impact Analysis, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional or local thresholds of significance. The ongoing operation of the Proposed Project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the results of the Impact Analysis, the Proposed Project would be consistent with the first criterion.

CRITERION 2 - EXCEED ASSUMPTIONS IN THE AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the Proposed Project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the Proposed Project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Federal Transportation Improvement Program (FTIP). The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on on the Southern California Association of Governments (SCAG) and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Moreno Valley General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The Proposed Project is currently designated as Commercial (C) in the General Plan and is zoned Commercial (C). The Proposed Project is consistent with the current land use designation and would not require a General Plan Amendment or zone change. As such, the Proposed Project is not anticipated to exceed the AQMP assumptions for the Project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the Proposed Project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

b) *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Less Than Significant: Based on the AQ and GHG Impact Analysis, the Proposed Project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. The following section calculates the potential air emissions associated with the construction and operations of the Proposed Project and compares the emissions to the SCAQMD standards.

Construction Emissions

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 2.5-acre Project site; building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant; paving of the onsite driveways and parking areas; and application of architectural coatings. The construction emissions were analyzed in the AQ and GHG Impact Analysis for both regional and local air quality impacts as well as potential toxic air impacts.

CONSTRUCTION-RELATED REGIONAL IMPACTS

The CalEEMod model was utilized to calculate the construction-related regional emissions from the Proposed Project. The worst-case summer or winter daily construction-related criteria pollutant emissions from the Proposed Project for each phase of construction activities are shown below in Table A and the CalEEMod daily printouts are shown in Appendix B of the Impact Analysis. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently, Table A also shows the combined criteria pollutant emissions from building construction, paving, and architectural coating phases of construction.

Table A – Construction-Related Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	VOC	NOx	CO	SO_2	PM10	PM2.5
Site Preparation[1]						
Onsite[2]	1.90	23.62	12.75	0.02	1.57	0.94
Offsite[3]	0.07	0.76	0.54	0.00	0.13	0.04
Total	**1.97**	**24.38**	**13.29**	**0.02**	**1.70**	**0.98**
Grading[1]						
Onsite	2.15	24.29	10.38	0.02	3.72	2.39
Offsite	0.08	0.77	0.64	0.00	0.16	0.05
Total	**2.23**	**25.06**	**11.02**	**0.02**	**3.88**	**2.44**
Building Construction						
Onsite	2.91	20.71	15.72	0.03	1.26	1.21
Offsite	0.13	0.92	1.05	0.00	0.25	0.07
Total	**3.04**	**21.63**	**16.77**	**0.03**	**1.51**	**1.28**
Paving						
Onsite	1.63	12.57	11.85	0.02	0.73	0.67
Offsite	0.08	0.05	0.67	0.00	0.17	0.05
Total	**1.71**	**12.62**	**12.52**	**0.02**	**0.90**	**0.72**
Architectural Coatings						
Onsite	7.97	1.84	1.84	0.00	0.13	0.13
Offsite	0.02	0.01	0.18	0.00	0.05	0.01
Total	**7.99**	**1.85**	**2.02**	**0.00**	**0.18**	**0.14**

Combined Building Construction, Paving, and Architectural Coatings	**12.74**	**36.10**	**31.31**	**0.05**	**2.59**	**2.14**
SCQAMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Site Preparation and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] Onsite emissions from equipment not operated on public roads.
[3] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod Version 2016.3.2.

Table A shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during site preparation or grading or the combined building construction, paving, and architectural coatings phases. Therefore, a less than significant regional air quality impact would occur from construction of the Proposed Project.

CONSTRUCTION-RELATED LOCAL IMPACTS

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from construction were analyzed through utilizing the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria pollutant emissions of concern are nitrogen oxide (NO_x), carbon monoxide (CO), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NO_x, PM_{10}, and $PM_{2.5}$ from the Proposed Project could result in a significant impact to the local air quality. Table 2 below (taken from Table J of the AQ and GHG Impact Analysis) shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated localized emissions thresholds that are detailed in Section 8.2 of the Impact Analysis. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently, Table 2 also shows the combined local criteria pollutant emissions from building construction, paving and architectural coating phases of construction.

Table 2 – Construction-Related Local Criteria Pollutant Emissions

Phase	Pollutant Emissions (pounds/day)			
	NOx	**CO**	**PM10**	**PM2.5**
Site Preparation[1]	23.62	12.75	1.57	0.94
Grading[1]	24.29	10.38	3.72	2.39
Combined Building Construction, Paving, Gravel Installation and Architectural Coatings	35.12	29.41	2.12	2.01
- *Building Construction*	*20.71*	*15.72*	*1.26*	*1.21*
- *Paving*	*12.57*	*11.85*	*0.73*	*0.67*
- *Architectural Coatings*	*1.84*	*1.84*	*0.13*	*0.13*
SCAQMD Thresholds for 25 meters (82 feet)[2]	**170**	**883**	**7**	**4**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Site Preparation and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] The nearest sensitive receptor is a single-family home located adjacent to the southern side of the Project site.

According to SCAQMD Methodology, all receptors closer than 25 meters are based on the 25 meter threshold.
Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres in Air Monitoring Area 24.

The data provided in Table 2 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either the site preparation or grading phases or the combined building construction, paving, and architectural coatings phases. Therefore, a less than significant local air quality impact would occur from construction of the Proposed Project.

Operational Emissions

The on-going operation of the Proposed Project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the Proposed Project. The following section provides an analysis of potential long-term air quality impacts due to regional air quality and local air quality impacts with the on-going operations of the Proposed Project.

OPERATIONS-RELATED CRITERIA POLLUTANT ANALYSIS

The operations-related criteria air quality impacts created by the Proposed Project were analyzed through use of the CalEEMod model and the input parameters utilized in this analysis are detailed in Section 7.2 of the AQ and GHG Impact Analysis. The worst-case summer or winter volatile organic compounds (VOC), NO_x, CO, sulfur dioxide (SO_2), PM_{10}, and $PM_{2.5}$ daily emissions created from the Proposed Project's long-term operations have been calculated and are summarized below in Table of the AQ and GHG Impact Analysis) and the CalEEMod daily emissions printouts are shown in Appendix B of the Impact Analysis.

Table 3 – Operational Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	0.37	0.00	0.01	0.00	0.00	0.00
Energy Usage[2]	0.05	0.41	0.34	0.00	0.03	0.03
Mobile Sources[3]	5.85	34.66	35.60	0.12	6.22	1.74
Total Emissions	**6.27**	**35.07**	**35.95**	**0.12**	**6.25**	**1.77**
SCQAMD Operational Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (excluding hearths).
[3] Mobile sources consist of emissions from vehicles and road dust.
Source: Calculated from CalEEMod Version 2016.3.2.

The data provided in Table 3 above shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the Proposed Project.

OPERATIONS-RELATED LOCAL AIR QUALITY IMPACTS

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The Proposed Project was analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analyzes the vehicular CO emissions and local impacts from on-site operations.

Local CO Hotspot Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with Project CO levels to the State and Federal CO standards of 20 parts per million (ppm) over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. In 2007, the Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los Angeles during the peak morning and afternoon periods and did not predict a violation of CO standards[1]. Since the nearby intersections to the Proposed Project are much smaller with less traffic than what was analyzed by the SCAQMD, no local CO Hotspot are anticipated to be created from the Proposed Project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the Proposed Project.

Local Criteria Pollutant Impacts from Onsite Operations

Project-related air emissions from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from onsite operations were analyzed using the SCAQMD's Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NO_x, PM_{10}, and $PM_{2.5}$ from the Proposed Project could result in a significant impact to the local air quality. Table 4 below (taken from Table L in the AQ and GHG Impact Analysis) shows the on-site emissions from the CalEEMod model that includes area sources, energy usage, and vehicles operating in the immediate vicinity of the Project site and the calculated emissions thresholds.

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[1] The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour.

Table 4 – Operations-Related Local Criteria Pollutant Emissions

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Area Sources	0.00	0.01	0.00	0.00
Energy Usage	0.41	0.34	0.03	0.03
Onsite Vehicle Emissions[1]	4.33	4.45	0.78	0.22
Total Emissions	**4.74**	**4.80**	**0.81**	**0.25**
SCAQMD Thresholds for 25 meters (82 feet)[2]	**170**	**883**	**2**	**1**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Onsite vehicle emissions based on 1/8 of the gross vehicular emissions, which is the estimated portion of vehicle emissions occurring within a quarter mile of the Project site.
[2] The nearest sensitive receptor is a single-family homes located adjacent to the south side of the Project site. According to SCAQMD Methodology, all receptors closer than 25 meters are based on the 25 meter threshold.
Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres in Air Monitoring Area 24.

The data provided in Table 4 shows that the on-going operations of the Proposed Project would not exceed the local NO_x, CO, PM_{10} and $PM_{2.5}$ thresholds of significance. Therefore, the on-going operations of the Proposed Project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Summary

Construction of the Proposed Project would not result in significant regional or local air quality impacts. Additionally, the Proposed Project would not contribute substantially to an existing or projected air quality violation due to emissions. No mitigation measures would be required.

c) *Would the project 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Less Than Significant: The Proposed Project would not 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel throughout the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for the Project's air quality must be generic by nature. The Project area is out of attainment for ozone and PM_{10} and $PM_{2.5}$ particulate matter. In accordance with CEQA Guidelines Section 15130(b), this analysis of cumulative impacts incorporates a three-tiered approach to assess cumulative air quality impacts.

- Consistency with the SCAQMD project specific thresholds for construction and operations;

- Project consistency with existing air quality plans; and
- Assessment of the cumulative health effects of the pollutants.

Consistency with Project Specific Thresholds

CONSTRUCTION-RELATED IMPACTS

The Project site is located in the South Coast Air Basin, which is currently designated by the Environmental Protection Agency (EPA) for federal standards as a non-attainment area for ozone and $PM_{2.5}$ and by the California Air Resources Board (CARB) for the state standards as a non-attainment area for ozone, PM_{10}, and $PM_{2.5}$. The regional ozone, PM_{10}, and $PM_{2.5}$ emissions associated with construction of the Proposed Project have been calculated in Section 9.3 of the AQ and GHG Impact Analysis. The analysis found that development of the Proposed Project would result in less than significant regional emissions of VOC and NO_x (ozone precursors), PM_{10}, and $PM_{2.5}$ during construction of the Proposed Project. Therefore, a less than significant cumulative impact would occur from construction of the Proposed Project.

OPERATIONAL-RELATED IMPACTS

The greatest cumulative operational impact on the air quality to the Air Basin will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development. In accordance with SCAQMD methodology, projects that do not exceed SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The regional ozone, PM_{10}, and $PM_{2.5}$ emissions created from the on-going operations of the Proposed Project have been calculated in Section 9.3 of the AQ and GHG Impact Analysis. The analysis found that development of the Proposed Project would result in less than significant regional emissions of VOC and NOx (ozone precursors), PM_{10}, and $PM_{2.5}$ during operation of the Proposed Project. With respect to long-term emissions, this Project would create a less than significant cumulative impact.

Consistency with Air Quality Plans

As detailed in Section 9.2 of the AQ and GHG Impact Analysis, the Project site is currently designated as Commercial (C) in the General Plan and is zoned Commercial (C). The Proposed Project is consistent with the current land use designation and would not require a General Plan Amendment or zone change. Therefore, the Proposed Project would not result in an inconsistency with the current land use designation. As such, the Proposed Project is not anticipated to exceed the AQMP assumptions for the Project site and is found to be consistent with the AQMPs for the Air Basin.

Cumulative Health Impacts

The Air Basin is designated as nonattainment for ozone, PM_{10}, and $PM_{2.5}$, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (elderly, children, and the sick). Therefore, when the concentrations of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects. The regional analysis detailed in Section 9.3 of the AQ and GHG Impact Analysis found that the Proposed Project would not exceed the SCAQMD regional significance thresholds for VOC and NOx (ozone precursors), PM_{10} and $PM_{2.5}$. As such, the Proposed Project would result in a less than significant cumulative health impact.

Summary

The Proposed Project would not exceed the SCAQMD thresholds for construction and operations emissions, would be consistent with the AQMP for the Basin, and would result in a less than significant cumulative health impact. Therefore, cumulative impacts would be considered less than significant.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant: The Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the Proposed Project, which may expose sensitive receptors to substantial concentrations have been calculated in Section 9.3 of the AQ and GHG Impact Analysis for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest sensitive receptor to the Project site consists of a single-family home located adjacent to the south side of the Project site.

Construction-Related Sensitive Receptor Impacts

Construction of the Proposed Project may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

LOCAL CRITERIA POLLUTANT IMPACTS FROM CONSTRUCTION

The local air quality impacts from construction of the Proposed Project were analyzed in Section 9.3 of the AQ and GHG Impact Analysis and found that the construction of the Proposed Project would not exceed the local NO_x, CO, PM_{10} and $PM_{2.5}$ thresholds of significance. Therefore, construction of the Proposed Project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

TOXIC AIR CONTAMINANTS IMPACTS FROM CONSTRUCTION

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the Proposed Project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the Proposed Project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet’s usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the Proposed

Project. As such, construction of the Proposed Project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the Proposed Project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the Project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and toxic air contaminant impacts.

LOCAL CO HOTSPOT IMPACTS FROM PROJECT-GENERATED VEHICLE TRIPS

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided in Section 9.3 of the AQ and GHG Impact Analysis showed that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the Proposed Project. Therefore, operation of the Proposed Project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

LOCAL CRITERIA POLLUTANT IMPACTS FROM ONSITE OPERATIONS

The local air quality impacts from the operation of the Proposed Project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided in Section 9.3 of the AQ and GHG Impact Analysis found that the operation of the Proposed Project would not exceed the local NO_x, CO, PM_{10} and $PM_{2.5}$ thresholds of significance. Therefore, the on-going operations of the Proposed Project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

OPERATIONS-RELATED TOXIC AIR CONTAMINANT IMPACTS

The Proposed Project would include a 12-fueling position gas and diesel station that has been estimated to have a throughput of 1.5 million gallons of gasoline per year. The *Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations* (Gas Station Risk Assessment), prepared by SCAQMD, January 2007, analyzed the TAC emissions and associated cancer risks from gasoline dispensing facilities at locations throughout the Air Basin. It should be noted that the Proposed Project would also sell diesel fuel, however the Gas Station Risk Assessment did not find diesel fueling activities as a source of substantial TAC emissions and therefore this analysis has been limited to the analysis of TAC emissions created from gasoline dispensing stations.

The Gas Station Risk Assessment provides residential cancer risk Look Up Tables for representative monitoring stations throughout Southern California. The Riverside Monitoring Station data from the Look Up Tables was utilized as that is the nearest location provided in the Look Up Tables to the Project site. Based on a worst-case analysis of the nearest homes being located as near as 44 meters (145 feet) downwind from the gas fuel dispensers, the Look Up Tables show that a one million gallon per year gas throughput gas station would create a residential cancer risk of 2.21 per million persons. Based on the formula provided in the Gas Station Risk Assessment, the Proposed Project with a throughput of 1.5 million gallons per year would create a cancer risk of 3.3 per million persons. The project-related cancer risk of 3.3 per million persons would be within the SCAQMD's threshold of 10 per million. As such, the TAC emissions and associated cancer risks from the proposed gas station would result in a less than significant impact to the nearby residents.

Therefore, operation of the Proposed Project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

e) Would the project create objectionable odors affecting a substantial number of people?

Less Than Significant: The Proposed Project would not create objectionable odors affecting a substantial number of people. Potential odor impacts were analyzed in the AQ and GHG Impact Analysis separately for construction and operations below.

Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the Project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality that is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. The objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The Proposed Project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. Potential sources that may emit odors during the on-going operations of the Proposed Project would primarily occur from odor emissions from gas dispensing activities, restaurant cooking emissions, and from the trash storage area. Pursuant to SCAQMD Rule 461 the proposed gas station would be required to utilize gas dispensing equipment that minimizes vapor and liquid leaks and requires that the equipment be maintained at proper working order, which will minimize odor impacts occurring from the gasoline and diesel dispensing facilities. Pursuant to SCAQMD Rule 1138, a catalytic oxidizer is required to be installed if a charbroiler is installed in either restaurant, which would limit cooking odor emissions. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. Diesel truck emissions odors would be generated intermittently from deliveries to the Project site and would not likely be noticeable for extended periods of time beyond the Project site boundaries. Due to the distance of the nearest receptors from the Project site and through compliance with SCAQMD's Rules 461 and 1138 and City trash storage regulations, no significant impact related to odors would occur during the on-going operations of the Proposed Project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

3.4 Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐
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 US Fish and Wildlife Service?	☐	☐	☐	☒
c) 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?	☐	☐	☐	☒
d) 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?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

a) *Would the project 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?*

Less Than Significant With Mitigation Incorporated: The California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS) may list species as threatened or endangered under the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA). The USFWS can designate specific areas that are essential to the conservation of a listed species. A burrowing owl survey is required in accordance with the Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Therefore, as part of this Project, a MSHCP Burrowing Owl Habitat Assessment was prepared and is included as Appendix B (*Letter Report of Findings for a MSHCP Burrowing Owl Habitat Assessment for the Moreno Beach Commercial Center, City of Moreno Valley, Riverside County, California,* Kelly Rios, December 7, 2017). The survey found that the Project site contains a few ground squirrel burrows along the chain link fence and scattered throughout the Project site. The presence of burrows provides potential habitat for burrowing owl. Although no signs of burrowing owl were observed such as whitewash or pellets, the report concluded that focused burrowing owl surveys should be completed during the breeding season (March 1 – August 31). Focused surveys consist of four surveys conducted on four different days during the breeding season in accordance with the Riverside Conservation Authority (RCA) Report Regarding Burrowing Owl Surveys, 2005. A pre-construction survey was also recommended within 30 days of ground disturbing activities.

Project construction could result in impacts to other nesting individuals including the loss of nests, eggs, and fledglings if tree removal, vegetation clearing and ground-disturbing activities occur during the nesting season. This impact is potentially significant because substantial direct impacts to individuals of designated special-status species, if present, could occur during a critical period of these species' life cycles and may result in reduced reproductive success. Potential impacts could occur to the burrowing owl. Implementation of Mitigation Measure BIO-1 below would reduce impacts to special status species to less than significant.

Mitigation Measures:

MM-BIO-1: If construction activities are to take place during the avian nesting season (February 15 through August 31 for most bird species), a pre-construction survey for nesting bird species shall be conducted within 7 days prior to vegetation removal. The survey will identify any active nesting by special-status birds on the Project site or within 500 feet of construction activities. If active nests of special-status birds are present in the impact area or within 500 feet of the edge of construction area, a qualified biologist shall prescribe avoidance measures including, but not limited to, establishing a construction buffer. The type of species, nesting stage, surround topography, existing conditions, and type of construction activity will determine the appropriate avoidance measures. Avoidance measures shall remain in place until the nest is no longer active as determined by a qualified biologist.

b) *Would the project 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 US Fish and Wildlife Service?*

No Impact: Riparian habitat is composed of the trees and other vegetation and physical features normally found on the stream banks and flood plains associated with streams, lakes, or other bodies of water. The Project implementation would not have any impacts to sensitive or regulated habitat because the Project site is devoid of native riparian vegetation or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Services (USFWS). No drainage features, ponded areas, or riparian habitat potentially subject to jurisdiction by CDFW, U.S. Army Corps of Engineers (ACOE) and/or Regional Water Quality Control Board (RWQCB) were found within the project site.

c) *Would the project 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?*

No Impact: This Project will not have an 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, because the Project is not within an identified protected wetland. Therefore, no impacts would occur and no mitigation measures are required.

d) *Would the project 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?*

Less Than Significant: The Project site is disturbed and does not support a diversity of native wildlife. Paved roads, fencing, and developed land surrounding the Project site block terrestrial wildlife movement from all directions. Wildlife movement corridors in western Riverside County and the City of Moreno Valley are addressed by the conservation requirements specified in the Western Riverside County MSHCP, and the Project site is not identified for conservation as part of the MSHCP. Accordingly, the site is not considered to be a wildlife movement corridor. The project will not 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, because there are no such corridors or nursery sites within or near the project site. Therefore, impacts are less than significant.

e) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No Impact: The only applicable local ordinance protecting biological resources is the City's Landscape and Irrigation Design Standards ("Landscape Ordinance," Municipal Code Chapter 9.17.030). The Landscape Ordinance specifies requirements that would apply to projects that require the removal of existing mature trees. However, the Applicant does not propose to remove any mature trees as part of the construction process. Therefore, no impact would occur.

f) *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

Less Than Significant: The Project site is subject to the provisions of the Western Riverside County MSHCP. The proposed Project will be required to comply with City of Moreno Valley Municipal Code Title 3, Chapter 3.48, "Western Riverside County Multiple Species Habitat Conservation Plan Fee Program," which requires a per-acre local development mitigation fee to implement the MSHCP. The Project site is not located within one of the targeted conservation cells of the MSHCP. The Project site is, however, subject to the survey and conservation requirements of MSHCP Section 6.3.2 (Species Survey Requirements), which requires the preparation of a habitat assessment for the western burrowing owl. Pursuant to Section 6.3.2 of the MHSCP, a burrowing owl site assessment was prepared for the Project site, and the findings of the site assessment are described in Section 3.4(a) above. Impacts would be less than significant.

3.5 Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

No Impact: The Project site is undeveloped and contains no developed features (i.e., structures). A Cultural and Paleontological Resources Assessment (Cultural Assessment) was prepared for the Proposed Project and is included as Appendix C (*Cultural and Paleontological Resources Assessment for the Moreno Beach Commercial Center Project, City of Moreno Valley, Riverside County, California*, Cogstone, January 2018). A search for archaeological and historical records was completed for the Cultural Assessment at the Eastern Information Center (EIC). The records search determined that there are no previously recorded cultural resources located within the Project boundaries. A total of 18 cultural resources have been previously documented outside of the Project area but within the one-mile search radius. These consist of two prehistoric camp sites with milling features and rock paintings, 12 prehistoric archaeological milling slick sites, one prehistoric archaeological milling slick site with possible storage rock ring, two historic archaeological irrigation remnant sites, and one historic spring house. Accordingly, the Project has no potential to impact a historical resource as defined by CEQA.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less Than Significant With Mitigation Incorporated: See response to 3.5(a) above. Based on negative cultural survey results and the lack of archaeological sites other than bedrock milling slicks in the Project vicinity, as well as the previous grading of the Project area, the potential for discovery of intact archaeological deposits, including unknown buried archaeological deposits, materials, or features, by the implementation of this Project is low. No further cultural resources work is necessary. However, to further reduce the potential for impacts, Mitigation Measure (MM) MM-CR-1 has been added, which requires that, in the event of an unanticipated discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it. If archaeological resources are uncovered during ground disturbing activities, all work in that area shall cease immediately until written clearance by the City is provided indicating that satisfactory mitigation has been implemented. A qualified archaeologist, as determined by the City shall be hired to record the find and recommend any further mitigation. The developer shall implement any such additional mitigation to the satisfaction of the City. Therefore, no significant adverse impacts are anticipated.

c) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature??*

Less Than Significant With Mitigation Incorporated: The Project site is not known to contain unique geologic features. The Project site is identified by the City's General Plan FEIR Exhibit 5-10-3, Paleontological Resource Sensitive Areas, as having a "Low Potential" to contain unique paleontological resources. The maximum depth of excavations will be approximately five feet for most of the grading and 14 feet for the fuel tanks. According to the Cultural Assessment, based on other finds from California valleys, Pleistocene fossils typically begin appearing between 8 to 10 feet deep. On this basis, it is possible that fossils meeting significance criteria will be encountered during this Project; therefore, MM-CR-2 requires a Paleontological Resource Impact Mitigation Program and full-time monitoring for all excavations greater than eight feet deep. If unanticipated fossils are unearthed during construction, work should be halted in that area until a qualified paleontologist can assess the significance of the find and satisfactory mitigation has been implemented. Work may resume immediately a minimum of 50 feet away from the find. This procedure shall be included in the Worker Environmental Awareness Program (WEAP) training provided to construction personnel. Therefore, no significant adverse impacts are anticipated.

d) *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

Less Than Significant: The Project site does not contain a known cemetery. While not anticipated, in the unlikely event that human remains are discovered during Project grading or other ground disturbing activities, the Project would be required to comply with the applicable provisions of California Health and Safety Code §7050.5 as well as Public Resources Code §5097 et. seq. Mandatory compliance with these provisions of California state law would ensure that impacts to human remains, if unearthed during construction activities, would be appropriately treated and ensure that potential impacts are less than significant. No further analysis is required on this subject.

Mitigation Measures:

MM-CR-1: In the event that cultural resources are unearthed during ground-disturbing activities associated with the Proposed Project, the contractor shall cease all earth-disturbing activities within 50 feet of the discovery and shall retain a qualified archaeologist. Construction activities may continue in other areas. The archaeologist shall evaluate the resource and determine if the discovery is significant. If the discovery proves to be significant, additional work, such as data recovery excavation or resource recovery may be warranted and shall be discussed in consultation with the appropriate regulatory agency and/or tribal group.

MM-CR-2: A Paleontological Resource Impact Mitigation Program and full-time monitoring for all excavations greater than eight feet deep shall be performed. If unanticipated fossils are unearthed during construction, work should be halted in that area until a qualified paleontologist can assess the significance of the find and satisfactory mitigation has been implemented. Work may resume immediately a minimum of 50 feet away from the find. This procedure shall be included in the Worker Environmental Awareness Program (WEAP) training provided to construction personnel.

3.6 Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to 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?	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
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?	☐	☐	☐	☒

a) *(i-iv)* ***Less Than Significant****:* A due diligence geotechnical investigation was completed for the Proposed Project and is included as Appendix D *(Geotechnical Investigation Report, Proposed 76 Gas Station, Southwest John F. Kennedy/Moreno Beach Drive,* GeoBoden, Inc., December 8, 2017). The Project site is located in a seismically active area typical of Southern California and likely to be subjected to a strong ground shaking due to earthquakes on nearby faults. The site is not mapped within an Alquist-Priolo (AP) Special Study Zone. Pinto Mountain fault zone (Moreno Valley fault) is the closest known active fault, located about 0.77-km of the site with an anticipated maximum moment magnitude (Mw) of 7.2. While the potential for onsite ground rupture cannot be totally discounted (e.g., unmapped faults could conceivably underlie the Project site), the likelihood of such an occurrence is considered low due to the absence of known faults within the Project vicinity. However, the Project will be reviewed and approved by Building and Safety with appropriate seismic standards implemented. Adherence to standards and requirements contained in the building code for the design of the proposed structures will ensure that any impacts are less than significant by ensuring that structures do not collapse during strong ground shaking.

For liquefaction to occur, all of three key ingredients are required: liquefaction-susceptible soils, groundwater within a depth of 50 feet or less, and strong earthquake shaking. Soils susceptible to liquefaction are generally saturated loose to medium dense sands and non-plastic silt deposits below the water table. Groundwater is not present at the site at shallow depths and soils consist predominately of medium dense to dense sandy soil materials. The geotechnical investigation concluded that the potential for liquefaction at the site is minimal. Due to the absence of loose sandy soil layers, potential for dry sand seismic settlement as well as subsidence is also minimal at the site and will not adversely impact the foundation of the proposed building and the associated site improvements. Therefore, impacts from proximity to fault zones are considered less than significant.

The Project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides, because the Project site and surrounding area are relatively flat and therefore no impacts from landslides would occur.

b) ***Less Than Significant*** *Would the project result in substantial soil erosion or the loss of topsoil?*

The Project will not result in substantial soil erosion or the loss of topsoil, because the site will be paved and landscaped. Erosion control plans will be required to be submitted, approved and implemented. Measures to reduce and control erosion of soil during construction and long term operation are required by SCAQMD through its Rule 403 for control of fugitive dust, the Santa Ana Regional Water Quality Control Board (RWQCB) under its administration of the State's General Construction Permit, and the City's Public Works Department through its Storm Water Management Program. Implementation of requirements under SCAQMD Rule 403 for control of fugitive dust would reduce or eliminate the potential for soil erosion due to wind. Implementation of Best Management Practices (BMPs) that would be included in the applicant's Storm Water Pollution Prevention Plan (SWPPP) would reduce soil erosion due to storm water or water associated with construction.

c) *Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

Less Than Significant: Seismically-induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking. For lateral spreading to occur, the liquefiable zone must be continuous, unconstrained laterally, and free to move along gently sloping ground toward an unconfined area. Lateral spreading results in near-vertical cracks with predominantly horizontal movement of the soil mass involved. A gentle slope in the ground face or the presence of a slope face nearby can cause the ground to slide or spread on layers of liquefied soil. According to the geotechnical investigation report, The Project is not identified as being located on a geologic unit or soil that has been identified as being unstable or having the potential to result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. The geotechnical report concluded that the site is underlain with medium dense to dense non expansive (sandy soils) and would not result in ground settlement that could affect structures, either on or adjacent to the site. Impacts would be less than significant.

d) *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

Less Than Significant: Results of consolidation tests on samples of native soil indicated that the native soils will have low collapse potential. Removal and recompaction of the surficial soils is expected to reduce the anticipated amount of total differential settlement within the site. The near surface soils are granular which exhibit very low expansion potential. Results from the geotechnical analysis indicated that the design and performance of the proposed new buildings will not be affected by expansion of onsite soils. The Proposed Project would also be constructed to the standards prescribed by the California Building Code (CBC). Impacts due to expansive and corrosive soils would be less than significant.

e) *Would the project 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?*

No Impact: The Project site is served by a public sewer system. The Proposed Project would not include the use of septic tanks or alternative wastewater disposal systems. No impacts would occur.

3.7 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

The following analysis is based on an Air Quality (AQ) and Greenhouse Gas Emissions (GHG) Impact Analysis provided in Appendix A (*Air Quality and Greenhouse Gas Emissions Impact Analysis*, Vista Environmental, January 2018).

a) *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less Than Significant: The Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The Proposed Project would result in the development of a 12-pump gas station with an associated convenience store, car wash, sit-down restaurant, quick serve restaurant, and parking lot. The Proposed Project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment.

The City of Moreno Valley has adopted the *City of Moreno Valley Greenhouse Gas Analysis* that requires a 15 percent reduction in GHG emissions between years 2007 and 2020. In order to determine if the Proposed Project would comply with the Plan's standards, the GHG emissions from the Proposed Project were analyzed for both year 2019 (the opening year of the Proposed Project) and year 2020. Using year 2019 versus year 2007 provides a worst-case analysis, since the State has enacted several laws that took effect after 2007 that reduce GHG emissions and using the latter date means that less GHG reductions can be accounted for from the State measures.

The Project's GHG emissions were calculated with the CalEEMod model based on the construction parameters detailed in Section 7.1 of the AQ and GHG Impact Analysis and the operational parameters detailed in Section 7.2. A summary of the results is shown below in Table 5 (taken from Table M in the AQ and GHG Impact Analysis) and the CalEEMod model run annual printouts for the year 2019 are provided in Appendix B of the Impact Analysis and the year annual printouts for the year 2020 are provided in Appendix C of the Impact Analysis.

The data provided in Table 5 shows that the Proposed Project would create 2,069.91 million metric tons of carbon dioxide equivalent ($MTCO_2e$) per year based on the opening year 2019 GHG emissions rates and would create 1,744.39 $MTCO_2e$ per year in the year 2020 based on approved Statewide GHG reduction regulations that would be fully implemented by year 2020 as well as from implementation of Project Design Features 1 and 2. More specifically the approved Statewide GHG reduction regulations include, but are not limited to implementation of: Executive Order (EO) S-1-07, that establishes performance standards for the carbon intensity of transportation fuels; Assembly Bill (AB) 149, which limits GHG emissions from new vehicles sold in California; AB 341 that reduces solid waste transferred to landfills; California Code of Regulations (CCR) Title 24, Part 6 2016 Building Energy Efficiency Standards; and CCR Title 24 Part 11 2016 CalGreen Standards that improves the energy efficiency of the Proposed Project.

Table 5 shows that the Proposed Project's GHG emissions would be reduced by 15.7 percent and would meet the City of Moreno Valley's minimum 15 percent GHG reduction standard. In addition, the Proposed Project would be below the SCAQMD draft significance threshold of 3,000 $MTCO_2e$ per year for both the year 2019 and year 2020 GHG emissions. Therefore, a less than significant generation of GHG emissions would occur from development and operation of the Proposed Project.

Table 5 –Project Related Greenhouse Gas Annual Emissions

Category	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO_2	CH_4	N_2O	CO_2e
Year 2019 BAU Emissions				
Area Sources[1]	0.00	0.00	0.00	0.00
Energy Usage[2]	185.76	0.01	0.00	186.62
Mobile Sources[3]	1,849.66	0.19	0.00	1,854.42
Solid Waste[4]	5.68	0.34	0.00	14.07
Water and Wastewater[5]	7.05	0.05	0.00	8.58
Construction[6]	6.19	0.00	0.00	6.22
Total 2019 Emissions	**2,054.34**	**0.59**	**0.00**	**2,069.91**
Year 2020 Emissions				
Area Sources[1]	0.00	0.00	0.00	0.00
Energy Usage[2]	185.76	0.01	0.00	186.62
Mobile Sources[3]	1,532.96	0.17	0.00	1,537.22
Solid Waste[4]	2.84	0.17	0.00	7.03
Water and Wastewater[5]	6.01	0.04	0.00	7.30
Construction[6]	6.19	0.00	0.00	6.22
Total 2020 Emissions	1,733.76	0.39	0.00	**1,744.39**
Percent Reduction between 2019 and 2020				**15.7%**
City of Moreno Valley Reduction Threshold				**15.0%**
		SCAQMD Draft Threshold of Significance		**3,000**
		Exceed Thresholds?		**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[5] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[6] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2016.3.2.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant: The Proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plans for the Proposed Project are the *City of Moreno Valley Greenhouse Gas Analysis*, adopted February 2012 and the *City of Moreno Valley Energy Efficiency and Climate Action Strategy*, adopted October 2012. The City of Moreno Valley has adopted these plans in order to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Both Plans provide the same reduction measures to be implemented in new developments to reduce GHG emissions as well as a GHG emissions reduction target of 15 percent below 2007 GHG emissions levels by 2020. Consistent with the CARB Scoping Plan, the City of Moreno Valley has chosen a reduction target of 15 percent below 2007 GHG emissions levels by 2020. Therefore, the Proposed Project would be considered to be inconsistent with the City's Plans if the Proposed Project did not implement all applicable measures identified in the Plans and if the Proposed Project's GHG emissions are not 15 percent less than GHG emissions from business-as-usual conditions for a similar size project in year 2007.

It should be noted that the City of Moreno Valley's Climate Action Strategy and Greenhouse Gas Analysis were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, Cleveland v. SANDAG stated:

> SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation].

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such, this analysis has relied on the City of Moreno Valley Climate Action Strategy and Greenhouse Gas Analysis as the applicable GHG reduction plans for the Proposed Project.

The applicable measures provided in the City's GHG Plans were incorporated into the Project design of the Proposed Project and include Project Design Feature 1 that requires the implementation of a transportation demand program, Project Design Feature 2 that requires providing separate onsite bins for disposal of recyclables and trash, as well as implementation of statewide measures that include utilization of low-flow water fixtures and smart irrigation controls to reduce water use. The AQ and GHG Impact Analysis found that with implementation of Project Design Features 1 and 2 as well as various state requirements, the Proposed Project's GHG emissions would be reduced by 15.1 percent by year 2020. Therefore, the Proposed Project would not conflict with the City's GHG reduction plans.

In addition to the City's GHG reduction plans, the SCAQMD initiated a Working Group to develop a GHG emissions policy and provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use types. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, they have not been formally adopted because the SCAQMD was awaiting the outcome of the State Supreme Court decision of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), which was filed on December 17, 2015 and the SCAQMD Board has not yet approved these thresholds. Table 5 shows that both the year 2019 business-as-usual GHG emissions and the year 2020 GHG emissions would be below the SCAQMD draft significance threshold of 3,000 $MTCO_2e$ per year. Therefore with implementation of Project Design Features 1 and 2, the Proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

3.8 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
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 for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant: During construction, there would be a minor level of transport, use, and disposal of hazardous materials and wastes that are typical of construction projects. This would include fuels and lubricants for construction machinery, coating materials, etc., as well as for the transport of the gas and diesel fuels to the Project site. The proposed fuel storage tanks associated with the gas and diesel stations would be required to follow specific protocols for handling, transporting, and storing the fuel onsite. All hazardous materials are required to be utilized and transported in accordance with their labeling pursuant to federal and state law. Routine construction control measures and best management practices for hazardous materials storage, application, waste disposal, accident prevention and clean-up will be sufficient to reduce potential impacts to a less than significant level.

The operation of the proposed convenience store would not be expected to generate hazardous waste or create the routine transport, use, or disposal of hazardous materials. Once the fuel storage tanks are constructed, there would be continued routine maintenance. Rule 461 of the SCAQMD governs the operation of gasoline stations and requires that all underground storage tanks (USTs) are equipped with a “CARB certified” enhanced vapor recovery system, all fill tubes are equipped with vapor tight caps, all dry breaks are equipped with vapor tight seals, a spill box is installed to capture any gasoline spillage, and all equipment is required to be properly maintained per CARB regulations. All gasoline dispensing units are required to be equipped with a “CARB certified” vapor recovery system, the dispensing system components shall maintain vapor and liquid tight connections at all times and the breakaway coupling shall be equipped with a poppet valve that shall close when coupling is separated. Rule 461 also provides several additional requirements including detailed maintenance, testing, reporting and recordkeeping requirements for all gas stations.

The gas station and convenience store will also be subject to permit and inspection by the Riverside County Department of Environmental Health Hazardous Materials Branch, which is responsible for inspecting facilities that handle hazardous materials, own/operate USTs, or handle other materials subject to the California Accidental Release Program. Sections 2729 through 2732 of the California Code of Regulations (CCR) provide requirements for the reporting, inventory, and release response plans for hazardous materials. These requirements establish procedures and minimum standards for hazardous material plans, inventory reporting and submittal requirements, emergency planning/response, and training. In addition, all regulated substance handlers are required to register with local fire or emergency response departments per the California Accidental Release Prevention Program. Locally, this is overseen by the Riverside County Department of Environmental Health Hazardous Materials

Branch. The division reviews and approves Risk Management Plans (RMPs). Similar to a Business Plan, an RMP would list the equipment and procedures that would be used to prevent, mitigate, and abate releases of CalARP materials. Additional requirements for RMPs include the listing of spill prediction worst-case scenarios, possible effects on the surrounding community, and comprehensive emergency procedures.

Existing risk management and response requirements will ensure potential risks associated with accidental releases of hazardous materials are minimized; therefore, the risk of exposure of the public and/or the environment to hazardous waste, either used or transported on site, would be less than significant.

b) *Would the project 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?*

Less Than Significant.

Short-Term Impacts

One of the means through which human exposure to hazardous substance could occur is through accidental release. Incidents that result in an accidental release of hazardous substance into the environment can cause contamination of soil, surface water, and groundwater, in addition to any toxic fumes that might be generated. If not cleaned up immediately and completely, the hazardous substances can migrate into the soil or enter a local stream or channel causing contamination of soil and water. Human exposure of contaminated soil or water can have potential health effects on a variety of factors, including the nature of the contaminant and the degree of exposure.

Construction activities associated with future development could release hazardous materials into the environment through reasonably foreseeable upset and accident conditions. There is a possibility of accidental release of hazardous substances such as petroleum-based fuels or hydraulic fluid used for construction equipment. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials utilized during construction. The construction contractor for individual development projects would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and Federal law.

Long-Term Operational Impacts

As previously discussed above under Section 3.8.a., the operation of the proposed C-store, restaurants and carwash would not be expected to generate hazardous waste or create the routine transport, use, or disposal of hazardous materials. During the operation of phase of the Project, gasoline will be routinely handled, stored, and dispensed on the Project site. In order to prevent any significant hazard to the public through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, the Project must prepare and implement an RMP that would establish procedures to follow in the event of an emergency situation (such as a fire or hazardous spill). The Riverside County Department of Environmental Health Hazardous Materials Branch will oversee this Plan. The RMP will mitigate any potential hazards from the conditions listed above. Additionally, implementation of the SWPPP will ensure that any accidental spills or leakage of hazardous materials will be remediated properly. Thus, with the implementation of the SWPPP and RMP, as well as the routine inspection by federal, State, and local regulatory agencies with jurisdiction over fuel dispensing facilities, impacts under this issue would be reduced to a less than significant level.

c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Less Than Significant. The nearest school to the Project site is Landmark Middle School, located less than a quarter mile (445 meters) away at 15261 Legendary Drive in the City of Moreno Valley. As previously stated, all hazardous or potentially hazardous materials would be stored and handled in accordance with all applicable federal, state, and local agencies and regulations pertaining to the handling and use of hazardous materials. Adherence to these policies will ensure that the Project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school during either construction or operations of the Project. Additionally, the SCQAMD released a Health Risk Assessment for Gas Stations within its jurisdiction and the residential cancer risk (in one million persons) for Gasoline Service Stations at a distance of 1000 feet away from the nearest resident was 0.03 at the nearest location (Riverside, CA) to the Project site. Thus, the increased chance of health risk to the public that would result from implementing a gas station at this location at that distance is miniscule. Therefore, any impacts under this issue are considered less than significant.

d) *Would the project 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, would it create a significant hazard to the public or the environment?*

No Impact: Based on the California Department of Toxic Substances Control, EnviroStor Site/Facility Search, the Project site is not included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. The Project site was not identified in the database search as a site of environmental concern. Development of the Proposed Project would not create a significant hazard to the public or the environment and no impacts would occur.

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 for people residing or working in the project area?*

No Impact: The Proposed Project is not located within an airport land use plan or within two miles of a public airport or public use airport. The closest airport is the Perris Valley Airport-L65, a private airport located over 9 miles away. The Proposed Project would not result in a safety hazard for people residing or working in the project area as a result of its proximity to a public airport. Therefore, no impacts associated with public use airports would occur.

f) *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

No Impact: The Proposed project is not within the vicinity of a private airstrip. The nearest heliport is located 1.52 miles northwest of the Project site at the University Medical Center in

Moreno Valley. Since the Project is not within the vicinity of a private airstrip, it would not result in a safety hazard for people residing or working in the Project area. There would be no impacts related to a private airstrip.

g) *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

No Impact: The Proposed Project will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, because the Project has adequate access from two or more directions, Moreno Beach Drive and John F. Kennedy Drive.

h) *Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Less Than Significant: According to City of Moreno Valley General Plan FEIR figure 5.5-2, Floodplains and High Fire Hazard Areas, the Project site is not located in an area of substantial or high fire risk. The Project site is located in an urbanized area. No wildlands are located on or adjacent to the Project site and the Project site is largely devoid of vegetation and surrounded on all sides by developed properties, paved roads, and maintained sites. Thus, implementation of the Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No impact would occur and no further analysis of this subject is required.

3.9 Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

The following analyses are based in part on information contained in the Hydrology Study, dated March 2018; and the Project Specific Water Quality Management Plan (WQMP), dated October 31, 2017 (revised January 3, 2018). Both documents were prepared by Western States Engineering, Inc. and have been included as Appendix E and Appendix F, respectively, of this document.

a) Would the project violate any water quality standards or waste discharge requirements?

Less Than Significant: The Project will not violate any water quality standards or waste discharge requirements, because the Project will be served by an established water purveyor, Eastern Municipal Water District (EMWD), subject to independent regulation by local and state agencies that ensure compliance with water quality requirements. The proposed installation, operation and maintenance of the USTs will also be regulated by the Regional Water Quality Control Board (RWQCB) to ensure that the tanks meet leak detection, spill, overfill and corrosion protection requirements; maintenance, inspection and reporting requirements. A Project Specific Water Quality Management Plan (WQMP) was prepared (see Appendix F), which identified the provision of proposed bioretention basins distributed within the landscaped planters along the north and south edges of the site as a treatment control BMP to filter and remove pollutants prior to discharge into the storm drain system. A construction phase stormwater pollution prevention plan (SWPPP) will also be required, which would include BMPs to protect water quality during construction and operational activities.

The Santa Ana RWQCB has issued an area-wide NPDES Storm Water Permit (Permit No. CAS618033) which includes the City of Moreno Valley. The RWQCB then requires implementation of measures for a project to comply with the area wide permit requirements. A SWPPP is comprised of selected BMPs designed to address specific site conditions. The SWPPP must include BMPs to prevent project-related pollutants from impacting surface waters. Post-construction BMPs must address all pollutant loads carried by dry weather run-off and first-flush storm water runoff from an entire project. Implementation of BMPs will significantly reduce water quality impacts from non-point source pollutants. BMPs would limit water contamination during and after construction by reducing the amount of runoff, reducing contact between pollutants and runoff or treating runoff that comes in contact with pollutants.

A combined WQMP and SWPPP will ensure that site design, source control and treatment control BMPs will be implemented and maintained through the life of the project.

b) *Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Less Than Significant: The Project is not anticipated to substantially impact groundwater recharge; or cause a net deficit in aquifer volume. Construction of the Proposed Project will have demands for water only for dust suppression purposes. No wells will be impacted by the project. Operation of the Proposed Project will have demands for water for landscape maintenance. Less than significant impacts to groundwater supplies are anticipated.

c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

Less Than Significant: The proposed development would consist of one commercial building, one car wash, a parking lot and vegetated, pervious portions along the southwest, west and northwest property frontage. Overall, the developed site is estimated to be 90% impervious, which is an increase in the impervious area from the existing condition. The onsite runoff would flow south and west by curb and gutter to onsite area drains and channel drains that would convey flow to an onsite water quality bio swale. Flows would then be treated and outleted onto John F. Kennedy Drive. In a major storm event, the bio swale will fill and then outlet into the right-of-way. The difference in volume between the existing and proposed storm events will be stored onsite within the bio swale and along the southern drive aisle and entrance. In large storm events the site would drain similarly to the existing condition; runoff would flow south to the main drive aisle of the site and would then overflow into the right of way that will convey flows into the street.

Therefore, development of the Proposed Project would not significantly alter the existing drainage pattern of the Project site or increase the amount of runoff. Furthermore, the Proposed Project would not involve an alteration of the course of a stream or river. Erosion and siltation impacts potentially resulting from the Proposed Project would, for the most part, occur during the Project's site preparation and earthmoving phase. However, implementation of the NPDES permit requirements, as they apply to the Project site, would reduce potential erosion, siltation, and water quality impacts. Impacts would be less than significant.

d) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

Less Than Significant: As discussed under Section 3.9.c) above, the Proposed Project would not substantially alter the existing drainage pattern of the Project site. The Proposed Project would not involve an alteration of the course of a stream or river. The drainage design for the

Site has been designed to meet the County of Riverside Flood Control Standards. Bioretention basins would be installed within the north and south landscape strips to capture and treat runoff.

According to the Hydrology Study for the Proposed Project, pre-development peak flows for the Project site for 10-year, 25-year, and 100-year storms are 1.7 cubic feet per second (cfs), 2.1 cfs, and 2.7 cfs, respectively. Post-development, the calculated peak flows for 10-year, 25-year, and 100-year storms are estimated to be 2.1 cfs, 2.7 cfs, and 3.4 cfs, respectively. The Proposed Project would meet the Riverside County discharge requirements by detaining the required onsite 10-year detainment volume. Therefore, impacts would be considered less than significant.

e) *Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

Less Than Significant: As discussed under Section 3.9.c) and Section 3.9.d) above, the Proposed Project would not contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, because bioretention basins would be provided to capture stormwater runoff and the drainage design for the site meets the County of Riverside Flood Control Standards. All necessary drainage improvements both on- and off-site would be required as conditions of the construction of the Project. There would be adequate capacity in the local and regional drainage systems so that downstream properties are not negatively impacted by any increases or changes in volume, velocity or direction of stormwater flows originating from or altered by the Project. Impacts would be considered less than significant.

f) *Would the project otherwise substantially degrade water quality?*

Less Than Significant: See Response a) above. The project will not otherwise substantially degrade water quality, because appropriate measures relating to water quality protection, including erosion control measures have been required.

g) *Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No Impact: According to City of Moreno Valley General Plan FEIR Figure 5.5-2, Floodplains and High Fire Hazards Areas, the Project site is not located within a 100-year floodplain. Also, according to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the Project site is located within Flood Zone “X” which corresponds to areas with minimal flood hazard. No habitable structures are proposed as part of the Project. No impact would occur.

h) *Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?*

No Impact: As stated above under Section 3.9.g), the Proposed Project is not within a flood hazard zone. The Proposed Project would not place within a 100-year flood hazard area structures that would impede or redirect flood flows.

i) *Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

Less Than Significant: According to City of Moreno Valley General Plan FEIR Figure 5.5-2, Floodplains and High Fire Hazard Areas, the Project site is not located in an identified dam inundation area. Therefore, no impacts would occur.

j) Would the project result in inundation by seiche, tsunami, or mudflow?

Less Than Significant: Seiches are large waves generated in enclosed bodies of water in response to ground shaking. The Project site is surrounded by a relatively flat and urbanized area and not adjacent to any enclosed body of water. The nearest reservoir, Lake Perris, is located approximately 2.3 miles south of the Project site. A tsunami is a long sea wave caused by an earthquake or other geologic submarine disturbance. The Project site is located over 40 miles from the Pacific Ocean, and would not be impacted by a tsunami. Due to the location of the Project site, and topography of the surrounding locale, the Proposed Project would not be impacted by a seiche, tsunami or mudflow.

3.10 Land Use and Planning

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

a) Would the project physically divide an established community?

No Impact: The Project will not physically divide an established community, because the Project is a logical and orderly extension of the planned land uses and development that are established within the surrounding area. The Project is consistent with the current zoning for the site and represents an infill project within a developed area of the City. In addition, the Project does not involve modifications to the existing circulation network within the community. Therefore, there would be no impact related to dividing an established community.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant: The Project will not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project adopted for the purpose of avoiding or mitigating an environmental effect, because the Project is consistent with all applicable land use policies and regulations of the Municipal Code and General Plan. The project is consistent with the General Plan land use designation of Commercial. The Project's land use - a service station, convenience store, QSR, restaurant and carwash - is also an allowed and permitted use with a Conditional Use Permit in the General Commercial Zone. The Project complies with all applicable design guidelines contained in the Municipal Code Chapter 9.16. Therefore, impacts would be less than significant

c) *Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?*

No Impact: The Project site is subject to the provisions of the western Riverside County MSHCP. The proposed Project will be required to comply with City of Moreno Valley Municipal Code Title 3, Chapter 3.48, "Western Riverside County Multiple Species Habitat Conservation Plan Fee Program," which requires a per-acre local development mitigation fee to implement the MSHCP. The Project site is not located within one of the targeted conservation cells of the MSHCP. The Project site is, however, subject to the survey and conservation requirements of MSHCP Section 6.3.2 (Species Survey Requirements), which requires the preparation of a habitat assessment for the western burrowing owl. Pursuant to Section 6.3.2 of the MHSCP, a burrowing owl site assessment was submitted for the Project site (Appendix B), and the findings of the site assessment indicated the potential for a burrowing owl and other nesting bird species. Mitigation Measure BIO-1 in Section 3.4 has been applied to the Project and impacts would be less than significant.

3.11 Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a) *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact: The Project site is not located within an area known to be underlain by regionally- or locally-important mineral resources or within an area that has the potential to be underlain by regionally- or locally-important mineral resources, as disclosed by the City's General Plan and the associated General Plan FEIR. Accordingly, implementation of the proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State of California. In addition, the City's General Plan does not identify any locally-important mineral resource recovery sites on-site or within close proximity to the Project site. Accordingly, no further analysis of this subject is required.

b) *Would the project 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?*

No Impact: Please refer to the response to Item 3.11(a), above.

3.12 Noise

	Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

The following analysis is based on a Noise Impact Analysis (NIA) provided in Appendix G (*Noise Impact Analysis 76 Gas Station and Restaurants Project City of Moreno Valley*, Vista Environmental, January 2, 2018).

a) *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Less Than Significant with Mitigation Incorporated: A NIA was prepared by Vista Environmental for the Proposed Project to determine noise impacts associated with the development of the Proposed Project. The results of the assessment are contained in the document titled *Noise Impact Analysis – 76 Gas Station and Restaurants Project City of Moreno Valley*, dated January 2, 2018, which has been included as Appendix G of this document.

The Proposed Project would not expose persons to or generate noise levels in excess of standards established in the General Plan or Noise Ordinance or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the construction and operations of the Proposed Project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 2.5-acre Project site; building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant; paving of the onsite driveways and parking areas; and application of architectural coatings. Noise impacts from construction activities associated with the Proposed Project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptor to the Project site is the single-family home located adjacent to the southern edge of the Project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the Project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the Project site on the north side of John F. Kennedy Drive.

Section 11.80.030(B) of the City's Municipal Code limits all noise sources in the City to the noise levels where a high probability hearing loss would occur as determined by the Center for Disease Control and Prevention and OSHA. The noise levels thresholds include a threshold of 90 dBA for eight hours, which is the typical daily duration of construction activities. Section 11.80.030(D)(7) of the City's Municipal Code provides additional prohibitions on construction activities by restricting construction activities from occurring between the hours of 8:00 p.m. and 7:00 a.m.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) and the parameters and assumptions detailed in Section 6.1 of the NIA in order to determine if the proposed construction activities would exceed the City noise standards. The results are shown below in Table 6 (taken from Table K of the NIA) and the RCNM printouts are provided in Appendix C of the NIA.

Table 6 – Worst Case Construction Noise Levels at Nearest Receptors

Construction Phase	Homes on South Side of Via Sonata		Home Adjacent to Southern Edge of Project Site[1]		Homes on North Side of John F. Kennedy Drive[1]	
	Distance (feet)	Noise Level (dBA Leq)	Distance (feet)	Noise Level (dBA Leq)	Distance (feet)	Noise Level (dBA Leq)
Site Preparation	75	79	15	87	110	71
Grading	75	79	15	87	110	71
Building Construction	133	72	145	67	185	65
Paving	95	72	30	75	110	66
Painting	133	65	145	59	185	57
City's Noise Threshold[2]		**90**		**90**		**90**

[1] 5 dBA sound attenuation applied to the home adjacent to the southern edge of the Project site at 15104 La Casa Drive and to the homes on the north side of John F. Kennedy Drive in order to account for existing walls.
[2] City Noise Threshold obtained from Section 11.80.030(B) of the Municipal Code.
Source: RCNM, Federal Highway Administration, 2006

Table 6 shows that the greatest noise impacts at the nearby residential uses would occur during the site preparation and grading phases at the home adjacent to the southern edge of the Project site, with a noise level as high as 87 dBA, which is within the City's 8-hour noise threshold of 90 dBA. Table 6 also shows that none of the construction phases would exceed the City's noise standard. Through adherence to the limitation of allowable construction times provided in Section 11.80.030(D)(7) of the City's Municipal Code, the construction-related noise levels would not exceed any standards. Therefore, impacts would be less than significant.

Operational-Related Noise

The Proposed Project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. The operation of the Proposed Project may generate onsite noise levels that exceed City standards at the existing nearby sensitive receptors. The operational noise impacts to the nearby sensitive receptors and proposed onsite sensitive receptors have been analyzed separately below.

NOISE IMPACTS TO THE NEARBY OFFSITE SENSITIVE RECEPTORS

The operation of the Proposed Project may create an increase in onsite noise levels from rooftop mechanical equipment, car wash, fueling station, parking lot, and delivery truck activities. Section 11.80.030(C) of the City's Municipal Code limits noise levels at the nearby residential properties to 60 dBA between 8:00 a.m. and 10:00 p.m. and 55 dBA between 10:01 p.m. and 7:59 a.m. the following day. Section 11.80.030(C) also provides noise standards impacting commercial uses, however the nearest commercial uses are located approximately 0.5 mile to the north of the Project site and due to the distance, no noise impacts are anticipated to the nearby commercial uses.

In order to determine the noise impacts from rooftop mechanical equipment, parking lot activities, delivery truck activities, car wash activities, and gas dispensing activities, reference noise measurements were taken of each noise source and are shown below in Table 7 (taken from Table L of the NIA). Table 7 also shows the anticipated noise level from each source at the nearest off-site receptors. The operational reference noise measurements are shown in Appendix D of the NIA.

Table 7 – Operational Noise Levels at the Nearest Receptors Prior to Mitigation

Noise Source	Noise Levels at Homes South of Via Sonata		Noise Levels at Home Adjacent to Project Site		Noise Levels North of John F. Kennedy Drive	
	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})
Rooftop Equipment[1]	200	41	210	40	185	41
Parking Lot	95	38	30	48	110	36
Truck Delivery[3]	175	39	180	39	115	43
Car Wash[4]	130	63	200	60	260	57
Fueling Pumps[5]	260	33	145	38	250	34
Combined Noise Levels		**64**		**60**		**58**
City Noise Standards (Day/Night)		**60/55**		**60/55**		**60/55**
Exceed City Standards (Day/Night)?		**Yes/Yes**		**No/Yes**		**No/Yes**

Notes:
[1] The rooftop equipment was based on a noise measurement 10 feet from an operational rooftop HVAC unit that measured 66.6 dBA Leq.
[2] The parking lot was based on a noise measurement 5 feet from a commercial parking lot that produced a noise

level of 63.1 dBA Leq
[3] The truck delivery was based on a noise measurement 30 feet from a truck unloading that produced a noise level of 54.8 dBA Leq.
[4] The car wash was based on a noise measurement 30 feet from a car wash that produced a noise level of 76.2 dBA Leq.
[5] The fueling pumps was based on a noise measurement 10 feet from fueling pumps that produced a noise level of 61.7 dBA Leq
Source: Noise calculation methodology from Caltrans, 2013.

Table 7 shows that the combined noise level at the homes located south of the Project site on the south side of Via Sonata would be 64 dBA Leq, which would exceed both the City's daytime and nighttime noise standards of 60 dBA Leq and 55 dBA Leq, respectively. Table 7 also shows that the combined noise levels would be 60 dBA Leq at the home located adjacent to the southern edge of the Project site and would be 58 dBA Leq at the homes located north of the Project site on the north side of John F. Kennedy Drive, which would be within the City's daytime noise standard of 60 dBA Leq but would exceed the nighttime noise standard of 55 dBA Leq. This would result in a significant impact.

As shown above in Table 7 the noise source that creates the highest noise levels is the car wash. Mitigation Measure (MM) NOI-1 is provided that would require the proposed carwash to be equipped with automatic doors at the entrance and exit of the carwash, which will be required to be closed prior to the running of the car wash. Additionally, all vacuum and blower motors would be required to be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m.

The operational noise levels at the nearby residential receptors have been recalculated based on implementation of MM-NOI-1 and the results are shown below in Table 8 (taken from Table M in the NIA). Table 8 shows that with the application of MM-NOI-1, the noise levels at the nearby residential receptors would be reduced to within both the City's daytime noise standard of 60 dBA Leq and the nighttime standard of 55 dBA Leq. With implementation of MM-NOI-1, the Proposed Project would not expose persons to or generate noise levels in excess of standards in the Noise Ordinance from onsite sources. Impacts would be less than significant.

Table 8 – Mitigated Operational Noise Levels at the Nearest Receptors

	Noise Levels at Homes South of Via Sonata		Noise Levels at Home Adjacent to Project Site		Noise Levels North of John F. Kennedy Drive	
Noise Source	**Distance Receptor to Source (feet)**	**Noise Level (dBA L_{eq})**	**Distance Receptor to Source (feet)**	**Noise Level (dBA L_{eq})**	**Distance Receptor to Source (feet)**	**Noise Level (dBA L_{eq})**
Rooftop Equipment[1]	200	41	210	40	185	41
Parking Lot	95	38	30	48	110	36
Truck Delivery[3]	175	39	180	39	115	43
Car Wash[4]	130	51	200	47	260	45
Fueling Pumps[5]	260	33	145	38	250	34
Combined Noise Levels		**52**		**51**		**48**
City Noise Standards (Day/Night)		**60/55**		**60/55**		**60/55**
Exceed City Standards (Day/Night)?		**No/No**		**No/No**		**No/No**

Notes:

[1] The rooftop equipment was based on a noise measurement 10 feet from an operational rooftop HVAC unit that measured 66.6 dBA Leq.
[2] The parking lot was based on a noise measurement 5 feet from a commercial parking lot that produced a noise level of 63.1 dBA Leq
[3] The truck delivery was based on a noise measurement 30 feet from a truck unloading that produced a noise level of 54.8 dBA Leq.
[4] The car wash was based on a noise measurement 10 feet from a car wash with doors that produced a noise level of 73.1 dBA Leq.
[5] The fueling pumps was based on a noise measurement 10 feet from fueling pumps that produced a noise level of 61.7 dBA Leq
Source: Vista Environmental.

Mitigation Measures:

MM-NOI-1: The project applicant shall require the proposed carwash to be constructed with automatic car doors with a minimum of Sound Transmission Class (STC) rating of 14 STC at the entrance and exit of the carwash which would be closed prior to operating the car wash for each car to be washed. The project applicant shall also require all vacuum and blower motors be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m.

b) *Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less Than Significant: The Proposed Project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the Proposed Project.

Construction-Related Vibration Impacts

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 2.5-acre Project site; building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant; paving of the onsite driveways and parking areas; and application of architectural coatings. The nearest off-site receptors to the Project site is the single-family home located adjacent to the southern edge of the Project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the Project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the Project site on the north side of John F. Kennedy Drive.

Section 9.10.170 of the City's Municipal Code prohibits any vibration which can be felt at or beyond the property line. Since the City's Municipal Code does not provide a quantifiable vibration level, Caltrans guidance has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. Per the NIA, a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite receptor (15 feet away) would be 0.16 inch per second PPV. The vibration level at the nearest offsite receptor would be within the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The Proposed Project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. The Proposed Project would result in the operation of semi-trucks on the Project site, which are a known source of vibration. The nearest off-site receptor to the Project site is the single-family home located adjacent to the southern edge of the Project site at 15104 La Casa Drive. There are also single-family homes located south approximately 75 feet south of the Project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the Project site on the north side of John F. Kennedy Drive.

Section 9.10.170 of the City's Municipal Code prohibits any vibration which can be felt at or beyond the property line. Since the onsite operation of semi-truck has the potential to create groundborne vibration that may expose persons to excessive vibration levels. In order to provide a conservative analysis, the operational activities have been analyzed based on the standard of being discernable at the nearest home, which is located as near as 65 feet from where a truck may operate onsite.

Caltrans has done extensive research on vibration level created along freeways and State Routes and their vibration measurements of roads have never exceeded 0.08 inches per second PPV at 15 feet from the center of the nearest lane, with the worst combinations of heavy trucks. Truck activities would occur onsite as near as 65 feet from the nearest home. Based on typical propagation rates, the vibration level at the nearest home would by 0.02 inch per second PPV. Caltrans research found that human response to transient sources becomes distinctly perceptible at 0.25 inch per second PPV. Therefore, vibration created from operation of the Proposed Project would be below the threshold of perception at the nearest offsite resident. Impacts would be less than significant.

c) *Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less Than Significant: The ongoing operation of the Proposed Project may result in a potential substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the Proposed Project. Potential noise impacts associated with the operations of the Proposed Project would be from project-generated vehicular traffic on the nearby roadways and from onsite activities, which have been analyzed separately below.

Roadway Vehicular Noise

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The Proposed Project does not propose any uses that would require a substantial number of truck trips and the Proposed Project would not alter the speed limit on any existing roadway so the Proposed Project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the Proposed Project.

Objective 6.5 of the City's General Plan Noise Element requires the City to minimize noise impacts from significant noise generators including roadway noise impacts. However neither the General Plan nor the CEQA Guidelines define what constitutes a "substantial permanent increase to ambient noise levels", as such, this impact analysis has utilized guidance from the Federal Transit Administration for a moderate impact.

The potential offsite traffic noise impacts created by the on-going operations of the Proposed Project have been analyzed through utilization of the FHWA model and parameters described in Section 6.2 of the NIA and the FHWA model noise calculation spreadsheets are provided in Appendix E of the NIA. The Proposed Project's offsite traffic noise impacts have been analyzed for both the existing and year 2022 conditions, which are discussed below.

EXISTING CONDITIONS

The Proposed Project's potential offsite noise impacts have been calculated through a comparison of the Existing scenario to the Existing With Project Scenario. The results of this comparison are shown in Table 9 (taken from Table N of the NIA).

Table 9 – Existing Year Project Traffic Noise Contributions

		dBA CNEL at Nearest Receptor[1]			
Roadway	**Segment**	**Existing**	**Existing With Project**	**Project Contribution**	**Increase Threshold**
John F. Kennedy Drive	West of Via Entrada	52.0	52.3	0.3	+5 dBA
John F. Kennedy Drive	East of Via Entrada	53.4	53.8	0.4	+5 dBA
John F. Kennedy Drive	West of Moreno Beach Drive	53.8	55.8	2.0	+3 dBA
John F. Kennedy Drive	East of Moreno Beach Drive	63.0	63.3	0.3	+2 dBA
John F. Kennedy Drive	East of Championship Drive	57.6	57.7	0.1	+3 dBA
Moreno Beach Drive	North of Cactus Avenue	64.4	64.5	0.1	+1 dBA
Moreno Beach Drive	North of John F. Kennedy Drive	63.9	64.3	0.4	+1 dBA
Moreno Beach Drive	South of John F. Kennedy Drive	64.8	65.0	0.2	+1 dBA
Iris Avenue	West of Via Del Lago	65.0	65.0	0.0	+1 dBA
Cactus Avenue	West of Moreno Beach Drive	63.0	63.0	0.0	+1 dBA
Cactus Avenue	East of Moreno Beach Drive	62.0	62.0	0.0	+2 dBA
Cactus Avenue	East of Redlands Avenue	50.0	51.1	1.0	+5 dBA
Oliver Street	North of John F. Kennedy Drive	55.0	55.0	0.0	+3 dBA
Oliver Street	South of John F. Kennedy Drive	54.0	54.0	0.0	+5 dBA

Notes:
1 Noise levels do not take into account existing noise barriers.
2 Increase Threshold obtained from the FTA's allowable noise impact exposures.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table 9 shows that for the existing conditions, the Proposed Project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the Proposed Project would not result in a substantial permanent increase in ambient noise levels for the existing conditions. Impacts would be less than significant.

YEAR 2022 CONDITIONS

The Proposed Project's potential offsite noise impacts have been calculated through a comparison of the year 2022 without project scenario to the year 2022 with project scenario. The results of this comparison are shown in Table 10 (taken from Table O of the NIA).

Table 10 – Year 2022 Project Traffic Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor[1] 2022 No Project	2022 With Project	Project Contribution	Increase Threshold
John F. Kennedy Drive	West of Via Entrada	52.3	52.9	0.6	+5 dBA
John F. Kennedy Drive	East of Via Entrada	53.8	54.2	0.4	+5 dBA
John F. Kennedy Drive	West of Moreno Beach Drive	54.4	56.0	1.6	+3 dBA
John F. Kennedy Drive	East of Moreno Beach Drive	63.5	63.7	0.2	+2 dBA
John F. Kennedy Drive	East of Championship Drive	58.1	58.1	0.0	+2 dBA
Moreno Beach Drive	North of Cactus Avenue	64.8	64.9	0.1	+1 dBA
Moreno Beach Drive	North of John F. Kennedy Drive	64.4	64.7	0.3	+1 dBA
Moreno Beach Drive	South of John F. Kennedy Drive	65.2	65.4	0.2	+1 dBA
Iris Avenue	West of Via Del Lago	65.0	65.0	0.0	+1 dBA
Cactus Avenue	West of Moreno Beach Drive	63.0	63.0	0.0	+1 dBA
Cactus Avenue	East of Moreno Beach Drive	62.0	62.0	0.0	+2 dBA
Cactus Avenue	East of Redlands Avenue	51.0	51.0	0.0	+5 dBA
Oliver Street	North of John F. Kennedy Drive	55.0	55.0	0.0	+3 dBA
Oliver Street	South of John F. Kennedy Drive	54.0	54.0	0.0	+5 dBA

Notes:
[1] Noise levels do not take into account existing noise barriers.
[2] Increase Threshold obtained from the FTA's allowable noise impact exposures.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table 10 shows that for the year 2022 conditions, the Proposed Project's permanent noise increases to the nearby sensitive receptors from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the Proposed Project would not result in a substantial permanent increase in ambient noise levels for the year 2022 conditions. Impacts would be less than significant.

Onsite Noise Sources

The Proposed Project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. The operation of the Proposed Project may create an increase in onsite noise levels from noise impacts from rooftop mechanical equipment, parking lot activities, delivery truck activities, car wash activities, and gas dispensing activities.

Section 11.80.030(C) of the City's Municipal Code limits noise levels to 60 dBA between 8:00 a.m. and 10:00 p.m. and 55 dBA between 10:01 p.m. and 7:59 a.m. the following day at the nearby residential properties, located as near as 15 feet south of the Project site. Section 11.80.030(C) also provides commercial noise standards, however the nearest commercial uses are located approximately 2,798 feet (0.5 miles) to the north of the Project site and due to the distance, no noise impacts are anticipated to the nearby commercial uses.

The analysis provided in Section 7.2 of the NIA found that the noise levels from onsite noise sources at the nearby homes would be as high as 64 dBA. This was based on the worst-case scenario of the simultaneous occurrence of rooftop equipment, truck loading, parking lot activities, delivery truck activities, car wash activities, and gas dispensing activities. The analysis in Section 7.2 of the NIA also found that the Proposed Project's operational noise level at the nearest offsite workers would exceed both the City's daytime standard of 60 dBA and nighttime standard of 55 dBA for residential uses. This would be considered a significant impact.

MM-NOI-1 is provided that would require the proposed carwash to be equipped with automatic doors at the entrance and exit of the carwash, which will be required to be closed prior to the running of the car wash. Additionally, all vacuum and blower motors would be required to be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m..

The analysis provided in Section 7.2 of the NIA found that with the application of MM-NOI-1, the noise levels at the nearby residential receptors would be reduced to within both the City's daytime noise standard of 60 dBA Leq and the nighttime standard of 55 dBA Leq. With implementation of MM-NOI-1, the Proposed Project would not create a substantial permanent increase in ambient noise levels from onsite sources. Impacts would be less than significant.

d) *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less Than Significant: The Proposed Project may create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above noise levels existing without the Proposed Project. The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 2.5-acre Project site; building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant; paving of the onsite driveways and parking areas; and application of architectural coatings. Noise impacts from construction activities associated with the Proposed Project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptor to the Project site is the single-family home located adjacent to the southern edge of the Project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the Project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the Project site on the north side of John F. Kennedy Drive.

The construction noise impacts to the nearby sensitive receptors has been previously analyzed, which found that that the greatest noise impacts at the nearby home would occur at the home adjacent to the southern edge of the Project site during the site preparation and grading phases of construction, with a noise level as high as 87 dBA, which is within the City's noise threshold of 90 dBA. Section 7.2 of the NIA shows that none of the construction phases would exceed the City's noise standard. The City noise standards were developed based on a standard where a high probability hearing loss would occur as determined by the Center for Disease Control and Prevention (OSHA) and represent the City's standard for determining what constitutes a substantial temporary increase in ambient noise levels. Therefore, through adherence to the limitation of construction activities to between 7:00 a.m. and 8:00 p.m. as detailed in Section 11.80.030(D)(7) of the City's Municipal Code, the Proposed Project would not create a substantial temporary or periodic increase in ambient noise levels. Impact would be less than significant.

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 expose people residing or working in the project area to excessive noise levels?

Less Than Significant: The Proposed Project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is the Perris Valley Airport, located approximately 10 miles southwest of the Project site. The Project site is located outside of the 60 dBA CNEL noise contours of this airport and the site observations during the noise measurements found that although aircraft noise is occasionally audible at the Project site, the noise created by the aircraft is not loud enough to measurably increase the ambient noise levels, which is primarily created by John F. Kennedy Drive and Moreno Beach Drive. Impacts would be less than significant.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Less Than Significant: The Proposed Project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest private airport is Perris Valley Airport, located approximately ten miles southwest of the Project site. The Project site is located outside of the 60 dBA CNEL airport noise contours and site observations during the noise measurements found that although aircraft noise is occasionally audible at the Project site, the noise created by the aircraft is not loud enough to measurably increase the ambient noise levels, which is primarily created by John F. Kennedy Drive and Moreno Beach Drive. Impacts would be less than significant.

3.13 Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant: The Proposed Project would develop the subject property with a convenience store, QSR, restaurant and carwash in accordance with the Commercial land uses designation applied to the site by the City of Moreno Valley General Plan and Zoning Map. Accordingly, the Proposed Project would not result in growth that was not already anticipated by the City of Moreno Valley General Plan and evaluated in the City of Moreno Valley General Plan FEIR. The Project site is served by existing public roadways and utility infrastructure is already installed beneath public rights of way that abut the property, so the Project would not induce growth as a result of utility extensions. For these reasons, implementation of the Proposed Project would not result in direct or indirect growth in the area, and impacts would be less than significant. No further analysis of this subject is required.

b) *Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact: The Project site is vacant and does not contain any residential structures under existing conditions. Accordingly, implementation of the Project would not displace substantial numbers of existing housing and would not necessitate the construction of replacement housing elsewhere. No impact would occur and no further analysis of this subject is required.

c) *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

No Impact: As described above under response to Item 3.13(b), the Project site does not contain any residential structures; therefore, no people live on the subject property under existing conditions. Accordingly, implementation of the proposed Project would not displace substantial numbers of people and would not necessitate the construction of replacement housing elsewhere. No impact would occur and no further analysis of this subject is required.

3.14 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒

v. Other public facilities?	☐	☐	☐	☒

a) *Would the project 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?

Less Than Significant: The Moreno Valley Fire Department (MVFD) is the primary response agency for fires, emergency medical service, hazardous materials incidents, traffic accidents, terrorist acts, catastrophic weather events, and technical rescues for the City of Moreno Valley. The Fire Department also provides a full range of fire prevention services including public education, code enforcement, plan check and inspection services for new and existing construction, and fire investigation. Additionally, the City's Office of Emergency Management is located within the Fire Department allowing for a well-coordinated response to both natural and man-made disasters. The MVFD is part of the CALFIRE / Riverside County Fire Department's regional, integrated, cooperative fire protection organization. The MVFD has seven fire stations. (City of Moreno Valley, 2018)

The proposed Project is required to provide a minimum of fire safety and support fire suppression activities, including type of building construction, fire sprinklers, a fire hydrant system and paved access. The College Park Fire Station (Station No. 91), located at 16110 Lasselle Street is approximately 2.7 roadway miles to the southwest of the Project site and services the southeaster portion of the City, including the Project Site. Secondary service is provided by the Morrison Park Fire Station (Station No. 99) located at 13400 Morrison Street, approximately 3.2 roadway miles to the northwest of the Project Site.

The Project site would be adequately serviced by these stations and no new or expanded unplanned facilities would be required. The proposed Project is required to comply with the provisions of the City of Moreno Valley's Development Impact Fee (DIF) Ordinance (Ordinance No. 695), which requires a fee payment that the City applies to the funding of public facilities, including fire protection facilities. Mandatory compliance with the DIF Ordinance would be required prior to the issuance of a building permit.

Based on the foregoing, the proposed Project would receive adequate fire protection service and would not result in the need for new or physically altered fire protection facilities. Impacts to fire protection facilities would be less than significant and no further analysis of this subject is required.

ii. Police protection?

Less Than Significant: The development of the subject property with a C-store, restaurant, QSR, and carwash would introduce new building structures and employees to the Project site which would result in an incremental increase in demand for police protection services, but which is not anticipated to require or result in the construction of new or physically altered police facilities. Prior to the issuance of building permits, the Project Applicant would be required to comply with the provisions of Moreno Valley's Development Impact Fee (DIF) Ordinance (Ordinance No. 695), which requires a fee payment that the City applies to the funding of public facilities, including police protection facilities. Mandatory compliance with the DIF Ordinance would be required prior to the issuance of a building permit. Based on the foregoing, the proposed Project would receive adequate police protection service, and would not result in the need for new or physically altered fire protection facilities. Impacts to police protection facilities would therefore be less than significant and no further analysis of this issue area is warranted.

iii. Schools?

No Impact: Development of the Project site as proposed by the Project would not create a direct demand for public school services, as the subject property would contain non-residential uses that would not generate any school-aged children requiring public education. The addition of employment-generating uses on the Project site would assist the City in achieving its goal to provide a better jobs/housing balance within the City and the larger western Riverside County region (City of Moreno Valley 2006). The proposed Project is not expected to draw a substantial number of new residents to the region and would therefore not indirectly generate school-aged students requiring public education. Because the proposed Project would not directly generate students and is not expected to indirectly draw students to the area, the proposed Project would not cause or contribute to a need to construct new or physically altered public school facilities. Pursuant to the Moreno Valley Unified School District Developer Impact School Fee requirements, the Project site is located in Community Facilities District 88-1, which does not require the payment of fees (MVUSD). Impacts to public schools would be less than significant and no further analysis of this subject is required.

iv. Parks?

No Impact: As discussed under items 3.15(a) and 3.15(b) below, the proposed Project would not create a demand for public park facilities and would not result in the need to modify existing or construct new park facilities. Accordingly, implementation of the proposed Project would not adversely affect any park facility. Thus, no impact would occur and no further analysis of this subject is required.

v. Other public facilities?

No Impact: The proposed Project is not expected to result in a demand for other public facilities/services, including libraries, community recreation centers, post offices, and animal shelters. As such, implementation of the proposed Project would not adversely affect other public facilities or require the construction of new or modified public facilities. Thus, no impact would occur and no further analysis of this subject is required.

3.15 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

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 would occur or be accelerated?*

No Impact: The Project proposes to develop the Project site with commercial uses. The Project does not propose any type of residential use or other land use that may generate a population that would increase the use of existing neighborhood and regional parks or other recreational facilities. Accordingly, implementation of the proposed Project would not result in the increased use or substantial physical deterioration of an existing neighborhood or regional park, thus, no impact would occur and no further analysis of this subject is required.

b) *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

No Impact: The Project proposes to develop the Project site with commercial land uses. The Project does not propose to construct any new on- or off-site recreation facilities. Additionally, the Project would not expand any existing off-site recreational facilities. Thus, environmental effects related to the construction or expansion of recreational facilities would not occur with implementation of the proposed Project. Thus, no impact would occur and no further analysis of this subject is required.

3.16 Transportation/Traffic

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass	☐	☒	☐	☐

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
transit?				
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

a) *Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?*

Less Than Significant With Mitigation Incorporated: K2 Traffic Engineering, Inc. conducted a traffic impact analysis (TIA) for the Proposed Project. The results of this analysis are contained within the report titled *Focused Traffic Impact Study*, dated January 30, 2018, and which is included as Appendix H of this document.

The TIA included the following study scenarios:

- Existing: Year 2017
- Existing Year 2017 plus Project
- Pre-Project Conditions: Year 2022
- Post-Project Conditions: Year 2022 plus Project
- Post-Project Conditions: Year 2022 plus Project with Mitigation, if necessary

The TIA analyzed the following intersections:

1. John F. Kennedy Dr at Oliver St
2. John F. Kennedy Dr at Via Entranda
3. John F. Kennedy Dr at Moreno Beach Dr
4. John F. Kennedy Dr at Championship Dr
5. John F. Kennedy Dr at Cactus Ave
6. Moreno Beach Dr at Cactus Ave
7. Moreno Beach Dr at Championship Dr
8. Moreno Beach Dr/Iris Ave at Via Del Lago

Existing Conditions

The study intersections currently operate at LOS "C" or better for both AM and PM peak hours.

Existing Conditions Plus Project

The results of the TIA concluded that all studied intersections would maintain level of service "C" or better for the existing conditions plus project (See Table 5 of the TIA, Existing Conditions Plus Project and Exhibit 7, Existing (2017) Plus Project Traffic).

Pre-Project Completion

Traffic conditions prior to the time that the proposed development is completed is estimated by applying an annual growth rate of two percent (2%) over existing traffic counts to project year 2022 conditions. This factor represents traffic increases resulting from regional development growth. Traffic volumes for the pre-project completion are illustrated in Exhibit 8 of the TIA. All studied intersections will maintain level of service "C" or better for both AM and PM peak hours, as shown in Table 6 of TIA. The analysis worksheets can be found in Appendix "C" of the TIA.

Post-Project Completion

Traffic volumes for year 2022 after project completion (existing plus ambient growth plus project) are illustrated in Exhibit 9 of the TIA. All studied intersections will maintain level of service "C" or better for both AM and PM peak hours, as shown in Table 7 of the TIA.

Threshold of Significant Impact

In accordance with the Caltrans Guide for the Preparation of Traffic Impact Studies, the following criteria apply to determination of significant impact.

Threshold of Significant Impact

LOS	Control Delay (Sec/Veh)
A	≤ 10
B	> 10 - 20
C	> 20 - 35
D	> 35 - 55
E	> 55 - 80
F	> 80

With consideration of the Proposed Project together with other developments in the area, the combined traffic impacts are shown in Table 9 of the TIA. Based on the threshold shown above, the project does not have a significant traffic impact. Mitigation measures are, therefore, not required for the project.

Queue Analysis

To ensure sufficient queuing storage length is available for all turning movements (e.g. left, right and U turns), the study conducted queue analysis based on Existing Conditions + Project

Conditions (year 2017) and Cumulative Conditions (year 2022) traffic volumes. The results of queue analysis can be found in Appendix D of the TIA and are summarized in Table 10 of the TIA. The TIA confirmed that adequate queuing lengths are provided at all locations with the following exception:

- Eastbound Left Turn (John F. Kennedy Drive at Moreno Beach Drive)
  95th percentile queue (year 2022 PM peak hour with project) = 118 feet
  Existing pocket length = 100 feet

MM-CIR-1 and MM-CIR-2 would address the insufficient queue length by extending the eastbound left-turn lane at the intersection of John F. Kennedy Drive and Moreno Beach Drive to provide 145 feet of storage length; and shortening the westbound left-turn lane at the intersection of John F. Kennedy Drive and Via Entrada to provide 100 feet of storage length.

The implementation of MM-CIR-1 and CIR-2 would result in a shortened yet sufficient storage for westbound left turns on John F. Kennedy Drive at Via Entrada. The effects due to changes of back-to-back turn bay storages are shown in Table 11 of the TIA.

Peak-Hour Signal Warrant

The TIA examined peak-hour signal warrant for all study intersections that are not currently signalized. These stop-controlled intersections are:

- John F. Kennedy Drive at Oliver Street
- John F. Kennedy Drive at Via Entrada
- Redlands Boulevard at Cactus Avenue
- Moreno Beach Drive at Championship Drive

The worksheets of peak-hour signal warrant (Warrant 3) are shown in Appendix E of the TIA. The results concluded that none of the stop-controlled intersections met the warrant for traffic signal based on year 2022 am and pm peak hour, including project traffic.

Pedestrian and Bicycle

Pedestrian sidewalks are provided in the project vicinity with adequate width clear of any apparent obstruction. The adjacent intersection of John F. Kennedy Drive and Moreno Beach Drive has a pedestrian crosswalk for each approach and ADA compliant access ramps at each corner along with pedestrian push buttons to activate pedestrian crossing phases.

The project vicinity is also bicycle friendly. Both Moreno Beach Drive and John F. Kennedy Drive are functioning as Class II bike lanes, except John F. Kennedy Drive east of Moreno Beach Drive, which is a Class II bike route per the Bicycle Master Plan of the City of Moreno Valley. Bicycle push buttons are provided for signal activation at the intersection. There is no reported bicycle collision in the project vicinity according to the latest Bicycle Master Plan. Existing facilities for pedestrian and bicycle appear adequate to accommodate pedestrian and bicycle activities associated with the project development.

Summary

Based on the TIA conducted for the Proposed Project, all studied intersections would maintain level of service "C" or better for both AM and PM peak hours in each of the study scenarios. The project would not result in a significant traffic impact. With implementation of MM-CIR-1 and MM-CIR-2, all nearby intersections would provide sufficient queuing storage lengths to service the Proposed Project. Impacts would be less than significant.

Mitigation Measures:

MM-CIR-1: Extend eastbound left-turn lane at the intersection of John F. Kennedy Drive and Moreno Beach Drive to provide 145 feet of storage length.

MM-CIR-2: Shorten westbound left-turn lane at the intersection of John F. Kennedy Drive and Via Entrada to provide 100 feet of storage length.

b) *Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?*

Less Than Significant. As described above under 3.16(a), the results of the TIA concluded that for Existing Plus Project conditions, all studied intersections would maintain level of service "C" or better for both AM and PM peak hours. Impacts would be less than significant and no mitigation measures would be required.

c) *Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

No Impact: The Project will not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks because there are no airports in the vicinity of the Project and there is no anticipated notable impact on air traffic volumes by passengers or freight generated by the proposed uses and no new air traffic facilities are proposed. The closest airport is the Perris Valley Airport-L65, a private airport located over 9 miles away. No impacts will occur.

d) *Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

No Impact: The Project would not substantially increase hazards due to a design feature or incompatible uses because the Project site is surrounded by established roads (Moreno Beach Drive, John F. Kennedy Drive, Via Entrada and Via Sonata) that are accessed at points with good site distance and properly controlled intersections. There are no incompatible uses proposed by the Project that will impact surrounding land uses.

e) *Would the project result in inadequate emergency access?*

Less Than Significant: The Project would not result in inadequate emergency access because there are three vehicular access points serving the Project site, including one on Moreno Beach Drive, one on John F. Kennedy Drive and one on Via Entrada, each accessible from both directions.

f) *Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?*

Less Than Significant: The Project would not conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks), or otherwise decrease the performance or safety of such facilities. The Project site is served by existing public sidewalks on all four streets abutting the Project site, each in good condition. An existing Class II bike path is located on both Moreno Beach Drive and John F. Kennedy Drive. The Project site is also served by public transit. The Proposed Project would not impact the performance of these existing facilities. Moreover, the Proposed Project would install a class II bicycle parking rack with a five-bike capacity. Therefore, impacts would be less than significant and no mitigation measures would be required.

3.17 Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in §21074?	☐	☒	☐	☐

a) *Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in §21074?*

Less Than Significant With Mitigation Incorporated. Assembly Bill 52 requires meaningful consultation with California Native American Tribes on potential impacts to Tribal Cultural Resources, as defined in §21074. A tribe must submit a written request to the relevant lead agency if it wishes to be notified of projects within its traditionally and culturally affiliated area. The lead agency must provide written, formal notification to the tribes that have requested it within 14 days of determining that a project application is complete, or deciding to undertake a project. The tribe must respond to the lead agency within 30 days of receipt of the notification if it wishes to engage in consultation on the project, and the lead agency must begin the consultation process within 30 days of receiving the request for consultation. Consultation concludes when either 1) the parties agree to mitigation measures to avoid a significant effect, if one exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. AB 52 also addresses confidentiality during tribal consultation per Public Resources Code §21082.3(c).

A Cultural Assessment prepared for the Proposed Project (Appendix C) determined that there are no previously recorded cultural resources located within the Project boundaries, including Tribal Cultural Resources. The Proposed Project would implement mitigation measure MM-TRI-1. Per MM-CR-1, in the event that cultural resources are inadvertently discovered during ground-disturbing activities, work is required to be halted within 50 feet of the discovery until it can be evaluated by a qualified archaeologist. If tribal cultural resources are discovered, the appropriate tribal group will be notified per MM-TRI-1. Implementation of MM-TRI-1 would ensure that any potential impacts to Tribal Cultural Resources would be less than significant.

In addition, two local tribes, Pechanga Band of Luiseno Indians and Soboba Band of Luiseno Indians, have requested consultation and the participation of tribal monitors during the grading process. As part of the of the AB 52 consultation process, the City has agreed to include additional mitigation measures (MM-TRI-2 through MM-TRI-7). The mitigation measures have been introduced, not to reduce an impact, but rather to ensure compliance with City General Plan Policies and the State Public Resources Code.

Mitigation Measures:

MM-TRI-1: In the event that potential tribal cultural resources are unearthed during ground-disturbing activities associated with the Proposed Project, the contractor shall cease all earth-disturbing activities within 50 feet of the discovery and shall notify the appropriate tribal group to assign a tribal monitor to inspect and evaluate the potential tribal cultural resource. Construction activities may continue in other areas. The tribal monitor shall evaluate the resource and determine if the discovery is significant. If the discovery proves to be significant, additional work, such as data recovery excavation or resource recovery may be warranted and shall be discussed in consultation with the appropriate tribal groups.

MM-TRI-2: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 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 grading and development scheduling;

b) The Project archeologist and the Consulting Tribes(s) as defined in MM-TRI-2 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 Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c) 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.

MM-TRI-3: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer 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. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

MM-TRI-4: 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 Mitigation Measure MM-TRI-2. 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-TRI-2.

MM-TRI-5: 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-TRI-6: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area 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. 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-TRI-2 before any further work commences in the affected area.

MM-TRI-7: 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 5-days 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).

3.18 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) 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?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less Than Significant: Wastewater service is provided to the Project site by Eastern Municipal Water District (EMWD). EMWD is required to operate all of its treatment facilities in accordance with the waste treatment and discharge standards and requirements set forth by the Regional Water Quality Control Board (RWQCB). The proposed Project would not install or utilize septic systems or alternative wastewater treatment systems; therefore, the Project would have no potential to exceed applicable wastewater treatment requirements established by the RWQCB. Accordingly, impacts would be less than significant.

b) *Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Less Than Significant: Domestic water and wastewater services are provided to the Project site by EMWD. The proposed Project would install connections to water and wastewater conveyance lines that exist beneath abutting public roadways. Except for small encroachments into adjacent public rights of way of developed/paved streets to connect to existing lines, and the construction of water and sewer lines on-site, no physical disturbance for the installation of water or wastewater facilities would be required to service the proposed Project. As such, there would be no environmental impacts beyond those that would otherwise occur from grading and development on the Project site, and impacts would be less than significant.

c) *Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Less Than Significant: As discussed in Section 3.9, Hydrology and Water Quality, bioretention basins distributed within the landscaped planters along the north, south and west edges of the site would filter and remove pollutants prior to discharge into the storm drain system. The difference in volume between the existing and proposed storm events will be stored onsite within the bio swales and along the southern drive aisle and entrance. In large storm events the site would drain similarly to the existing condition; runoff would flow south to the main drive aisle of the site and would then overflow into the right of way that will convey flows into the street. Therefore, the Project would not result in the need for off-site drainage improvements. Impacts would be less than significant.

d) *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

Less Than Significant: The proposed Project would result in an increase in potable water demand from the local water purveyor, EMWD. However, the proposed Project is fully consistent with the assumptions made in EMWD's 2010 Urban Water Management Plan. EMWD's 2010 Urban Water Management Plan concludes that the EMWD has sufficient water supplies available to serve planned land uses within its service area through at least 2035. Moreover, the proposed Project is not of a scale to necessitate a water supply assessment pursuant to the provisions of Senate Bill 610 (Costa) (California Public Resources Code Section 21151.9 and Water Code Section 10910 et seq.). Impacts would be less than significant.

e) *Would the project 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?*

Less Than Significant: Wastewater flows generated by the Project would be conveyed to the Perris Valley Regional Water Reclamation Facility, which is owned and operated by EMWD. In April 2014, an expansion project was completed on the Perris Valley Regional Water Reclamation Facility to expand its daily treatment capacity from 14 million gallons per day to 22 million gallons per day to provide sufficient treatment for anticipated regional growth. The facility receives approximately 14 million gallons of wastewater flows per day and, therefore, has an excess treatment capacity of approximately eight million gallons per day. The Project is anticipated to generate approximately 4,250 gallons of wastewater per day, based on EMWD's wastewater generation factor of 1,700 gallons per day per acre of commercial building area. This corresponds to a negligible (.0002%) percentage of the existing daily treatment capacity at the Perris Valley Regional Water Reclamation Facility. Due to the relatively small amount of wastewater that would be generated by the proposed Project and the amount of existing and planned available capacity at this facility, it is determined that the Perris Valley Regional Water Reclamation Facility would have sufficient capacity to treat wastewater generated by the Project. As such, impacts would be less than significant.

f) *Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

Less Than Significant: Solid waste generated within the General Plan planning area is primarily deposited in the Riverside County Waste Management Department's (RCWMD) Badlands Landfill, located approximately 1.5 miles north of SR-60 near Ironwood Avenue and Theodore Street. However, the City's trash hauler can also use other County landfills in the area such as the Lamb Canyon Landfill and El Sobrante landfill. All Riverside County landfills are Class III disposal sites permitted to receive non-hazardous municipal solid waste.

The City has adopted a Source Reduction and Recycling Element (SRRE) in compliance with the requirements of AB 939. Pursuant to AB 939, the California Integrated Waste Management Board required all cities and counties within the State to prepare integrated waste management plans to attain solid waste reduction of 50 percent by the end of year 2000. All future development projects within the City are required to comply with the SRRE program for diverting solid waste.

The General Plan EIR determined that potential impacts to solid waste facilities would be less than significant. Future development within the project area was considered in the General Plan EIR analysis, since additional development within the area was assumed. Implementation of the Proposed Project would be consistent with the analysis presented in the General Plan EIR and would result in no new or greater impacts than previously identified.

Implementation of the proposed Project would generate an incremental increase in solid waste volumes requiring off-site disposal during short-term construction and long-term operational activities. The Project would be required to comply with City of Moreno Valley SRRE Program (Ordinance No. 706), requiring a minimum of 50 percent of all construction waste and debris to be recycled. Continued compliance with the SRRE program would ensure that the impacts to the capacities of the landfill serving the City are minimized, thus, a less than significant impact would occur in this regard.

g) *Would the project comply with federal, state, and local statutes and regulations related to solid waste?*

Less Than Significant: Refer to Response 3.18(f). Future development anticipated by the Proposed Project would comply with all Federal, State, and local statutes and regulations related to solid waste.

3.19 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to 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, 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?	☐	☒	☐	☐
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 projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) *Does the project have the potential to 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, 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?*

Less Than Significant With Mitigation Incorporated: As previously described, the Proposed Project is an infill development project located in an urbanized area of the City and the Project site is not within or adjacent to, and would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, other approved local, regional, or state habitat conservation plan. However, the Project site has the potential to impact nesting birds, including the burrowing owl. Incorporation of mitigation measure MM-BIO-1 would reduce impacts to special status species to less than significant.

According to the cultural resources assessment prepared for the Proposed Project, no cultural resources have been recorded within the Project site, and the Project site does not contain any resources that are important to major periods of California history or prehistory. However, the cultural resources assessment identified total of 18 documented cultural resources within a one-mile radius. These consist of two prehistoric camp sites with milling features and rock paintings, 12 prehistoric archaeological milling slick sites, one prehistoric archaeological milling slick site with possible storage rock ring, two historic archaeological irrigation remnant sites, and one historic spring house. Although the Project site doesn't contain any documented cultural resources, there still remains the possibility that undiscovered, buried resources (including archaeological and tribal cultural resources) might be encountered during construction. Incorporation of mitigation measure MM-CR-1, MM-CR-2 and MM-TRI-1 would reduce any potential impacts to any undiscovered resources to less than significant and ensure that the

Proposed Project would not eliminate important examples of the major periods of California history or prehistory.

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 projects, and the effects of probable future projects)?*

Less Than Significant With Mitigation Incorporated: The Proposed Project would result in potentially significant project-specific impacts to biological, cultural, paleontological, tribal cultural resources and noise impacts. However, all mitigation measures have been identified that would reduce these impacts to less than significant levels. Furthermore, the Air Quality and Transportation/Traffic analyses presented in Section 3.3 and Section 3.16, respectively, of this document considered cumulative impacts and determined that cumulative air quality and traffic impacts would less than significant. No additional mitigation measures would be required to reduce cumulative impacts to less than significant levels.

c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less Than Significant With Mitigation Incorporated: All potential impacts of the Proposed Project have been identified, and mitigation measures have been provided, where applicable, to reduce potential impacts to less than significant levels. Upon implementation of mitigation measures, the Proposed Project would not have the potential to result in substantial adverse impacts on human beings either directly or indirectly. No additional mitigation measures would be required.

SECTION 4.0 REFERENCES

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INITIAL STUDY
MITIGATION MONITORING PROGRAM

Project Name:	MORENO BEACH COMMERCIAL CENTER
Project Location:	The Project site is located in the City of Moreno Valley at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive within the Moreno Ranch Specific Plan (SP193).
CEQA Action:	Initial Study and Mitigated Negative Declaration Mitigation Monitoring Program
Entitlement Requests:	Master Plot Plan PEN17-0044, Plot Plan PEN17-0045 and Conditional Use Permit PEN17-0046
Project Description:	The Proposed Project would consist of a 12-vehicle fueling position gas station with a 3,520-square foot canopy, a 3,400-square foot convenience store (C-Store), and a 3,526-square foot carwash. The Proposed Project would also include a 2,584-square foot sit-down restaurant, a 1,632-square foot restaurant, and a 73-space parking lot (including 63 regular, six clean air and four handicap accessible spaces). The Project would also include an outdoor patio and seating area south of the sit-down restaurant, landscaping along the perimeter, hardscape, on-site stormwater management improvements, signs, a trash enclosure, an air & water unit, area lighting, and a class II bicycle parking rack with a five-bike capacity. Biorention basins would be provided in the linear landscape strips along the north, west and south property lines. Operational hours are anticipated to be 24-hours per day, 7 days per week with operation expected to start in 2018 with limited hours of operation for the car wash.

Terms and Definitions:

1. **Property Owner/Developer –** Owner or developer of Moreno Beach Commercial Center.

2. **Environmental Equivalent/Timing** – Any mitigation measure and timing thereof, subject to the approval of the City, which will have the same or superior result and will have the same or superior effect on the environment. The Planning Division, in conjunction with any appropriate agencies or City departments, shall determine the adequacy of any proposed "environmental equivalent/timing" and, if determined necessary, may refer said determination to the Planning Commission. Any costs associated with information required in order to make a determination of environmental equivalency/timing shall be done by the property owner/developer. Staff time for reviews will be charged on a time and materials basis at the rate in the City's adopted Fee Schedule.

3. **Timing –** This is the point where a mitigation measure must be monitored for compliance. In the case where multiple action items are indicated, it is the first point where compliance associated with the mitigation measure must be monitored. Once the initial action item has been complied with, no additional monitoring pursuant to the Mitigation Monitoring Program will occur, as routine City practices and procedures will ensure that the intent of the measure has been complied with. For example, if the timing is "to be shown on approved building plans" subsequent to issuance of the building permit consistent with the approved plans will be final building and zoning inspections pursuant to the building permit to ensure compliance.

4. **Responsibility for Monitoring –** Shall mean that compliance with the subject mitigation measure(s) shall be reviewed and determined adequate by all departments listed for each mitigation measure. Outside public agency review is limited to those public agencies specified in the Mitigation Monitoring Program which have permit authority in conjunction with the mitigation measure.

5. **Ongoing Mitigation Measures –** The mitigation measures that are designated to occur on an ongoing basis as part of this Mitigation Monitoring Program will be monitored in the form of an annual letter from the property owner/developer in January of each year demonstrating how compliance with the subject measure(s) has been achieved. When compliance with a measure has been demonstrated for a period of one year, monitoring of the measure will be deemed to be satisfied and no further monitoring will occur. For measures that are to be monitored "Ongoing During Construction", the annual letter will review those measures only while construction is occurring; monitoring will be discontinued after construction is complete. A final annual letter will be provided at the close of construction.

6. **Building Permit –** For purposes of this Mitigation Monitoring Program, a building permit shall be defined as any permit issued for construction of a new building or structural expansion or modification of any existing building, but shall not include any permits required for interior tenant improvements or minor additions to an existing structure or building.

MITIGATION MONITORING PROGRAM

MITIGATION NUMBER	TIMING	MEASURE	RESPONSIBLE FOR MONITORING	COMPLETION
BIOLOGICAL RESOURCES				
BIO-1	Prior to issuance of demolition, grading or building permits, whichever occurs first.	If construction activities are to take place during the avian nesting season (February 15 through August 31 for most bird species), a pre-construction survey for nesting bird species shall be conducted within 7 days prior to vegetation removal. The survey will identify any active nesting by special-status birds on the Project site or within 500 feet of construction activities. If active nests of special-status birds are present in the impact area or within 500 feet of the edge of construction area, a qualified biologist shall prescribe avoidance measures including, but not limited to, establishing a construction buffer. The type of species, nesting stage, surround topography, existing conditions, and type of construction activity will determine the appropriate avoidance measures. Avoidance measures shall remain in place until the nest is no longer active as determined by a qualified biologist.	Community Development Department/Planning Division	
CULTURAL RESOURCES				
CR-1	Ongoing during grading, demolition, and construction.	In the event that cultural resources are unearthed during ground-disturbing activities associated with the Proposed Project, the contractor shall cease all earth-disturbing activities within 50 feet of the discovery and shall retain a qualified archaeologist. Construction activities may continue in other areas. The archaeologist shall evaluate the resource and determine if the discovery is significant. If the discovery proves to be significant, additional work, such as data recovery excavation or resource recovery may be warranted and shall be discussed in consultation with the appropriate regulatory agency and/or tribal group.	Public Works Department/ Land Development Division	
CR-2	Prior to issuance of demolition, grading or building permits, whichever occurs first.	A Paleontological Resource Impact Mitigation Program and full-time monitoring for all excavations greater than eight feet deep shall be performed. If unanticipated fossils are unearthed during construction, work should be halted in that area until a qualified paleontologist can assess the significance of the find and satisfactory mitigation has been implemented. Work may resume immediately a minimum of 50 feet away from the find. This procedure shall be included in the Worker Environmental Awareness Program (WEAP) training provided to construction personnel.	Community Development Department/Planning Division	

NOISE				
NOI-1	Prior to issuance of building permit and ongoing during operation.	The project applicant shall require the proposed carwash to be constructed with automatic car doors with a minimum of Sound Transmission Class (STC) rating of 14 STC at the entrance and exit of the carwash which would be closed prior to operating the car wash for each car to be washed. The project applicant shall also require all vacuum and blower motors be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m.	Community Development Department/Planning Division	
TRANSPORTATION/TRAFFIC				
CIR-1	Prior to issuance of the first building permit.	Extend eastbound left-turn lane at the intersection of John F. Kennedy Drive and Moreno Beach Drive to provide 145 feet of storage length.	Public Works Department/ Transportation Division	
CIR-2	Prior to issuance of the first building permit.	Shorten westbound left-turn lane at the intersection of John F. Kennedy Drive and Via Entrada to provide 100 feet of storage length.	Public Works Department/ Transportation Division	
TRIBAL CULTURAL RESOURCES				
TRI-1	Ongoing during ground-disturbing activities.	In the event that potential tribal cultural resources are unearthed during ground-disturbing activities associated with the Proposed Project, the contractor shall cease all earth-disturbing activities within 50 feet of the discovery and shall notify the appropriate tribal group to assign a tribal monitor to inspect and evaluate the potential tribal cultural resource. Construction activities may continue in other areas. The tribal monitor shall evaluate the resource and determine if the discovery is significant. If the discovery proves to be significant, additional work, such as data recovery excavation or resource recovery may be warranted and shall be discussed in consultation with the appropriate tribal groups.	Public Works Department/ Land Development Division	

TRI-2	Prior to the issuance of a grading permit.	Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 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 grading and development scheduling; b) The Project archeologist and the Consulting Tribes(s) as defined in MM-TRI-2 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 Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; c) 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.	Public Works Department/ Land Development Division	

TRI-3	Prior to the issuance of a grading permit.	Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer 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. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.	Public Works Department/ Land Development Division	
TRI-4	Ongoing during ground disturbing activities.	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 Division: 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 Mitigation Measure MM-TRI-2. 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-TRI-2.	Planning Division	

TRI-5	Prior to issuance of grading permit.	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."	Public Works Department/Land Development Division	
TRI-6	Ongoing during ground-disturbing activities and construction.	If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area 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. Determinations and recommendations by the consultant shall be immediately submitted to the Community Development Department/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-TRI-2 before any further work commences in the affected area.	Community Development Department/Planning Division	
TRI-7	Ongoing during ground-disturbing activities and construction.	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 5-days 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).	Community Development Department/Planning Division	

PLANNING COMMISSION RESOLUTION NO. 2018-24

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY APPROVING MASTER PLOT PLAN APPLICATION PEN17-0044 TO DEVELOP A RETAIL CENTER TO INCLUDE A SERVICE STATION WITH SIX GAS PUMP ISLANDS, A 7,616 SQUARE FOOT THREE TENANT RETAIL BUILDING WITH SPACE FOR A CONVENIENCE STORE AND TWO RESTAURANT SPACES AND A DRIVE-THROUGH CAR WASH BUILDING OF 3,526 SQUARE FEET ON A 2.45 ACRE SITE LOCATED AT THE SOUTHWEST CORNER OF MORENO BEACH DRIVE AND JOHN F. KENNEDY DRIVE (ASSESSOR'S PARCEL NUMBER 304-240-004).

Section 1:

WHEREAS, Western States Engineering, has filed an application for the approval of Master Plot Plan PEN17-0044 for development of a retail center with a service station for property located at southwest corner of Moreno Beach Drive and John F. Kennedy Drive as described in the title above; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the City has reviewed this project and determined that it is consistent with the site's General Plan designation of Commercial, all applicable General Plan policies and the Commercial zoning district of the Moreno Valley Ranch Specific Plan (SP 193) subject to approval of a master plot plan; and

WHEREAS, the City worked with Sagrecrest Planning+Environmental in the preparation of an Initial Study and Mitigated Negative Declaration for the project consistent with the California Environmental Quality Act (CEQA) and based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis; and

WHEREAS, upon completion of a thorough development review process the project was appropriately agendized and noticed for a public hearing before the Planning Commission of the City of Moreno Valley (Planning Commission); and

WHEREAS, the public hearing notice for this project was published in the local newspaper on March 23, 2018. Public notice was sent to all property owners of record within 300 feet of the project site on March 29, 2018. The public hearing notice for this project was also posted on the project site on April 2, 2018;

WHEREAS, on April 12, 2018, the Planning Commission held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), **NOTICE IS HEREBY GIVEN** that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the Planning Commission as follows:

A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on April 12, 2018, including written and oral staff reports, public testimony and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. **Conformance with General Plan Policies –** The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

   FACT: The General Plan Land Use designation for the project site is Commercial. General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

   The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan. The proposed project is consistent with the General Plan and with its goals, objectives, policies, and programs established within the Plan.

2. **Conformance with Zoning Regulations –** The proposed use complies with all applicable zoning and other regulations.

   FACT: The project site is located within the Moreno Valley Ranch Specific Plan (SP 193) with a zoning designation of Commercial (C). Design guidelines for architecture and landscape are provided in SP 193, while site development standards for the commercial development defer to the City's Neighborhood Commercial (NC) development standards. Permitted uses for this zone are the uses permitted under the City's Neighborhood Commercial (NC) zone.

   The project is designed in accordance with the provisions of the Moreno Valley Ranch Specific Plan and Municipal Code Section 9.04 Commercial Districts. The project as designed and conditioned would comply with all applicable zoning and other regulations.

3. **Health, Safety and Welfare –** The proposed use will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

   FACT: The proposed Conditional Use Permit as designed and conditioned will provide acceptable levels of protection from natural and man-made hazards to life, health, and property consistent with General Goal 9.6.1. The project site is located approximately two and one half miles from Fire Station No. 91 located to the west on Lasselle Street near Iris Avenue. Therefore, adequate emergency services can be provided to the site consistent with General Plan Goal 9.6.2.

   The proposed project as designed and conditioned will result in a development that will minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding as provided for in General Plan Objective 6.1 and General Plan Objective 6.2.

   The proposed project site is located at the southwest corner of John F. Kennedy Drive and Moreno Beach Drive within the Moreno Valley Ranch Specific Plan (SP 193). The area directly to the west of the proposed project includes Fairway Park and the Landmark Middle School. There are two large high density, multiple-family residential parcels to the east and north of the project. These lots are developed with apartments and condominiums. The area directly south of the proposed project is zoned residential and completely developed. There also are residential tracts to the northeast and northwest of the proposed commercial project. The project as designed and conditioned will not be detrimental to the adjacent uses.

   The project as designed is consistent with the City's Municipal Code Section 9.04 Commercial Districts and will satisfy all City requirements related to light and noise. Planning staff worked with Sagecrest Planning+Environmental in the preparation of an Initial Study and Mitigated Negative Declaration in accordance with the provisions of the California Environmental Quality Act (CEQA) based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis.

4. **Location, Design and Operation –** The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

   FACT: The project site is located on vacant property in the Commercial zone of the Moreno Valley Ranch Specific Plan. Permitted uses for the project site are the uses listed under the Neighborhood Commercial zone in the City's Municipal Code.

The area directly to the west of the proposed project includes Fairway Park, and the Landmark Middle School. There are two large high density, multiple-family residential parcels to the east and north of the project. These lots are developed with apartments and condominiums. The area directly south of the proposed project is zoned residential and completely developed. There also are residential tracts to the northeast and northwest of the proposed commercial project.

Municipal Code Section 9.04.020 Commercial Districts states that the primary purpose of the neighborhood commercial (NC) district is to satisfy the daily shopping needs of Moreno Valley residents by providing construction of conveniently located neighborhood centers which provide limited retail commercial services. These centers must be compatible with the surrounding residential communities. As designed and conditioned, and with implementation of mitigation measures, the project is compatible with existing and proposed land uses in the vicinity.

Section 2:

FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee, Transportation Uniform Mitigation Fee (TUMF), Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Habitat Conservation fee, Underground Utilities in lieu Fee, Area Drainage Plan fee, Bridge and Thoroughfare Mitigation fee (Future) and Traffic Signal Mitigation fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this Resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN17-00044, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d)(1), NOTICE IS FURTHER GIVEN that the 90 day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this Resolution begins on the effective date of this Resolution and any such protest must be in a manner that complies with Section 66020(a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservations, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

Section 3:

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY APPROVES** Resolution No. 2018-24, and thereby:

1. **APPROVES** Master Plot Plan PEN17-0044 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

APPROVED this 12th day of April, 2018.

AYES:
NOES:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

ATTEST:

Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

Exhibit A

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
MASTER PLOT PLAN (PEN17-0044)
PLOT PLAN (PEN17-0045)
CONDITIONAL USE PERMIT (PEN17-0046)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. Master Plot Plan application PEN17-0044 is approved for the development of a 2.45 acre site with building pads for a 7,616 square foot retail building, a 3,520 square foot canopy with six gas pump islands, and a 3,526 square foot car wash building and 73 parking spaces. Common amenities in the center include reciprocal access and reciprocal parking, shared drive aisles, two outdoor seating areas, pedestrian pathways, a shared trash enclosure and common area landscape on a single parcel. The proposed service station requires approval of a separate Conditional Use Permit.

2. Conditional Use Permit application PEN17-0046 is approved for a service station use to include a 3,520 canopy with six gas pump islands, a 3,400 square foot convenience store in a portion of a 7,616 square foot retail building, a 290 mezzanine for office use and a 3,526 square car wash building. Approval of this use is subject to approval of Master Plot Plan PEN17-0044.

   Beer and wine sales are approved with this conditional use permit subject to issuance of the appropriate license from the California Department of Alcoholic Beverage Control (ABC) and if necessary a Letter of Public Necessity and Convenience from the Moreno Valley Police Department.

3. Plot Plan application PEN17-00045 is approved to establish two restaurant uses in portions of a 7,616 square foot retail building subject to approval of Master Plot Plan PEN17-0044.

4. ANY expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)

5. The 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. (MC 9.02.030)

6. 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. (MC 9.02.230)

7. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

8. This project is located within the Moreno Valley Ranch Specific Plan (SP 193). The provisions of the specific plan, the design manual, their subsequent amendments, and the Conditions of Approval shall prevail unless modified herein. (MC 9.13).

9. 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, 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. (MC9.14.020)

10. 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. No signs are permitted in the public right of way. (MC 9.12)

11. 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.

12. 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.

Special Conditions

13. The shopping center parking lot lighting shall be maintained in good repair and shall comply with the Municipal Code lighting standards of a minimum of one (1) foot candle and a maximum of eight (8) foot candle.

14. Mitigation measures have been adopted for this project (PEN17-0044, PEN17-0045 and PEN17-0046). Implementation of the mitigation measures contained in the Mitigation Monitoring Program for the Moreno Beach Commercial Center project is a requirement of this project.

15. The sale of beer and wine shall be limited to 7 a.m. to 10 p.m. seven days per week.

16. Any convenience store selling alcoholic beverages shall post the premises with signs prohibiting the consumption of alcoholic beverages on-site.

17. The owner or owner's representative of the convenience store shall establish and maintain a relationship with the City of Moreno Valley and cooperate with the Problem Oriented Policing (POP) program, or its successors.

Prior to Grading Permit

18. Prior to issuance of any grading permit, all Conditions of Approval, and Mitigation Measures shall be printed on the grading plans.

19. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect with open spaces and/or recreational uses with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

20. Prior to approval of any grading permits, plans for any median improvement plans shall be submitted to and approved by to the Planning Division.

21. 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)

22. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

23. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

24. 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.

25. Prior to issuance of grading permits, the developer shall submit wall /fence plans to the Planning Division for review and approval as follows:

Prior to issuance of grading permits, the developer shall submit wall /fence plans to the Planning Division for review and approval as follows:

A. 3-foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

B. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.

C. Walls and fences for visual screening are required when there are adjacent residential uses or residentially zone property. The height, placement and design will be based on a site specific review of the project. All walls are subject to the approval of the Planning Official. (MC 9.08.070)

26. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project . The sign shall include the following:

    a. The name (if applicable) and address of the development.
    b. The developer's name, address, and a 24-hour emergency telephone number.

27. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.

28. 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.

29. 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.

30. Prior to the issuance of building permits, proposed covered trash enclosures shall be included in the Planning review of the Fence and Wall plan or separate Planning submittal. The trash enclosure(s), including the roof materials, shall be compatible with the architecture, color and materials of the building (s) design. Trash enclosure areas shall include landscaping on three sides. Approved design plans shall be included in a Building submittal (Fence and Wall or building design plans). (GP Objective 43.6, DG)

31. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. 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. A three (3) foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

B. Finger and end planters with required step outs and curbing shall be provided every 12 parking stalls as well as at the terminus of each aisle.

C. Diamond planters shall be provided every 3 parking stalls.

D. Drought tolerant landscape shall be used. Sod shall be limited to gathering areas. (or No sod shall be installed)

E. Street trees shall be provided every 40 feet on center in the right of way.

F. On-site trees shall be planted at an equivalent of one (1) tree per thirty (30) linear feet of the perimeter of a parking lot and per thirty linear feet of a building dimension for the portions of the building visible from a parking lot or right of way. Trees may be massed for pleasing aesthetic effects.

G. Enhanced landscaping shall be provided at all driveway entries and street corner locations. A screening tree row and enhanced landscaping shall be provided along the southern property line adjacent to the existing residence. The review of all utility boxes, transformers etc. shall be coordinated to provide adequate screening from public view.

H. Landscaping on three sides of any trash enclosure.

I. All site perimeter and parking lot landscape and irrigation shall be installed prior to the release of certificate of any occupancy permits for the site or pad in question (master plot plan). [only include items above that apply to the project]

32. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria : transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building (s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)

33. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)

34. Prior to building final, the developer/owner or developer's/owner' s successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation

Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

35. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.

36. Prior to or at building plan check submittal, two copies of a detailed, on -site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted to the Planning Division for review and approval prior to the issuance of a building permit. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used, shall include style, illumination, location, height and method of shielding per the City's Municipal Code requirements. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, 9.16.280)

37. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.

<u>Prior to Building Final or Occupancy</u>

38. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division . (MC 9.03.040, MC 9.17).

39. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

40. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

Building Division

41. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.

42. 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.

43. Contact the Building Safety Division for permit application submittal requirements.

44. 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.

45. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

46. 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.

47. 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.

48. 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. The current code edition is the 2016 CBC.

49. The proposed non-residential project shall comply with 2016 California Green Building Standards Code, Section 5.106.5.3, mandatory requirements for Electric Vehicle Charging Station (EVCS).

50. 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 of the 2016 California Plumbing Code.

51. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

FIRE PREVENTION BUREAU

52. Prior to issuance of Certificate of Occupancy or Building Final, all commercial 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])

53. Prior to issuance of Building Permits, the applicant/developer shall participate in the Fire Impact Mitigation Program. (Fee Resolution as adopted by City Council)

54. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])

55. 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)

56. 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)

57. 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)

58. 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)

59. 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)

60. Existing fire hydrants on public streets are allowed to be considered available. 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.

61. 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.

62. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

63. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty–four (24) feet as approved by the Fire Prevention Bureau and an unobstructed vertical clearance of not less the thirteen (13) feet six (6) inches. (CFC503.2.1 and MVMC 8.36.060[E])

64. 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)

65. 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)

66. 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 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)

67. 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)

68. 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)

69. 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)

70. 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)

71. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B 105.1. 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) The minimum required fire flow for this project is 2500 gpm.

72. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

73. 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)

74. 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.

75. 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])

FINANCIAL & MANAGEMENT SERVICES DEPARTMENT

Moreno Valley Utility

76. This project requires the installation of electric distribution facilities . A non-exclusive easement shall be provided to Moreno Valley Utility and shall include the rights of ingress and egress for the purpose of operation, maintenance, facility repair, and meter reading.

77. This project requires the installation of electric distribution facilities. The developer shall submit a detailed engineering plan showing design, location and schematics for the utility system to be approved by the City Engineer. In accordance with Government Code Section 66462, the Developer shall execute an agreement with the City providing for the installation, construction, improvement and dedication of the utility system following recordation of final map and /or concurrent with trenching operations and other improvements so long as said agreement incorporates the approved engineering plan and provides financial security to guarantee completion and dedication of the utility system.

    The Developer shall coordinate and receive approval from the City Engineer to install, construct, improve, and dedicate to the City all utility infrastructure including but not limited to, conduit, equipment, vaults, ducts, wires, switches, conductors, transformers, and “bring-up” facilities including electrical capacity to serve the identified development and other adjoining, abutting, or benefiting projects as determined by Moreno Valley Utility – collectively referred to as “utility system”, to and through the development, along with any appurtenant real property easements, as determined by the City Engineer necessary for the distribution and /or delivery of any and all “utility services” to and within the project. For purposes of this condition, “utility services” shall mean electric, cable television, telecommunication (including video, voice, and data) and other similar services designated by the City Engineer . “Utility services” shall not include sewer, water, and natural gas services, which are addressed by other conditions of approval.

    The City, or the City’s designee, shall utilize dedicated utility facilities to ensure safe, reliable, sustainable and cost effective delivery of utility services and maintain the integrity of streets and other public infrastructure. Developer shall, at developer's sole expense, install or cause the installation of such interconnection facilities as may be necessary to connect the electrical distribution infrastructure within the project to the Moreno Valley Utility owned and controlled electric distribution system.

78. Existing Moreno Valley Utility electrical infrastructure shall be preserved in place . The developer will be responsible, at developer’s expense, for any and all costs associated with the relocation of any of Moreno Valley Utility ’s underground electrical distribution facilities, as determined by Moreno Valley Utility, which may be in conflict with any developer planned construction on the project site.

79. This project is subject to a Reimbursement Agreement. The Developer is responsible for a proportionate share of costs associated with electrical distribution infrastructure previously installed that directly benefits the project. Payment shall be required prior to issuance of building permits.

PUBLIC WORKS DEPARTMENT

Land Development Division

80. 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]

81. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

82. The developer shall monitor, supervise and control all construction related activities, 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.

83. 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.

84. 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. Rough grading w/ erosion control plan (prior to grading permit issuance);
b. Precise grading w/ erosion control plan (prior to grading permit issuance);
c. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) (prior to encroachment permit issuance);
d. Final drainage study (prior to grading plan approval);
e. Final WQMP (prior to grading plan approval);
f. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) (prior to building permit issuance);
g. As-Built revision for all plans (prior to Occupancy release);

85. 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)]

<u>Prior to Grading Plan Approval</u>

86. 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 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.

87. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

88. 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.

89. 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.

90. 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.

91. 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.

92. The developer shall pay all remaining plan check fees.

93. 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.

94. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recyclables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

95. 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 noted on the grading plans.

96. The grading plans shall clearly show that the parking lot conforms to City standards . The parking lot shall be 5% maximum, 1% minimum, 2% maximum at or near any disabled parking stall and travel way. Ramps, curb openings and travel paths shall all conform to current ADA standards as outlined in Department of Justice 's "ADA Standards for Accessible Design", Excerpt from 28 CFR Part 36. (www.usdoj.gov) and as approved by the City's Building and Safety Division.

Prior to Grading Permit

97. 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)]

98. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

99. Security, in the form of a cash deposit (preferable), 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)]

100. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

101. The developer shall pay all applicable inspection fees.

Prior to Improvement Plan Approval

102. 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.

103. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

104. 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.

105. 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.

106. 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 for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

107. 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.

108. All pedestrian ramps fronting the project will need to be brought up to current ADA standards including the pedestrian ramp at the northwest corner of Via Entrada & Via Sonata.

<u>Prior to Encroachment Permit</u>

109. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.

110. All applicable inspection fees shall be paid.

111. Any work performed within public right-of-way requires an encroachment permit.

112. For non-subdivision projects, execution of a Public Improvement Agreement (PIA) and/or security (in the form of a cash deposit or other approved means) may be required as determined by the City Engineer. [MC 9.14.220]

<u>Prior to Building Permit</u>

113. 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.

114. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

115. 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 handicap 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.

116. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer (excluding models homes).

117. For non-subdivision projects, the developer shall guarantee the completion of all related public improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]

118. The Developer shall dedicate right-of-way at the knuckle of Via Sonata per City Standard MVSI-107A-0.

Prior to Occupancy

119. All outstanding fees shall be paid.

120. 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.

121. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

122. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. 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 is subject to the following requirements:

    a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.

    i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public

Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy . [California Government Code & Municipal Code]

123. 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, 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.
e. Under grounding of all existing and proposed utilities adjacent to and on -site. [MC 9.14.130]
f. Relocation of overhead electrical utility lines including, but not limited to : electrical, cable and telephone.

124. For commercial, industrial and multi-family projects, a “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” can be obtained by contacting the Land Development Division.

125. 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.

126. 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.

SPECIAL DISTRICTS DIVISION

127. The ongoing maintenance of any landscaping required to be installed behind the sidewalk shall be the responsibility of the property owner.

128. Modification of existing irrigation systems for parkway improvements may be required per the direction of, approval by and coordination with the Special Districts Division. Please contact Special District Division staff at 951.413.3480 or specialdistricts@moval.org to coordinate the modifications.

129. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

130. The removal of existing trees with four-inch or greater trunk diameters (calipers), shall be replaced, at a three to one ratio, with minimum twenty-four (24) inch box size trees of the same species, or a minimum thirty-six (36) inch box for a one to one replacement, where approved. (MC 9.17.030)

131. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting), and Landscape Maintenance District (LMD) 2014-02 Zone 04 (Moreno Valley Ranch - East). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C and an annual assessment for LMD 2014-02 Zone 04 for operations and capital improvements.

132. This project has been identified to potentially be included in the formation of a Map Act Area of Benefit Special District for the construction of major thoroughfares and/or freeway improvements. The property owner(s) shall participate in such District and pay any special tax, assessment, or fee levied upon the project property for such District. At the time of the public hearing to consider formation of the district, the property owner(s) will not protest the formation, but will retain the right to object any eventual assessment that is not equitable should the financial burden of the assessment not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed. The Developer must notify the Special Districts Division at

951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a 90 day process in compliance with the provisions of Article 13C of the California Constitution. (Street & Highway Code, GP Objective 2.14.2, MC 9.14.100).

133. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and /or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
b. Establish an endowment fund to cover the future maintenance and /or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

134. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on -site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution.

(California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

135. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at

951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply . If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

136. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first

certificate of occupancy for the project and prior to acceptance of any improvements.

TRANSPORTATION ENGINEERING DIVISION

137. Moreno Beach Drive is classified as a Divided Major Arterial at this location (134' RW/110'CC) per City Standard Plan No. MVSI-101A-0. Communication conduits along project frontage may be required per City Standard Plan No. MVSI-186-0. Any improvements undertaken by this project shall be consistent with the City 's standards for this facility.

138. John F. Kennedy Drive is classified as a Minor Arterial (88'RW/64'CC) per City Standard Plan No. MVSI-105A-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

139. Via Entrada is classified as a Collector (66'RW/44'CC) per City Standard Plan No. MVSI-106B-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

140. Via Sonata is classified as a residential street (60'RW/40'CC). Any improvements undertaken by this project shall be consistent with the City 's standards for this facility.

141. The driveways shall conform to City of Moreno Valley Standard No. MVSI-112C-0 for Commercial Driveway Approaches. Access at the driveways shall be allowed as follows:
    - Moreno Beach Drive driveway: right turn in/out only.
    - John F. Kennedy Drive driveway: right turn in/out only.
    - Via Entrada driveway: full access.

142. All proposed on-site traffic signing and striping should be accordance with the 2014 California Manual on Uniform Traffic Control Devices (CAMUTCD).

143. Conditions of approval may be modified if project is phased or altered from any approved plans.

144. Prior to the final approval of the street improvement plans, a median improvement plan shall be prepared by a registered civil engineer for a raised concrete median on John F. Kennedy Drive along the project frontage from Via Entrada to Moreno Beach Drive.

145. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for street sections along the project frontages.

146. 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 or as required by the City Traffic Engineer.

147. Prior to final approval of the landscape plans and construction plans for any type of fencing or monument sign, the project plans shall demonstrate that sight distance at the project driveway conforms to City Standard Plan No. MVSI-164A-0 through MVSI-164C-0. Trees, plants, shrubs, fence and monument sign shall not be located in an area that obstructs the drivers' line-of-sight.

148. (CO) Prior to issuance of Certificate of Occupancy, raised median improvement on John F. Kennedy Drive along the project frontage shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Median construction shall include but not be limited to: paving, concrete curbs, signing and striping. Exact requirements will be determined during the plan check process.

149. (CO) Prior to issuance of Certificate of Occupancy, a bus turnout/right turn lane combination shall be installed for southbound traffic and shall be located on the west side of Moreno Beach Drive, between the project driveway and John F. Kennedy Drive. Bus turnout construction shall include but not be limited to: paving, concrete curbs, ADA access ramps, landscaping, signing and striping. Exact requirements will be determined during the plan check process.

150. (CO) Prior to issuance of Certificate of Occupancy, all signing and striping shall be installed per current City Standards and the approved plans.

POLICE DEPARTMENT

151. Addresses shall be in plain view, visible from the street and visible at night.

152. All exterior doors in the rear and the front of the building shall display an address or suite number.

153. All exterior doors shall have a vandal resistant light fixture installed above the door. The door shall be illuminated with a minimum one foot candle illumination at ground level, evenly dispersed.

154. Landscape groundcover shall not exceed three (3) feet in height in the parking lot.

155. Cash registers shall be placed near the front entrance to the store.

156. Window coverings shall not obscure more than twenty-five (25) percent of the "clear sight" window area situated between four and seven feet above the finished floor level. (MC 9.09.140.D)

157. Signs stating, "No Loitering", shall be posted in plain view on the convenience store.

158. The Police Chief may require a recordable security camera system with coverage inside the business and parking lot to address any issues that may arise from the convenience store use.

159. The appropriate approval and license from the California Department of Alcoholic Beverage Control (ABC) shall be required for beer and wine sales in the convenience store. No alcoholic beverage sales can commence until the appropriate license is secured. The license must remain valid at all times. Issuance of the license might be subject to approval of a Letter of Public Necessity and Convenience from the Police Department.

PLANNING COMMISSION RESOLUTION NO. 2018-25

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY APPROVING PLOT PLAN APPLICATION PEN17-0045 FOR TWO RESTAURANT USES IN A PORTION OF A 7,616 SQUARE FOOT THREE TENANT RETAIL BUILDING LOCATED ON A 2.45 ACRE SITE AT THE SOUTHWEST CORNER OF MORENO BEACH DRIVE AND JOHN F. KENNEDY DRIVE (ASSESSOR'S PARCEL NUMBER 304-240-004).

<u>Section 1:</u>

WHEREAS, Western States Engineering, has filed an application for the approval of Plot Plan PEN17-0045 for two restaurant uses in a portion of a multi-tenant retail building located at southwest corner of Moreno Beach Drive and John F. Kennedy Drive as described in the title above; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the City has reviewed this project and determined that it is consistent with the site's General Plan designation of Commercial, all applicable General Plan policies and the Commercial zoning district of the Moreno Valley Ranch Specific Plan (SP 193) subject to approval of a plot plan; and

WHEREAS, the City worked with Sagecrest Planning+Environmental in the preparation of an Initial Study and Mitigated Negative Declaration for the project consistent with the California Environmental Quality Act (CEQA) and based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis; and

WHEREAS, upon completion of a thorough development review process the project was appropriately agendized and noticed for a public hearing before the Planning Commission of the City of Moreno Valley (Planning Commission); and

WHEREAS, the public hearing notice for this project was published in the local newspaper on March 23, 2018. Public notice was sent to all property owners of record within 300 feet of the project site on March 29, 2018. The public hearing notice for this project was also posted on the project site on April 2, 2018;

WHEREAS, on April 12, 2018, the Planning Commission held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), **NOTICE IS HEREBY GIVEN** that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the Planning Commission as follows:

A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on April 12, 2018, including written and oral staff reports, public testimony and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. **Conformance with General Plan Policies –** The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

   FACT: The General Plan Land Use designation for the project site is Commercial. General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

   The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan. The proposed project is consistent with the General Plan and with its goals, objectives, policies, and programs established within the Plan.

2. **Conformance with Zoning Regulations –** The proposed use complies with all applicable zoning and other regulations.

   FACT: The project site is located within the Moreno Valley Ranch Specific Plan (SP 193) with a zoning designation of Commercial (C). Design guidelines for architecture and landscape are provided in SP 193, while site development standards for the commercial development defer to the City's Neighborhood Commercial (NC) development standards. Permitted uses for this zone are the uses permitted under the City's Neighborhood Commercial (NC) zone.

   The project is designed in accordance with the provisions of the Moreno Valley Ranch Specific Plan and Municipal Code Section 9.04 Commercial

Districts. The project as designed and conditioned would comply with all applicable zoning and other regulations.

3. **Health, Safety and Welfare –** The proposed use will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

FACT: The proposed Conditional Use Permit as designed and conditioned will provide acceptable levels of protection from natural and man-made hazards to life, health, and property consistent with General Goal 9.6.1. The project site is located approximately two and one half miles from Fire Station No. 91 located to the west on Lasselle Street near Iris Avenue. Therefore, adequate emergency services can be provided to the site consistent with General Plan Goal 9.6.2.

The proposed project as designed and conditioned will result in a development that will minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding as provided for in General Plan Objective 6.1 and General Plan Objective 6.2.

The proposed project site is located at the southwest corner of John F. Kennedy Drive and Moreno Beach Drive within the Moreno Valley Ranch Specific Plan (SP 193). The area directly to the west of the proposed project includes Fairway Park and the Landmark Middle School. There are two large high density, multiple-family residential parcels to the east and north of the project. These lots are developed with apartments and condominiums. The area directly south of the proposed project is zoned residential and completely developed. There also are residential tracts to the northeast and northwest of the proposed commercial project. The project as designed and conditioned will not be detrimental to the adjacent uses.

The project as designed is consistent with the City's Municipal Code Section 9.04 Commercial Districts and will satisfy all City requirements related to light and noise. Planning staff worked with Sagecrest Planning+Environmental in the preparation of an Initial Study and Mitigated Negative Declaration in accordance with the provisions of the California Environmental Quality Act (CEQA) based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis.

4. **Location, Design and Operation –** The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

FACT: The project site is located on vacant property in the Commercial zone of the Moreno Valley Ranch Specific Plan. Permitted uses for the project site are the uses listed under the Neighborhood Commercial zone in the City's Municipal Code.

The area directly to the west of the proposed project includes Fairway Park, and the Landmark Middle School. There are two large high density, multiple-family residential parcels to the east and north of the project. These lots are developed with apartments and condominiums. The area directly south of the proposed project is zoned residential and completely developed. There also are residential tracts to the northeast and northwest of the proposed commercial project.

Municipal Code Section 9.04.020 Commercial Districts states that the primary purpose of the neighborhood commercial (NC) district is to satisfy the daily shopping needs of Moreno Valley residents by providing construction of conveniently located neighborhood centers which provide limited retail commercial services. These centers must be compatible with the surrounding residential communities. As designed and conditioned, and with implementation of mitigation measures, the project is compatible with existing and proposed land uses in the vicinity.

Section 2:

FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee, Transportation Uniform Mitigation Fee (TUMF), Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Habitat Conservation fee, Underground Utilities in lieu Fee, Area Drainage Plan fee, Bridge and Thoroughfare Mitigation fee (Future) and Traffic Signal Mitigation fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this Resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN17-0045, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d)(1), NOTICE IS FURTHER GIVEN that the 90 day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this Resolution begins on the effective date of this Resolution and any such protest must be in a manner that complies with Section 66020(a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservations, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

<u>Section 3:</u>

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY APPROVES** Resolution No. 2018-25, and thereby:

1. **APPROVES** Plot Plan PEN17-0045 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

APPROVED this 12th day of April, 2018.

AYES:
NOES:
ABSTAINS:

____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

____
Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

____
City Attorney

Exhibit A

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
MASTER PLOT PLAN (PEN17-0044)
PLOT PLAN (PEN17-0045)
CONDITIONAL USE PERMIT (PEN17-0046)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. Master Plot Plan application PEN17-0044 is approved for the development of a 2.45 acre site with building pads for a 7,616 square foot retail building, a 3,520 square foot canopy with six gas pump islands, and a 3,526 square foot car wash building and 73 parking spaces. Common amenities in the center include reciprocal access and reciprocal parking, shared drive aisles, two outdoor seating areas, pedestrian pathways, a shared trash enclosure and common area landscape on a single parcel. The proposed service station requires approval of a separate Conditional Use Permit.

2. Conditional Use Permit application PEN17-0046 is approved for a service station use to include a 3,520 canopy with six gas pump islands, a 3,400 square foot convenience store in a portion of a 7,616 square foot retail building, a 290 mezzanine for office use and a 3,526 square car wash building. Approval of this use is subject to approval of Master Plot Plan PEN17-0044.

   Beer and wine sales are approved with this conditional use permit subject to issuance of the appropriate license from the California Department of Alcoholic Beverage Control (ABC) and if necessary a Letter of Public Necessity and Convenience from the Moreno Valley Police Department.

3. Plot Plan application PEN17-00045 is approved to establish two restaurant uses in portions of a 7,616 square foot retail building subject to approval of Master Plot Plan PEN17-0044.

4. ANY expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)

5. The 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. (MC 9.02.030)

6. 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. (MC 9.02.230)

7. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

8. This project is located within the Moreno Valley Ranch Specific Plan (SP 193). The provisions of the specific plan, the design manual, their subsequent amendments, and the Conditions of Approval shall prevail unless modified herein. (MC 9.13).

9. 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, 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. (MC9.14.020)

10. 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. No signs are permitted in the public right of way. (MC 9.12)

11. 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.

12. 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.

<u>Special Conditions</u>

13. The shopping center parking lot lighting shall be maintained in good repair and shall comply with the Municipal Code lighting standards of a minimum of one (1) foot candle and a maximum of eight (8) foot candle.

14. Mitigation measures have been adopted for this project (PEN17-0044, PEN17-0045 and PEN17-0046). Implementation of the mitigation measures contained in the Mitigation Monitoring Program for the Moreno Beach Commercial Center project is a requirement of this project.

15. The sale of beer and wine shall be limited to 7 a.m. to 10 p.m. seven days per week.

16. Any convenience store selling alcoholic beverages shall post the premises with signs prohibiting the consumption of alcoholic beverages on-site.

17. The owner or owner's representative of the convenience store shall establish and maintain a relationship with the City of Moreno Valley and cooperate with the Problem Oriented Policing (POP) program, or its successors.

Prior to Grading Permit

18. Prior to issuance of any grading permit, all Conditions of Approval, and Mitigation Measures shall be printed on the grading plans.

19. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect with open spaces and/or recreational uses with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

20. Prior to approval of any grading permits, plans for any median improvement plans shall be submitted to and approved by to the Planning Division.

21. 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)

22. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

23. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

24. 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.

25. Prior to issuance of grading permits, the developer shall submit wall /fence plans to the Planning Division for review and approval as follows:

Prior to issuance of grading permits, the developer shall submit wall /fence plans to the Planning Division for review and approval as follows:

A. 3-foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

B. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.

C. Walls and fences for visual screening are required when there are adjacent residential uses or residentially zone property. The height, placement and design will be based on a site specific review of the project. All walls are subject to the approval of the Planning Official. (MC 9.08.070)

26. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project . The sign shall include the following:

    a. The name (if applicable) and address of the development.
    b. The developer's name, address, and a 24-hour emergency telephone number.

27. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.

28. 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.

29. 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.

30. Prior to the issuance of building permits, proposed covered trash enclosures shall be included in the Planning review of the Fence and Wall plan or separate Planning submittal. The trash enclosure(s), including the roof materials, shall be compatible with the architecture, color and materials of the building (s) design. Trash enclosure areas shall include landscaping on three sides. Approved design plans shall be included in a Building submittal (Fence and Wall or building design plans). (GP Objective 43.6, DG)

31. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. 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. A three (3) foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

B. Finger and end planters with required step outs and curbing shall be provided every 12 parking stalls as well as at the terminus of each aisle.

C. Diamond planters shall be provided every 3 parking stalls.

D. Drought tolerant landscape shall be used. Sod shall be limited to gathering areas. (or No sod shall be installed)

E. Street trees shall be provided every 40 feet on center in the right of way.

F. On-site trees shall be planted at an equivalent of one (1) tree per thirty (30) linear feet of the perimeter of a parking lot and per thirty linear feet of a building dimension for the portions of the building visible from a parking lot or right of way. Trees may be massed for pleasing aesthetic effects.

G. Enhanced landscaping shall be provided at all driveway entries and street corner locations. A screening tree row and enhanced landscaping shall be provided along the southern property line adjacent to the existing residence. The review of all utility boxes, transformers etc. shall be coordinated to provide adequate screening from public view.

H. Landscaping on three sides of any trash enclosure.

I. All site perimeter and parking lot landscape and irrigation shall be installed prior to the release of certificate of any occupancy permits for the site or pad in question (master plot plan). [only include items above that apply to the project]

32. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria : transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building (s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)

33. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)

34. Prior to building final, the developer/owner or developer's/owner’ s successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation

Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

35. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.

36. Prior to or at building plan check submittal, two copies of a detailed, on -site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted to the Planning Division for review and approval prior to the issuance of a building permit. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used, shall include style, illumination, location, height and method of shielding per the City's Municipal Code requirements. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, 9.16.280)

37. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.

Prior to Building Final or Occupancy

38. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division . (MC 9.03.040, MC 9.17).

39. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

40. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

41. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.

42. 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.

43. Contact the Building Safety Division for permit application submittal requirements.

44. 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.

45. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

46. 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.

47. 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.

48. 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. The current code edition is the 2016 CBC.

49. The proposed non-residential project shall comply with 2016 California Green Building Standards Code, Section 5.106.5.3, mandatory requirements for Electric Vehicle Charging Station (EVCS).

50. 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 of the 2016 California Plumbing Code.

51. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

FIRE PREVENTION BUREAU

52. Prior to issuance of Certificate of Occupancy or Building Final, all commercial 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])

53. Prior to issuance of Building Permits, the applicant/developer shall participate in the Fire Impact Mitigation Program. (Fee Resolution as adopted by City Council)

54. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])

55. 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)

56. 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)

57. 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)

58. 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)

59. 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)

60. Existing fire hydrants on public streets are allowed to be considered available. 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.

61. 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.

62. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

63. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty–four (24) feet as approved by the Fire Prevention Bureau and an unobstructed vertical clearance of not less the thirteen (13) feet six (6) inches. (CFC503.2.1 and MVMC 8.36.060[E])

64. 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)

65. 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)

66. 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 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)

67. 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)

68. 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)

69. 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)

70. 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)

71. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B 105.1. 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) The minimum required fire flow for this project is 2500 gpm.

72. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

73. 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)

74. 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.

75. 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])

FINANCIAL & MANAGEMENT SERVICES DEPARTMENT

Moreno Valley Utility

76. This project requires the installation of electric distribution facilities . A non-exclusive easement shall be provided to Moreno Valley Utility and shall include the rights of ingress and egress for the purpose of operation, maintenance, facility repair, and meter reading.

77. This project requires the installation of electric distribution facilities. The developer shall submit a detailed engineering plan showing design, location and schematics for the utility system to be approved by the City Engineer. In accordance with Government Code Section 66462, the Developer shall execute an agreement with the City providing for the installation, construction, improvement and dedication of the utility system following recordation of final map and /or concurrent with trenching operations and other improvements so long as said agreement incorporates the approved engineering plan and provides financial security to guarantee completion and dedication of the utility system.

    The Developer shall coordinate and receive approval from the City Engineer to install, construct, improve, and dedicate to the City all utility infrastructure including but not limited to, conduit, equipment, vaults, ducts, wires, switches, conductors, transformers, and “bring-up” facilities including electrical capacity to serve the identified development and other adjoining, abutting, or benefiting projects as determined by Moreno Valley Utility – collectively referred to as “utility system”, to and through the development, along with any appurtenant real property easements, as determined by the City Engineer necessary for the distribution and /or delivery of any and all “utility services” to and within the project. For purposes of this condition, “utility services” shall mean electric, cable television, telecommunication (including video, voice, and data) and other similar services designated by the City Engineer . “Utility services” shall not include sewer, water, and natural gas services, which are addressed by other conditions of approval.

    The City, or the City’s designee, shall utilize dedicated utility facilities to ensure safe, reliable, sustainable and cost effective delivery of utility services and maintain the integrity of streets and other public infrastructure. Developer shall, at developer's sole expense, install or cause the installation of such interconnection facilities as may be necessary to connect the electrical distribution infrastructure within the project to the Moreno Valley Utility owned and controlled electric distribution system.

78. Existing Moreno Valley Utility electrical infrastructure shall be preserved in place . The developer will be responsible, at developer’s expense, for any and all costs associated with the relocation of any of Moreno Valley Utility ’s underground electrical distribution facilities, as determined by Moreno Valley Utility, which may be in conflict with any developer planned construction on the project site.

79. This project is subject to a Reimbursement Agreement. The Developer is responsible for a proportionate share of costs associated with electrical distribution infrastructure previously installed that directly benefits the project. Payment shall be required prior to issuance of building permits.

PUBLIC WORKS DEPARTMENT

Land Development Division

80. 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]

81. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

82. The developer shall monitor, supervise and control all construction related activities, 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.

83. 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.

84. 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. Rough grading w/ erosion control plan (prior to grading permit issuance);
b. Precise grading w/ erosion control plan (prior to grading permit issuance);
c. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) (prior to encroachment permit issuance);
d. Final drainage study (prior to grading plan approval);
e. Final WQMP (prior to grading plan approval);
f. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) (prior to building permit issuance);
g. As-Built revision for all plans (prior to Occupancy release);

85. 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)]

Prior to Grading Plan Approval

86. 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 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.

87. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

88. 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.

89. 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.

90. 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.

91. 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.

92. The developer shall pay all remaining plan check fees.

93. 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.

94. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recyclables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

95. 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 noted on the grading plans.

96. The grading plans shall clearly show that the parking lot conforms to City standards . The parking lot shall be 5% maximum, 1% minimum, 2% maximum at or near any disabled parking stall and travel way. Ramps, curb openings and travel paths shall all conform to current ADA standards as outlined in Department of Justice 's "ADA Standards for Accessible Design", Excerpt from 28 CFR Part 36. (www.usdoj.gov) and as approved by the City's Building and Safety Division.

Prior to Grading Permit

97. 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)]

98. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

99. Security, in the form of a cash deposit (preferable), 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)]

100. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

101. The developer shall pay all applicable inspection fees.

Prior to Improvement Plan Approval

102. 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.

103. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

104. 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.

105. 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.

106. 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 for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

107. 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.

108. All pedestrian ramps fronting the project will need to be brought up to current ADA standards including the pedestrian ramp at the northwest corner of Via Entrada & Via Sonata.

<u>Prior to Encroachment Permit</u>

109. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.

110. All applicable inspection fees shall be paid.

111. Any work performed within public right-of-way requires an encroachment permit.

112. For non-subdivision projects, execution of a Public Improvement Agreement (PIA) and/or security (in the form of a cash deposit or other approved means) may be required as determined by the City Engineer. [MC 9.14.220]

<u>Prior to Building Permit</u>

113. 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.

114. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

115. 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 handicap 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.

116. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer (excluding models homes).

117. For non-subdivision projects, the developer shall guarantee the completion of all related public improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]

118. The Developer shall dedicate right-of-way at the knuckle of Via Sonata per City Standard MVSI-107A-0.

<u>Prior to Occupancy</u>

119. All outstanding fees shall be paid.

120. 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.

121. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

122. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. 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 is subject to the following requirements:

   a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.
   i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public

Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy . [California Government Code & Municipal Code]

123. 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, 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.
e. Under grounding of all existing and proposed utilities adjacent to and on -site. [MC 9.14.130]
f. Relocation of overhead electrical utility lines including, but not limited to : electrical, cable and telephone.

124. For commercial, industrial and multi-family projects, a “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” can be obtained by contacting the Land Development Division.

125. 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.

126. 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.

SPECIAL DISTRICTS DIVISION

127. The ongoing maintenance of any landscaping required to be installed behind the sidewalk shall be the responsibility of the property owner.

128. Modification of existing irrigation systems for parkway improvements may be required per the direction of, approval by and coordination with the Special Districts Division. Please contact Special District Division staff at 951.413.3480 or specialdistricts@moval.org to coordinate the modifications.

129. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer’s successors in interest, at no cost to the City of Moreno Valley.

130. The removal of existing trees with four-inch or greater trunk diameters (calipers), shall be replaced, at a three to one ratio, with minimum twenty-four (24) inch box size trees of the same species, or a minimum thirty-six (36) inch box for a one to one replacement, where approved. (MC 9.17.030)

131. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting), and Landscape Maintenance District (LMD) 2014-02 Zone 04 (Moreno Valley Ranch - East). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C and an annual assessment for LMD 2014-02 Zone 04 for operations and capital improvements.

132. This project has been identified to potentially be included in the formation of a Map Act Area of Benefit Special District for the construction of major thoroughfares and/or freeway improvements. The property owner(s) shall participate in such District and pay any special tax, assessment, or fee levied upon the project property for such District. At the time of the public hearing to consider formation of the district, the property owner(s) will not protest the formation, but will retain the right to object any eventual assessment that is not equitable should the financial burden of the assessment not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed. The Developer must notify the Special Districts Division at

951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a 90 day process in compliance with the provisions of Article 13C of the California Constitution. (Street & Highway Code, GP Objective 2.14.2, MC 9.14.100).

133. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and /or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
b. Establish an endowment fund to cover the future maintenance and /or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

134. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on -site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution.

(California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

135. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at

951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply . If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

136. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first

certificate of occupancy for the project and prior to acceptance of any improvements.

TRANSPORTATION ENGINEERING DIVISION

137. Moreno Beach Drive is classified as a Divided Major Arterial at this location (134' RW/110'CC) per City Standard Plan No. MVSI-101A-0. Communication conduits along project frontage may be required per City Standard Plan No. MVSI-186-0. Any improvements undertaken by this project shall be consistent with the City 's standards for this facility.

138. John F. Kennedy Drive is classified as a Minor Arterial (88'RW/64'CC) per City Standard Plan No. MVSI-105A-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

139. Via Entrada is classified as a Collector (66'RW/44'CC) per City Standard Plan No. MVSI-106B-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

140. Via Sonata is classified as a residential street (60'RW/40'CC). Any improvements undertaken by this project shall be consistent with the City 's standards for this facility.

141. The driveways shall conform to City of Moreno Valley Standard No. MVSI-112C-0 for Commercial Driveway Approaches. Access at the driveways shall be allowed as follows:
    - Moreno Beach Drive driveway: right turn in/out only.
    - John F. Kennedy Drive driveway: right turn in/out only.
    - Via Entrada driveway: full access.

142. All proposed on-site traffic signing and striping should be accordance with the 2014 California Manual on Uniform Traffic Control Devices (CAMUTCD).

143. Conditions of approval may be modified if project is phased or altered from any approved plans.

144. Prior to the final approval of the street improvement plans, a median improvement plan shall be prepared by a registered civil engineer for a raised concrete median on John F. Kennedy Drive along the project frontage from Via Entrada to Moreno Beach Drive.

145. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for street sections along the project frontages.

146. 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 or as required by the City Traffic Engineer.

147. Prior to final approval of the landscape plans and construction plans for any type of fencing or monument sign, the project plans shall demonstrate that sight distance at the project driveway conforms to City Standard Plan No. MVSI-164A-0 through MVSI-164C-0. Trees, plants, shrubs, fence and monument sign shall not be located in an area that obstructs the drivers' line-of-sight.

148. (CO) Prior to issuance of Certificate of Occupancy, raised median improvement on John F. Kennedy Drive along the project frontage shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Median construction shall include but not be limited to: paving, concrete curbs, signing and striping. Exact requirements will be determined during the plan check process.

149. (CO) Prior to issuance of Certificate of Occupancy, a bus turnout/right turn lane combination shall be installed for southbound traffic and shall be located on the west side of Moreno Beach Drive, between the project driveway and John F. Kennedy Drive. Bus turnout construction shall include but not be limited to: paving, concrete curbs, ADA access ramps, landscaping, signing and striping. Exact requirements will be determined during the plan check process.

150. (CO) Prior to issuance of Certificate of Occupancy, all signing and striping shall be installed per current City Standards and the approved plans.

POLICE DEPARTMENT

151. Addresses shall be in plain view, visible from the street and visible at night.

152. All exterior doors in the rear and the front of the building shall display an address or suite number.

153. All exterior doors shall have a vandal resistant light fixture installed above the door. The door shall be illuminated with a minimum one foot candle illumination at ground level, evenly dispersed.

154. Landscape groundcover shall not exceed three (3) feet in height in the parking lot.

155. Cash registers shall be placed near the front entrance to the store.

156. Window coverings shall not obscure more than twenty-five (25) percent of the "clear sight" window area situated between four and seven feet above the finished floor level. (MC 9.09.140.D)

157. Signs stating, "No Loitering", shall be posted in plain view on the convenience store.

158. The Police Chief may require a recordable security camera system with coverage inside the business and parking lot to address any issues that may arise from the convenience store use.

159. The appropriate approval and license from the California Department of Alcoholic Beverage Control (ABC) shall be required for beer and wine sales in the convenience store. No alcoholic beverage sales can commence until the appropriate license is secured. The license must remain valid at all times. Issuance of the license might be subject to approval of a Letter of Public Necessity and Convenience from the Police Department.

PLANNING COMMISSION RESOLUTION NO. 2018-26

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY APPROVING CONDITIONAL USE PERMIT APPLICATION PEN17-0046 FOR DEVELOPMENT OF A SERVICE STATION WITH A 3,500 CANOPY AND SIX PUMP ISLANDS INCLUDING A 3,400 SQUARE FOOT CONVENIENCE STORE AND A 3,526 SQUARE FOOT DRIVE-THROUGH CAR WASH ON 2.45 ACRES OF ASSESSOR'S PARCEL NUMBER 304-240-004 LOCATED AT THE SOUTHWEST CORNER OF MORENO BEACH DRIVE AND JOHN F. KENNEDY DRIVE. (ASSESSOR'S PARCEL NUMBER 304-240-004).

WHEREAS, Western States Engineering, has filed an application for the approval of Conditional Use Permit PEN17-0046 for development of a service station on a portion of a 2.45 acre site as described in the title above; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the City has reviewed this project and determined that it is consistent with the site's General Plan designation of Commercial, all applicable General Plan policies and the Commercial zoning district of the Moreno Valley Ranch Specific Plan (SP 193) subject to approval of a conditional use permit;

WHEREAS, the City worked with Sagrecrest Planning+Environmental in the preparation of an Initial Study and Mitigated Negative Declaration for the project consistent with the California Environmental Quality Act (CEQA) and based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis; and

WHEREAS, upon completion of a thorough development review process the project was appropriately agendized and noticed for a public hearing before the Planning Commission of the City of Moreno Valley (Planning Commission); and

WHEREAS, the public hearing notice for this project was published in the local newspaper on March 23, 2018. Public notice was sent to all property owners of record within 300 feet of the project site on March 29, 2018. The public hearing notice for this project was also posted on the project site on April 2, 2018;

WHEREAS, on April 12, 2018, the Planning Commission held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), **NOTICE IS HEREBY GIVEN** that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the Planning Commission as follows:

A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on April 12, 2018, including written and oral staff reports, public testimony and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. **Conformance with General Plan Policies –** The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

   FACT: The General Plan Land Use designation for the project site is Commercial. General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

   The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan. The proposed project is consistent with the General Plan and with its goals, objectives, policies, and programs established within the Plan.

2. **Conformance with Zoning Regulations –** The proposed use complies with all applicable zoning and other regulations.

   FACT: The project site is located within the Moreno Valley Ranch Specific Plan (SP 193) with a zoning designation of Commercial (C). Design guidelines for architecture and landscape are provided in SP 193, while site development standards for the commercial development defer to the City's Neighborhood Commercial (NC) development standards. Permitted uses for this zone are the uses permitted under the City's Neighborhood Commercial (NC) zone which requires approval of a Conditional Use Permit for service stations located within 300 feet of residence or residential district.

   The project is designed in accordance with the provisions of the Moreno Valley Ranch Specific Plan and Chapter 9.09.200 Service Stations Chapter 9.16.150 of the City's Municipal Code. The project as designed and conditioned would comply with all applicable zoning and other regulations.

3. **Health, Safety and Welfare –** The proposed use will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

FACT: The proposed Conditional Use Permit as designed and conditioned will provide acceptable levels of protection from natural and man-made hazards to life, health, and property consistent with General Goal 9.6.1. The project site is located approximately two and one half miles from Fire Station No. 91 located to the west on Lasselle Street near Iris Avenue. Therefore, adequate emergency services can be provided to the site consistent with General Plan Goal 9.6.2.

The proposed project as designed and conditioned will result in a development that will minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding as provided for in General Plan Objective 6.1 and General Plan Objective 6.2.

The proposed project site is located at the southwest corner of John F. Kennedy Drive and Moreno Beach Drive within the Moreno Valley Ranch Specific Plan (SP 193). The area directly to the west of the proposed project includes Fairway Park and the Landmark Middle School. There are two large high density, multiple-family residential parcels to the east and north of the project. These lots are developed with apartments and condominiums. The area directly south of the proposed project is zoned residential and completely developed. There also are residential tracts to the northeast and northwest of the proposed commercial project. The project as designed and conditioned will not be detrimental to the adjacent uses.

The project as designed is consistent with the City's Municipal Code Section 9.09.200 Service Stations and will satisfy all City requirements related to light and noise. Planning staff worked with Sagecrest Planning+Environmental in the preparation of an Initial Study and Mitigated Negative Declaration in accordance with the provisions of the California Environmental Quality Act (CEQA) based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis.

4. **Location, Design and Operation –** The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

FACT: The project site is located on vacant property in the Commercial zone of the Moreno Valley Ranch Specific Plan. Permitted uses for the project site are the uses listed under the Neighborhood Commercial zone in the City's Municipal Code.

The area directly to the west of the proposed project includes Fairway Park, and the Landmark Middle School. There are two large high density, multiple-family residential parcels to the east and north of the project. These lots are developed with apartments and condominiums. The area directly south of the proposed project is zoned residential and completely developed. There also are residential tracts to the northeast and northwest of the proposed commercial project.

Municipal Code Section 9.04.020 Commercial Districts states that the primary purpose of the neighborhood commercial (NC) district is to satisfy the daily shopping needs of Moreno Valley residents by providing construction of conveniently located neighborhood centers which provide limited retail commercial services. These centers must be compatible with the surrounding residential communities. As designed and conditioned, and with implementation of mitigation measures, the project is compatible with existing and proposed land uses in the vicinity.

FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee, Transportation Uniform Mitigation Fee (TUMF), Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Habitat Conservation fee, Underground Utilities in lieu Fee, Area Drainage Plan fee, Bridge and Thoroughfare Mitigation fee (Future) and Traffic Signal Mitigation fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this Resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN17-0046, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d)(1), NOTICE IS FURTHER GIVEN that the 90 day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this Resolution begins on the effective date of this Resolution and any such protest must be in a manner that complies with Section 66020(a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservations, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY APPROVES** Resolution No. 2018-26, and thereby:

1. **APPROVES** Conditional Use Permit PEN17-0046 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

APPROVED this 12th day of April, 2018.

AYES:
NOES:
ABSTAIN:

____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

____
Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

____
City Attorney

Exhibit A

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
MASTER PLOT PLAN (PEN17-0044)
PLOT PLAN (PEN17-0045)
CONDITIONAL USE PERMIT (PEN17-0046)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. Master Plot Plan application PEN17-0044 is approved for the development of a 2.45 acre site with building pads for a 7,616 square foot retail building, a 3,520 square foot canopy with six gas pump islands, and a 3,526 square foot car wash building and 73 parking spaces. Common amenities in the center include reciprocal access and reciprocal parking, shared drive aisles, two outdoor seating areas, pedestrian pathways, a shared trash enclosure and common area landscape on a single parcel. The proposed service station requires approval of a separate Conditional Use Permit.

2. Conditional Use Permit application PEN17-0046 is approved for a service station use to include a 3,520 canopy with six gas pump islands, a 3,400 square foot convenience store in a portion of a 7,616 square foot retail building, a 290 mezzanine for office use and a 3,526 square car wash building. Approval of this use is subject to approval of Master Plot Plan PEN17-0044.

   Beer and wine sales are approved with this conditional use permit subject to issuance of the appropriate license from the California Department of Alcoholic Beverage Control (ABC) and if necessary a Letter of Public Necessity and Convenience from the Moreno Valley Police Department.

3. Plot Plan application PEN17-00045 is approved to establish two restaurant uses in portions of a 7,616 square foot retail building subject to approval of Master Plot Plan PEN17-0044.

4. ANY expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)

5. The 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. (MC 9.02.030)

6. 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. (MC 9.02.230)

7. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

8. This project is located within the Moreno Valley Ranch Specific Plan (SP 193). The provisions of the specific plan, the design manual, their subsequent amendments, and the Conditions of Approval shall prevail unless modified herein. (MC 9.13).

9. 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, 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. (MC9.14.020)

10. 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. No signs are permitted in the public right of way. (MC 9.12)

11. 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.

12. 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.

<u>Special Conditions</u>

13. The shopping center parking lot lighting shall be maintained in good repair and shall comply with the Municipal Code lighting standards of a minimum of one (1) foot candle and a maximum of eight (8) foot candle.

14. Mitigation measures have been adopted for this project (PEN17-0044, PEN17-0045 and PEN17-0046). Implementation of the mitigation measures contained in the Mitigation Monitoring Program for the Moreno Beach Commercial Center project is a requirement of this project.

15. The sale of beer and wine shall be limited to 7 a.m. to 10 p.m. seven days per week.

16. Any convenience store selling alcoholic beverages shall post the premises with signs prohibiting the consumption of alcoholic beverages on-site.

17. The owner or owner's representative of the convenience store shall establish and maintain a relationship with the City of Moreno Valley and cooperate with the Problem Oriented Policing (POP) program, or its successors.

Prior to Grading Permit

18. Prior to issuance of any grading permit, all Conditions of Approval, and Mitigation Measures shall be printed on the grading plans.

19. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect with open spaces and/or recreational uses with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

20. Prior to approval of any grading permits, plans for any median improvement plans shall be submitted to and approved by to the Planning Division.

21. 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)

22. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

23. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

24. 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.

25. Prior to issuance of grading permits, the developer shall submit wall /fence plans to the Planning Division for review and approval as follows:

    Prior to issuance of grading permits, the developer shall submit wall /fence plans to the Planning Division for review and approval as follows:

A. 3-foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

B. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.

C. Walls and fences for visual screening are required when there are adjacent residential uses or residentially zone property. The height, placement and design will be based on a site specific review of the project. All walls are subject to the approval of the Planning Official. (MC 9.08.070)

26. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project . The sign shall include the following:

    a. The name (if applicable) and address of the development.
    b. The developer's name, address, and a 24-hour emergency telephone number.

27. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.

28. 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.

29. 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.

30. Prior to the issuance of building permits, proposed covered trash enclosures shall be included in the Planning review of the Fence and Wall plan or separate Planning submittal. The trash enclosure(s), including the roof materials, shall be compatible with the architecture, color and materials of the building (s) design. Trash enclosure areas shall include landscaping on three sides. Approved design plans shall be included in a Building submittal (Fence and Wall or building design plans). (GP Objective 43.6, DG)

31. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. 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. A three (3) foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

B. Finger and end planters with required step outs and curbing shall be provided every 12 parking stalls as well as at the terminus of each aisle.

C. Diamond planters shall be provided every 3 parking stalls.

D. Drought tolerant landscape shall be used. Sod shall be limited to gathering areas. (or No sod shall be installed)

E. Street trees shall be provided every 40 feet on center in the right of way.

F. On-site trees shall be planted at an equivalent of one (1) tree per thirty (30) linear feet of the perimeter of a parking lot and per thirty linear feet of a building dimension for the portions of the building visible from a parking lot or right of way. Trees may be massed for pleasing aesthetic effects.

G. Enhanced landscaping shall be provided at all driveway entries and street corner locations. A screening tree row and enhanced landscaping shall be provided along the southern property line adjacent to the existing residence. The review of all utility boxes, transformers etc. shall be coordinated to provide adequate screening from public view.

H. Landscaping on three sides of any trash enclosure.

I. All site perimeter and parking lot landscape and irrigation shall be installed prior to the release of certificate of any occupancy permits for the site or pad in question (master plot plan). [only include items above that apply to the project]

32. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria : transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building (s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)

33. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)

34. Prior to building final, the developer/owner or developer's/owner’ s successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation

Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

35. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.

36. Prior to or at building plan check submittal, two copies of a detailed, on -site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted to the Planning Division for review and approval prior to the issuance of a building permit. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used, shall include style, illumination, location, height and method of shielding per the City's Municipal Code requirements. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, 9.16.280)

37. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.

<u>Prior to Building Final or Occupancy</u>

38. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division . (MC 9.03.040, MC 9.17).

39. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

40. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

41. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.

42. 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.

43. Contact the Building Safety Division for permit application submittal requirements.

44. 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.

45. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

46. 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.

47. 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.

48. 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. The current code edition is the 2016 CBC.

49. The proposed non-residential project shall comply with 2016 California Green Building Standards Code, Section 5.106.5.3, mandatory requirements for Electric Vehicle Charging Station (EVCS).

50. 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 of the 2016 California Plumbing Code.

51. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

FIRE PREVENTION BUREAU

52. Prior to issuance of Certificate of Occupancy or Building Final, all commercial 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])

53. Prior to issuance of Building Permits, the applicant/developer shall participate in the Fire Impact Mitigation Program. (Fee Resolution as adopted by City Council)

54. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])

55. 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)

56. 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)

57. 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)

58. 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)

59. 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)

60. Existing fire hydrants on public streets are allowed to be considered available. 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.

61. 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.

62. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

63. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty–four (24) feet as approved by the Fire Prevention Bureau and an unobstructed vertical clearance of not less the thirteen (13) feet six (6) inches. (CFC503.2.1 and MVMC 8.36.060[E])

64. 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)

65. 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)

66. 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 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)

67. 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)

68. 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)

69. 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)

70. 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)

71. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B 105.1. 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) The minimum required fire flow for this project is 2500 gpm.

72. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

73. 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)

74. 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.

75. 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])

FINANCIAL & MANAGEMENT SERVICES DEPARTMENT

Moreno Valley Utility

76. This project requires the installation of electric distribution facilities . A non-exclusive easement shall be provided to Moreno Valley Utility and shall include the rights of ingress and egress for the purpose of operation, maintenance, facility repair, and meter reading.

77. This project requires the installation of electric distribution facilities. The developer shall submit a detailed engineering plan showing design, location and schematics for the utility system to be approved by the City Engineer. In accordance with Government Code Section 66462, the Developer shall execute an agreement with the City providing for the installation, construction, improvement and dedication of the utility system following recordation of final map and /or concurrent with trenching operations and other improvements so long as said agreement incorporates the approved engineering plan and provides financial security to guarantee completion and dedication of the utility system.

    The Developer shall coordinate and receive approval from the City Engineer to install, construct, improve, and dedicate to the City all utility infrastructure including but not limited to, conduit, equipment, vaults, ducts, wires, switches, conductors, transformers, and “bring-up” facilities including electrical capacity to serve the identified development and other adjoining, abutting, or benefiting projects as determined by Moreno Valley Utility – collectively referred to as “utility system”, to and through the development, along with any appurtenant real property easements, as determined by the City Engineer necessary for the distribution and /or delivery of any and all “utility services” to and within the project. For purposes of this condition, “utility services” shall mean electric, cable television, telecommunication (including video, voice, and data) and other similar services designated by the City Engineer . “Utility services” shall not include sewer, water, and natural gas services, which are addressed by other conditions of approval.

    The City, or the City’s designee, shall utilize dedicated utility facilities to ensure safe, reliable, sustainable and cost effective delivery of utility services and maintain the integrity of streets and other public infrastructure. Developer shall, at developer's sole expense, install or cause the installation of such interconnection facilities as may be necessary to connect the electrical distribution infrastructure within the project to the Moreno Valley Utility owned and controlled electric distribution system.

78. Existing Moreno Valley Utility electrical infrastructure shall be preserved in place . The developer will be responsible, at developer’s expense, for any and all costs associated with the relocation of any of Moreno Valley Utility ’s underground electrical distribution facilities, as determined by Moreno Valley Utility, which may be in conflict with any developer planned construction on the project site.

79. This project is subject to a Reimbursement Agreement. The Developer is responsible for a proportionate share of costs associated with electrical distribution infrastructure previously installed that directly benefits the project. Payment shall be required prior to issuance of building permits.

PUBLIC WORKS DEPARTMENT

Land Development Division

80. 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]

81. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

82. The developer shall monitor, supervise and control all construction related activities, 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.

83. 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.

84. 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. Rough grading w/ erosion control plan (prior to grading permit issuance);
b. Precise grading w/ erosion control plan (prior to grading permit issuance);
c. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) (prior to encroachment permit issuance);
d. Final drainage study (prior to grading plan approval);
e. Final WQMP (prior to grading plan approval);
f. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) (prior to building permit issuance);
g. As-Built revision for all plans (prior to Occupancy release);

85. 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)]

Prior to Grading Plan Approval

86. 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 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.

87. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

88. 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.

89. 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.

90. 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.

91. 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.

92. The developer shall pay all remaining plan check fees.

93. 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.

94. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recyclables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

95. 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 noted on the grading plans.

96. The grading plans shall clearly show that the parking lot conforms to City standards . The parking lot shall be 5% maximum, 1% minimum, 2% maximum at or near any disabled parking stall and travel way. Ramps, curb openings and travel paths shall all conform to current ADA standards as outlined in Department of Justice 's "ADA Standards for Accessible Design", Excerpt from 28 CFR Part 36. (www.usdoj.gov) and as approved by the City's Building and Safety Division.

Prior to Grading Permit

97. 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)]

98. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

99. Security, in the form of a cash deposit (preferable), 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)]

100. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

101. The developer shall pay all applicable inspection fees.

Prior to Improvement Plan Approval

102. 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.

103. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

104. 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.

105. 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.

106. 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 for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

107. 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.

108. All pedestrian ramps fronting the project will need to be brought up to current ADA standards including the pedestrian ramp at the northwest corner of Via Entrada & Via Sonata.

<u>Prior to Encroachment Permit</u>

109. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.

110. All applicable inspection fees shall be paid.

111. Any work performed within public right-of-way requires an encroachment permit.

112. For non-subdivision projects, execution of a Public Improvement Agreement (PIA) and/or security (in the form of a cash deposit or other approved means) may be required as determined by the City Engineer. [MC 9.14.220]

<u>Prior to Building Permit</u>

113. 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.

114. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

115. 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 handicap 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.

116. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer (excluding models homes).

117. For non-subdivision projects, the developer shall guarantee the completion of all related public improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]

118. The Developer shall dedicate right-of-way at the knuckle of Via Sonata per City Standard MVSI-107A-0.

<u>Prior to Occupancy</u>

119. All outstanding fees shall be paid.

120. 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.

121. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

122. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. 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 is subject to the following requirements:

   a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.
   i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public

Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy . [California Government Code & Municipal Code]

123. 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, 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.

e. Under grounding of all existing and proposed utilities adjacent to and on -site. [MC 9.14.130]

f. Relocation of overhead electrical utility lines including, but not limited to : electrical, cable and telephone.

124. For commercial, industrial and multi-family projects, a "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" can be obtained by contacting the Land Development Division.

125. 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.

126. 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.

SPECIAL DISTRICTS DIVISION

127. The ongoing maintenance of any landscaping required to be installed behind the sidewalk shall be the responsibility of the property owner.

128. Modification of existing irrigation systems for parkway improvements may be required per the direction of, approval by and coordination with the Special Districts Division. Please contact Special District Division staff at 951.413.3480 or specialdistricts@moval.org to coordinate the modifications.

129. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

130. The removal of existing trees with four-inch or greater trunk diameters (calipers), shall be replaced, at a three to one ratio, with minimum twenty-four (24) inch box size trees of the same species, or a minimum thirty-six (36) inch box for a one to one replacement, where approved. (MC 9.17.030)

131. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting), and Landscape Maintenance District (LMD) 2014-02 Zone 04 (Moreno Valley Ranch - East). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C and an annual assessment for LMD 2014-02 Zone 04 for operations and capital improvements.

132. This project has been identified to potentially be included in the formation of a Map Act Area of Benefit Special District for the construction of major thoroughfares and/or freeway improvements. The property owner(s) shall participate in such District and pay any special tax, assessment, or fee levied upon the project property for such District. At the time of the public hearing to consider formation of the district, the property owner(s) will not protest the formation, but will retain the right to object any eventual assessment that is not equitable should the financial burden of the assessment not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed. The Developer must notify the Special Districts Division at

951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a 90 day process in compliance with the provisions of Article 13C of the California Constitution. (Street & Highway Code, GP Objective 2.14.2, MC 9.14.100).

133. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and /or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
b. Establish an endowment fund to cover the future maintenance and /or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

134. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on -site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution.

(California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

135. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at

951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply . If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

136. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first

certificate of occupancy for the project and prior to acceptance of any improvements.

TRANSPORTATION ENGINEERING DIVISION

137. Moreno Beach Drive is classified as a Divided Major Arterial at this location (134' RW/110'CC) per City Standard Plan No. MVSI-101A-0. Communication conduits along project frontage may be required per City Standard Plan No. MVSI-186-0. Any improvements undertaken by this project shall be consistent with the City 's standards for this facility.

138. John F. Kennedy Drive is classified as a Minor Arterial (88'RW/64'CC) per City Standard Plan No. MVSI-105A-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

139. Via Entrada is classified as a Collector (66'RW/44'CC) per City Standard Plan No. MVSI-106B-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

140. Via Sonata is classified as a residential street (60'RW/40'CC). Any improvements undertaken by this project shall be consistent with the City 's standards for this facility.

141. The driveways shall conform to City of Moreno Valley Standard No. MVSI-112C-0 for Commercial Driveway Approaches. Access at the driveways shall be allowed as follows:
    - Moreno Beach Drive driveway: right turn in/out only.
    - John F. Kennedy Drive driveway: right turn in/out only.
    - Via Entrada driveway: full access.

142. All proposed on-site traffic signing and striping should be accordance with the 2014 California Manual on Uniform Traffic Control Devices (CAMUTCD).

143. Conditions of approval may be modified if project is phased or altered from any approved plans.

144. Prior to the final approval of the street improvement plans, a median improvement plan shall be prepared by a registered civil engineer for a raised concrete median on John F. Kennedy Drive along the project frontage from Via Entrada to Moreno Beach Drive.

145. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for street sections along the project frontages.

146. 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 or as required by the City Traffic Engineer.

147. Prior to final approval of the landscape plans and construction plans for any type of fencing or monument sign, the project plans shall demonstrate that sight distance at the project driveway conforms to City Standard Plan No. MVSI-164A-0 through MVSI-164C-0. Trees, plants, shrubs, fence and monument sign shall not be located in an area that obstructs the drivers' line-of-sight.

148. (CO) Prior to issuance of Certificate of Occupancy, raised median improvement on John F. Kennedy Drive along the project frontage shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Median construction shall include but not be limited to: paving, concrete curbs, signing and striping. Exact requirements will be determined during the plan check process.

149. (CO) Prior to issuance of Certificate of Occupancy, a bus turnout/right turn lane combination shall be installed for southbound traffic and shall be located on the west side of Moreno Beach Drive, between the project driveway and John F. Kennedy Drive. Bus turnout construction shall include but not be limited to: paving, concrete curbs, ADA access ramps, landscaping, signing and striping. Exact requirements will be determined during the plan check process.

150. (CO) Prior to issuance of Certificate of Occupancy, all signing and striping shall be installed per current City Standards and the approved plans.

POLICE DEPARTMENT

151. Addresses shall be in plain view, visible from the street and visible at night.

152. All exterior doors in the rear and the front of the building shall display an address or suite number.

153. All exterior doors shall have a vandal resistant light fixture installed above the door. The door shall be illuminated with a minimum one foot candle illumination at ground level, evenly dispersed.

154. Landscape groundcover shall not exceed three (3) feet in height in the parking lot.

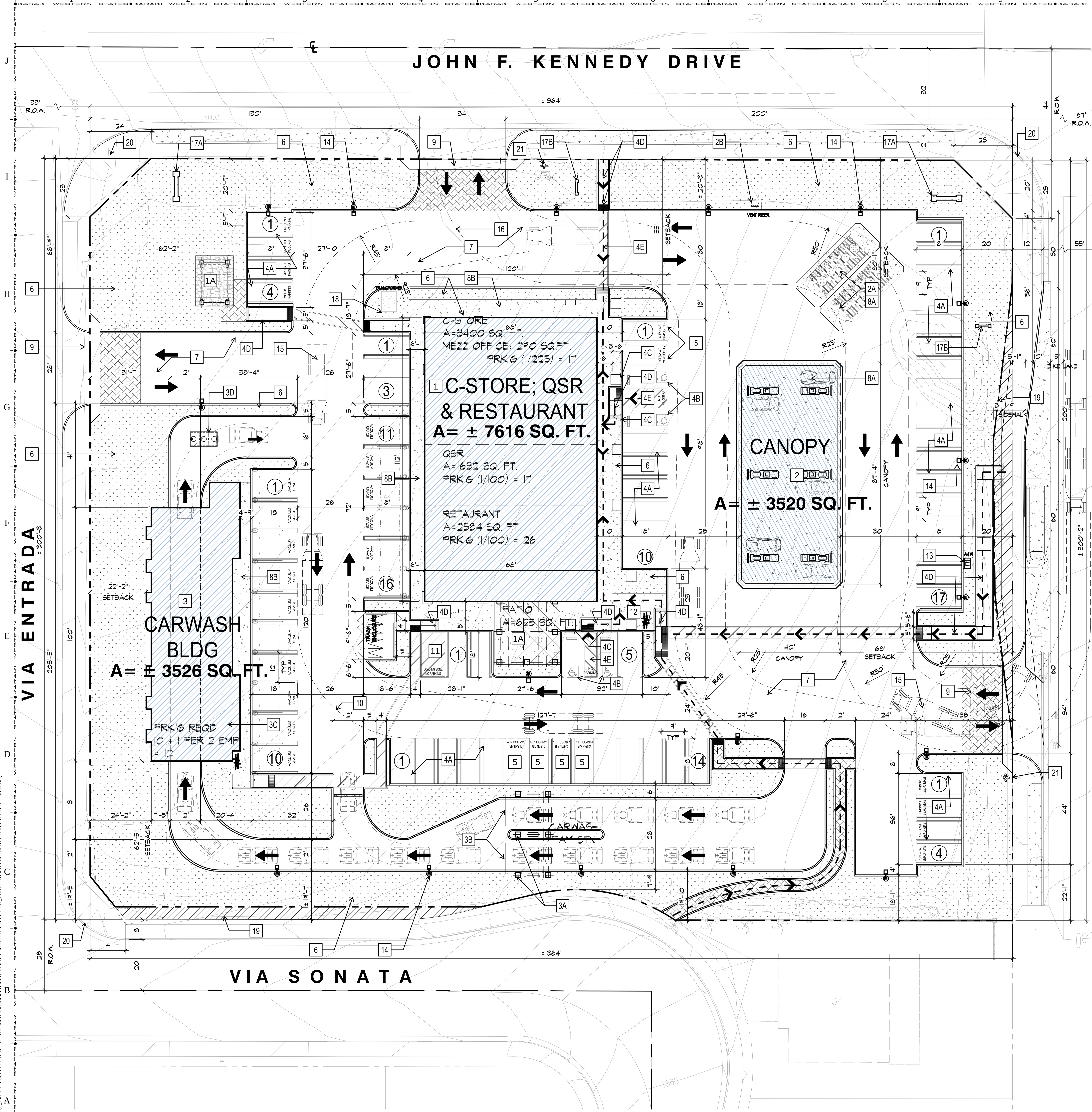
155. Cash registers shall be placed near the front entrance to the store.

156. Window coverings shall not obscure more than twenty-five (25) percent of the "clear sight" window area situated between four and seven feet above the finished floor level. (MC 9.09.140.D)

157. Signs stating, "No Loitering", shall be posted in plain view on the convenience store.

158. The Police Chief may require a recordable security camera system with coverage inside the business and parking lot to address any issues that may arise from the convenience store use.

159. The appropriate approval and license from the California Department of Alcoholic Beverage Control (ABC) shall be required for beer and wine sales in the convenience store. No alcoholic beverage sales can commence until the appropriate license is secured. The license must remain valid at all times. Issuance of the license might be subject to approval of a Letter of Public Necessity and Convenience from the Police Department.



1 PROPOSED SITE PLAN
SCALE: N.T.S.

PROJECT DATA

ZONING		CC - GENERAL COMMERCIAL
LAND USE		COMMERCIAL
SPECIFIC PLAN		SP 193
AREA OF SITE		± 106,358 S.F. (± 2.45 ACRE)
BLDG SETBACKS	REQUIRED	PROPOSED
FRONT (NORTH)	20'-0"	62'-6" (C-STORE)
REAR (SOUTH)	20'-0"	57'-5" (CARWASH)
LEFT (WEST)	20'-0"	22'-2" (CARWASH)
RIGHT (EAST)	20'-0"	66'-0" (CANOPY)
LANDSCAPE AREA	-- % MIN	28,300 S.F. (26.00%)
FLOOR AREA RATIO	-	± 0.144
MAXIMUM HEIGHT	-	31'-0"
PARKING	71	74

(SEE PARKING COMPUTATION BELOW)

BUILDING DATA

C-STORE - Q.S.R. - RESTAURANT

AREAS	C-STORE	3,690 SF
	Q.S.R.	1,632 SF
	RESTAURANT	2,584 SF
	TOTAL	7,906 SF
OCCUPANCY		B/M - A2
TYPE OF CONST		V-B
NUMBER OF STORY		1
BLDG HEIGHT		± 31'-0"
SPRINKLERS		XX

CANOPY

AREA	4,600 SF
OCCUPANCY	M
TYPE OF CONST	II-B
NUMBER OF STORY	1
BLDG HEIGHT	27'-0"

CARWASH

AREA	3,518 SF
OCCUPANCY	B
TYPE OF CONST	V-B
NUMBER OF STORY	1
BLDG HEIGHT	24'-0"

PARKING COMPUTATION

PARKING STANDARDS

TYPE	SIZE
REGULAR	9'-0" X 18'-0"
PARALLEL	9'-0" X 22'-0"
COMPACT	8'-0" X 16'-0" (UP TO 35% OF REQD SP)
HANDICAP	17'-0" X 18'-0" VAN ACCESSIBLE

PARKING REQUIREMENTS

USE	FORMULA	REQUIRED	PROVIDED
C-STORE	(1/225 S.F.)	17	17
QSR	(1/100 S.F.)	17	17
RESTAURANT	(1/100 S.F.)	26	27
CARWASH	(10 + 1 PER 2 EMPLOYEE)	12	12
TOTAL PARKING REQUIRED		72	73

HANDICAP PARKING REQUIREMENTS

FORMULA	REQUIRED	PROVIDED
51-75 PARKING SPACES	(3)	(4)

CLEAN AIR VEHICLE PARKING

FORMULA		
CH 9.11.040 M.V. MUN CODE (8% OF TOTAL PARKING SP)	(6)	(6)

OTHER PARKING REQUIREMENTS

BIKE PARKING:
CLASS 2 OR 3 (MIN OF TWO BICYCLE PARKING STALLS)
REQUIRED: 5% OF TOTAL REQ'D PARKING SP

LOADING SPACE
REQUIRED: 1 SP (0 - 29,999 TOTAL G.F.A.)

ASSESSOR'S PARCEL NUMBER

304-240-004

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS: LOT 12 OF TRACT 22936 AS SHOWN BY THE MAP ON FILE IN BOOK 141, PAGES 98 THRU 104 INCLUSIVE OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

VICINITY MAP

LEGEND

- NO. OF PARKING SPACES
- ACCESSIBLE PARKING
- PROPERTY LINE
- ADA PATH OF TRAVEL
- CONCRETE PAVING AREA
- DECORATIVE PAVING AREA
- LANDSCAPED AREA
- COMMUNITY TRAIL
- STREET DEDICATION
- DIRECTIONAL ARROW
- AREA LIGHTS
- WALL MOUNTED DECORATIVE AREA LIGHTS
- FIRE HYDRANT
- (E) SEWER MANHOLE
- (E) SEWER CLEANOUT
- (E) POWER POLE
- WM (E) WATER METER
- (E) WATER POINT
- (E) SIGN

SITE KEY NOTES

1	CONVENIENCE STORE / Q.S.R. / RESTAURANT BLDG
1A	OUTDOOR PATIO WITH SEATING AREA
2	GAS STATION CANOPY AND FUEL DISPENSERS
2A	UNDERGROUND STORAGE TANKS
2B	VENT RISER WITH CARBON VAPOR CANISTER
3	CARWASH BUILDING
3A	CARWASH PAY STATIONS WITH TRELLIS
3B	CARWASH AUTOMATIC GATE BARRIER
3C	CARWASH CENTRAL VACUUM EQUIPMENT (INSIDE CARWASH BUILDING)
3D	CARWASH WATER CLARIFIER
4A	PARKING STRIPING AS PER CITY STANDARDS (WITH WHEELSTOP WHERE REQUIED)
4B	ACCESSIBLE PARKING STRIPING (WITH WHEELSTOP WHERE REQUIRED)
4C	ACCESSIBLE PARKING SIGN
4D	ADA ACCESSIBLE RAMP AND TRUNCATED DOME PAVER
4E	ADA ACCESSIBLE PATH STRIPING (5% MAX SLOPE / 2% MAX CROSS SLOPE)
5	DESIGNATED CLEAN AIR VEHICLE PARKING
6	LANDSCAPE WITH 6" CONCRETE CURB TO REMAIN
7	ASPHALT PAVING
8A	CONCRETE PAVING
8B	CONCRETE SIDEWALK AND CURB
9	(N) DRIVEWAY (PER CITY STANDARDS)
10	TRASH ENCLOSURE (PER CITY STANDARDS)
11	LOADING SPACE 10' X 18'
12	CLASS-2 BIKE PARKING RACK (U-SHAPED)
13	AIR & WATER UNIT
14	AREA LIGHTS
15	FIRE TRUCK PATH OF TRAVEL
16	FUEL TANKER/TRASH TRUCK PATH OF TRAVEL
17A	MONUMENT SIGN (UNDER SEPARATE PERMIT)
17B	GAS STATION PRICE SIGN (UNDER SEPARATE PERMIT)
18	PROPOSED TRANSFORMER PAD LOCATION
19	RIGHT OF WAY DEDUCTION SPACE
20	(E) PEDESTRIAN RAMP TO BE ACCESSIBLE COMPLIANCE.
21	(N) FIRE HYDRANT

KARAKI WSE
WESTERN STATES ENGINEERING
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

CONSULTANT/ SEALS

SUBMITTAL

NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			

REVISIONS

NO.	DESCRIPTION	BY	DATE
△			
△			
△			
△			
△			

OWNER NAME & ADDRESS
ROYAL EXCEL
ENTERPRISES
7033 CANOGA AVE #2
CANOGA PARK, CA 91303

PROJECT NAME & ADDRESS
76 GAS STATION
C-STORE / Q.S.R.
CARWASH
S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

NOTE TO CONTRACTOR
CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

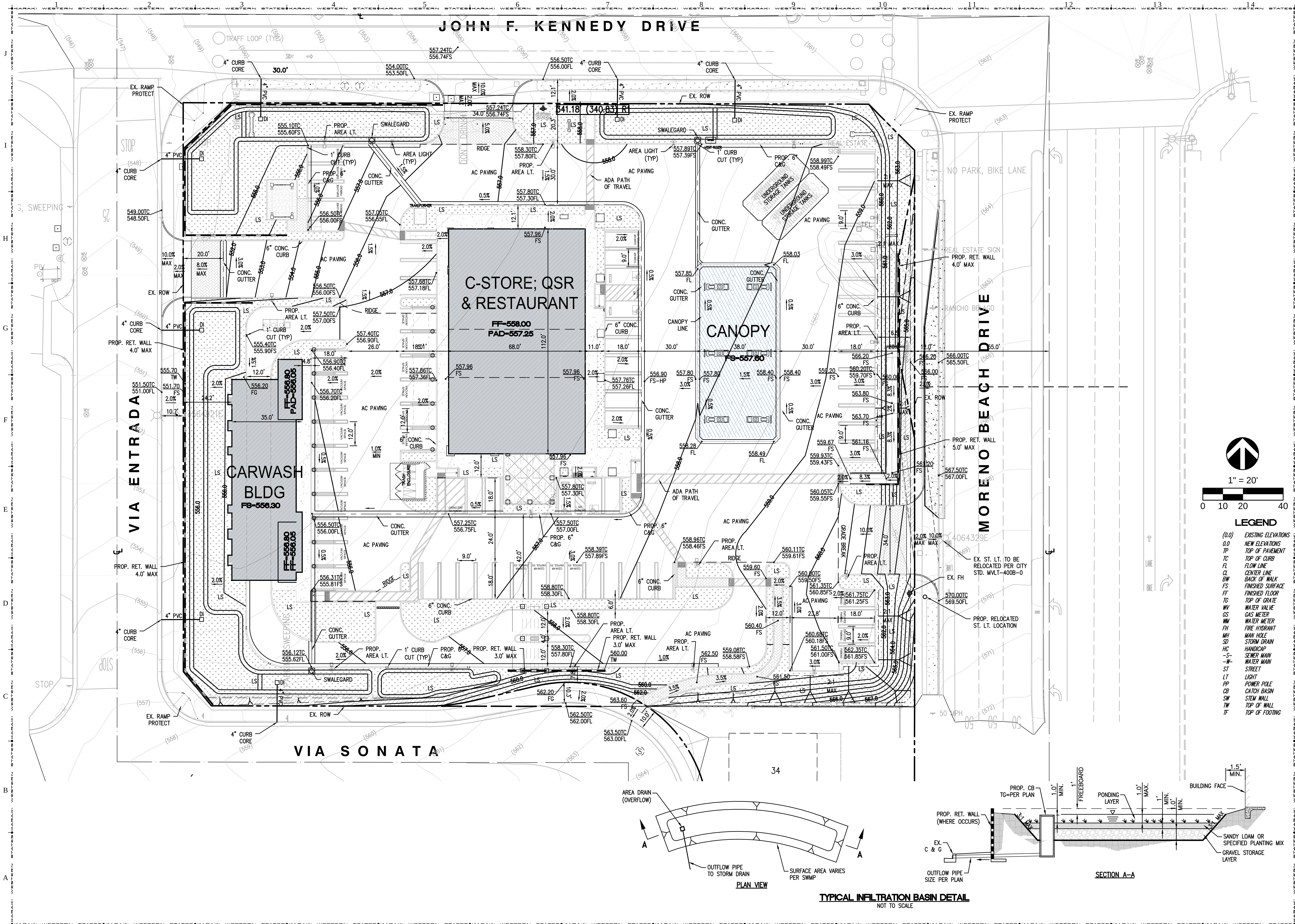
DESIGNED BY:	WS
DRAWN BY:	WS
CHECKED BY:	JK
DATE DRAWN:	03.02.18
SCALE:	N.T.S.

SHEET TITLE
PROPOSED SITE PLAN

SHEET NUMBER
AS-1.0

JOB No	CUP No
E97617	-

Attachment: Site Plan (3058 : Moreno Beach Commercial Center)



KARAKI WSe

WESTERN STATES ENGINEERING
A DESIGN-BUILD COMPANY

4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

■ CONSULTANT/ SEALS

■ SUBMITTAL

NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			

■ REVISIONS

NO.	DESCRIPTION	BY	DATE
△			
△			
△			
△			
△			

■ OWNER NAME & ADDRESS

ROYAL EXCEL
ENTERPRISES

7033 CANOGA AVE #2
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

76 GAS STATION
C-STORE / Q.S.R.
CARWASH

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: JR
■ CHECKED BY: JK
■ DATE DRAWN: 03.06.18
■ SCALE: N.T.S.
■ SHEET TITLE

PRELIMINARY
GRADING
PLAN

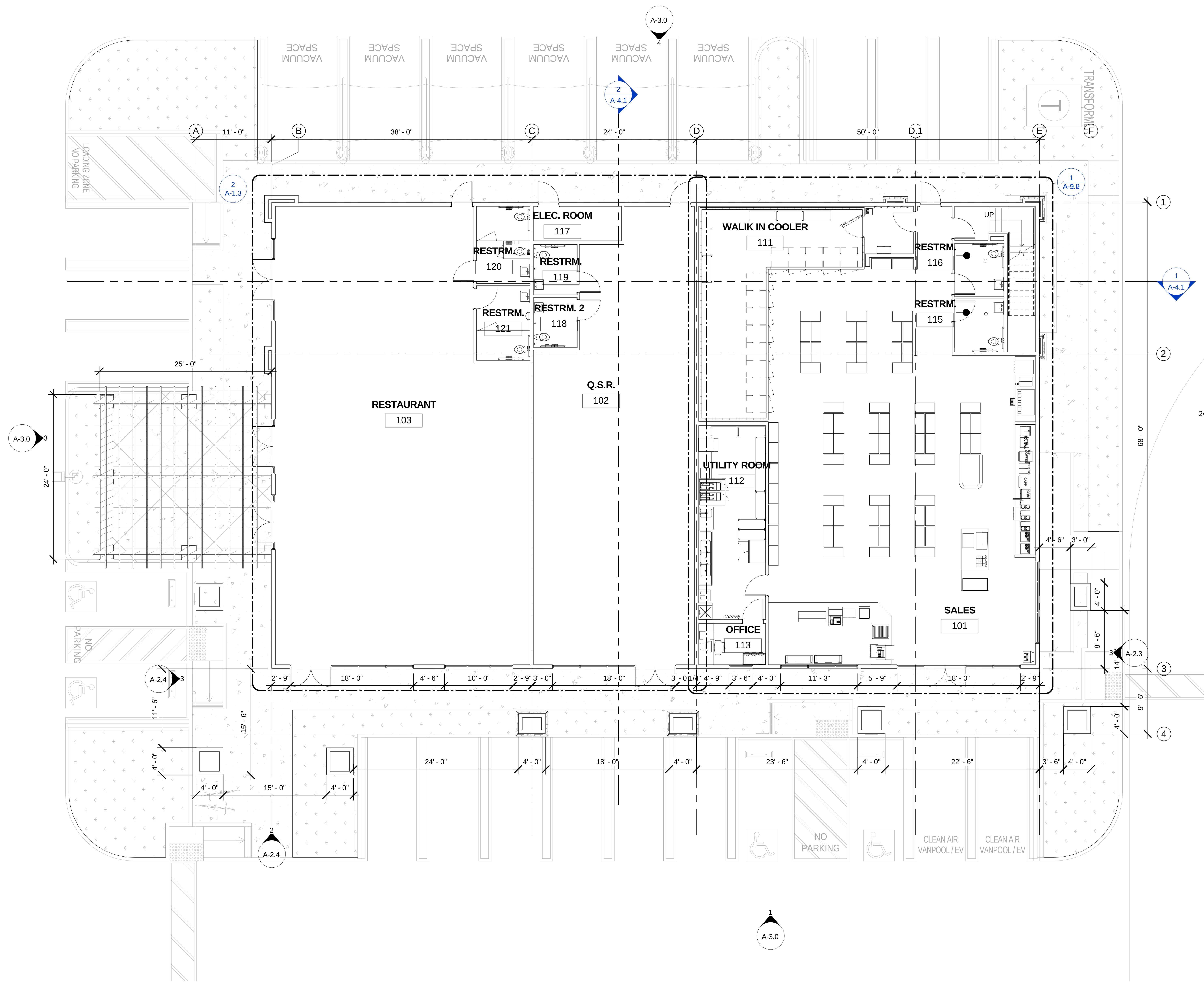
■ SHEET NUMBER

1 OF 1

■ JOB No E97617
■ CUP No -

Attachment: Preliminary Grading Plan (3058 : Moreno Beach Commercial Center)

1.n



1 FLOOR PLAN - STORE
1/8" = 1'-0"

WALL LEGEND

E — EXISTING

P1 — 8" THICK PRECISION BLOCK CMU WALL (7/8" CEMENT PLASTER-EXTERIOR SIDE) + (5/8" GYP BD ON METAL FURRING-INTERIOR SIDE) SEE EXTERIOR ELEVATIONS FOR COLORS & FINISHES; REFER TO INTERIOR ELEVATIONS & FINISH SCHEDULE FOR INTERIOR FINISHES

P2 — 2" x 4" (2" x 6" @TOILET WALLS ADJ TO PLUMBING FIXTURES) INTERIOR STUD WALL @ 16" O.C WITH 5/8" GYP BD ON EACH SIDE U.O.N. (REFER TO INTERIOR ELEVATIONS & FINISH SCHEDULE FOR FINISHES)

P3 — 2" x 6" EXTERIOR STUD WALL POP-OUTS @ 16" O.C. (7/8" CEMENT PLASTER OVER EXPANDED METAL LATH AND 2 LAYERS #15 GRADE D BUILDING PAPER. SEE EXTERIOR ELEVATIONS FOR COLORS & FINISHES; REFER TO INTERIOR ELEVATIONS & FINISH SCHEDULE FOR INTERIOR FINISHES

P4 — 3-1/2" WALK-IN COOLER WALLS AS PER MANUFACTURER'S SPECS

FLOOR PLAN NOTES

1. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH STRUCTURAL, ELECTRICAL, MECHANICAL & PLUMBING DRAWINGS. COORDINATE ANY DISCREPANCIES WITH ARCHITECT/ENGINEER FOR CLARIFICATION BEFORE COMMENCING ANY WORK.
2. ALL DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE OR SHOWN ON THE PLANS.
3. 3-1/2" MIN. ACOUSTIC BATT INSULATION REQUIRED ON ALL RESTROOM WALLS & CEILING.
4. PROVIDE & INSTALL ALL WOOD BLOCKING / FURRING STRIPS REQUIRED TO PROVIDE ANCHORAGE FOR ALL FINISHES, ACCESSORIES, FIXTURES, ETC. TO COMPLETE ALL WORK.
5. PROVIDE PORTABLE FIRE EXTINGUISHERS IN LOCATIONS AS REQUIRED BY FIRE CODE AND LOCAL FIRE AUTHORITY.

ACCESSIBLE NOTES

1. PROVIDE "INTERNATIONAL SYMBOL OF ACCESSIBILITY" SIGN ADJACENT TO ALL ENTRANCES PER CA TITLE 24 & CBC 11B-703.7.2.1 REQMTS. (SEE DAR SHEET DETAILS)
2. TACTILE EXIT SIGNAGE PER CBC 11B-216.4 AND CBC 11B-703 (SEE DAR SHEET DETAILS)
3. MEANS OF EGRESS DOORS SHALL COMPLY WITH CBC 1010 ; 11B-206.5 AND 11B-404
4. COUNTER HEIGHT

KARAKI WSe
WESTERN STATES ENGINEERING
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.karakiws.com

■ CONSULTANT/ SEALS

REGISTERED PROFESSIONAL ENG
C051050
Exp. 9/30/19
CIVIL
STATE OF CALIFORNIA

■ SUBMITTAL

NO.	DESCRIPTION	BY	DATE
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■ REVISIONS

NO.	DESCRIPTION	DATE
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■ OWNER NAME & ADDRESS

ROYAL EXCEL
7033 CANOGA AVE. #2,
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: WS
■ CHECKED BY: WS
■ DATE DRAWN: 08/23/2017
■ SCALE: AS SHOWN
■ SHEET TITLE

FLOOR PLAN - STORE

■ SHEET NUMBER

A-1.0

■ JOB No E97617
■ CUP No -
■ AP No -

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Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)

ACCESSIBLE NOTES

A	PROVIDE "INTERNATIONAL SYMBOL OF ACCESSIBILITY" SIGN ADJACENT TO ALL ENTRANCES PER CA TITLE 24 & CBC 11B-703.7.2.1 REQMTS. (SEE DAR SHEET DETAILS)
B	TACTILE EXIT SIGNAGE PER CBC 11B-216.4 AND CBC 11B-703 (SEE DAR SHEET DETAILS)
C	MEANS OF EGRESS DOORS SHALL COMPLY WITH CBC 1010 ; 11B-206.5 AND 11B-404
D	COUNTER HEIGHT SHALL BE 28" MIN. TO 34" MAX. SALES COUNTERS & SERVICE COUNTERS SHALL COMPLY WITH CBC SECTION 11B-904.4.1 OR 11B-904.4.2
E	POST SIGN WITH 1" HIGH LETTERS STATING : "THIS DOOR TO REMAIN UNLOCK DURING BUSINESS HOURS"
F	PUBLIC FACILITIES SHALL BE PROVIDED WITH SIGNS THAT DESIGNATE SEX (P) 2902.14

FLOOR PLAN NOTES

1. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH STRUCTURAL, ELECTRICAL, MECHANICAL & PLUMBING DRAWINGS. COORDINATE ANY DISCREPANCIES WITH ARCHITECT/ENGINEER FOR CLARIFICATION BEFORE COMMENCING ANY WORK.
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3. 3-1/2" MIN. ACOUSTIC BATT INSULATION REQUIRED ON ALL RESTROOM WALLS & CEILING.
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WALL LEGEND

E	EXISTING
P1	8" THICK PRECISION BLOCK CMU WALL (7/8" CEMENT PLASTER-EXTERIOR SIDE) + (5/8" GYP BD ON METAL FURRING-INTERIOR SIDE) SEE EXTERIOR ELEVATIONS FOR COLORS & FINISHES; REFER TO INTERIOR ELEVATIONS & FINISH SCHEDULE FOR INTERIOR FINISHES
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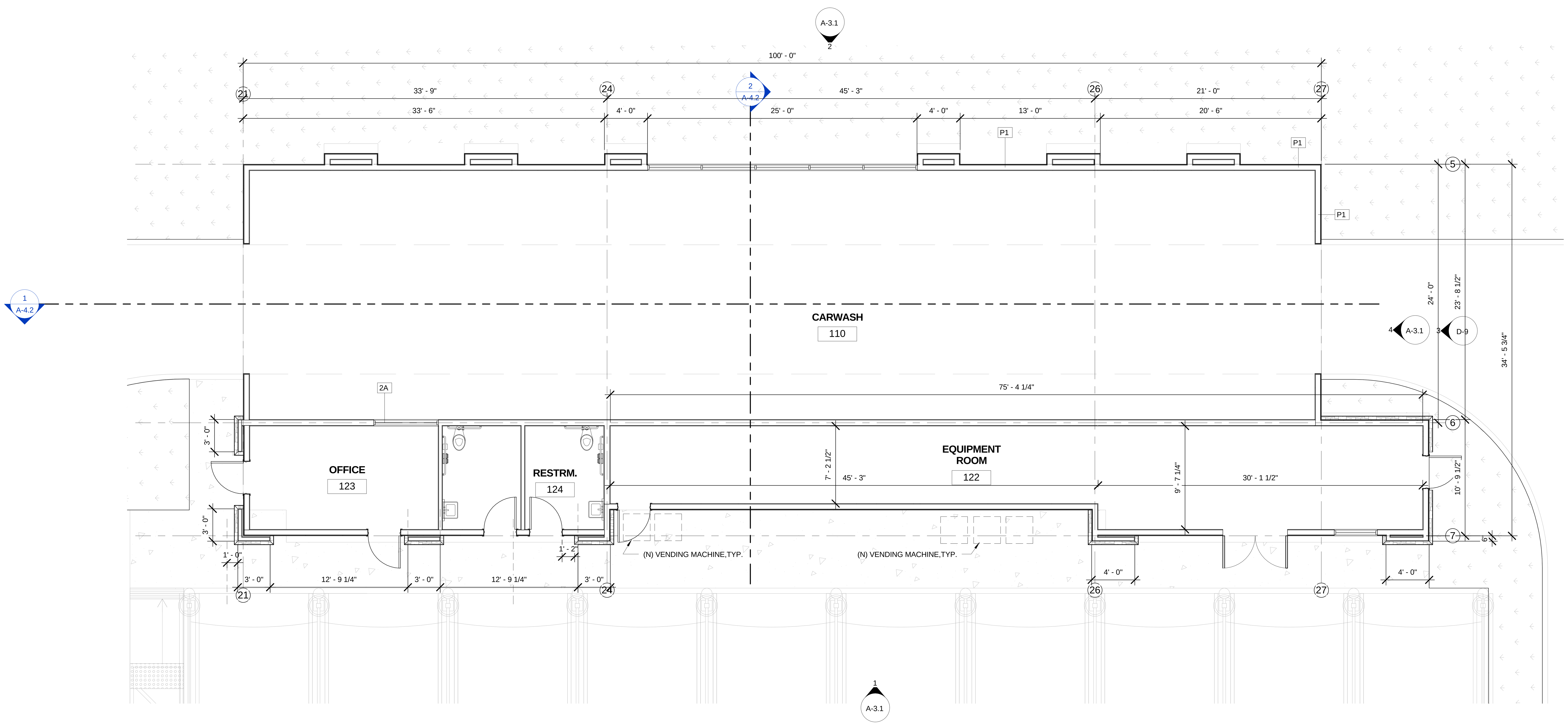
P4	3-1/2" WALK-IN COOLER WALLS AS PER MANUFACTURER'S SPECS



1 FLOOR PLAN - CARWASH

3/16" = 1'-0"

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■ CONSULTANT/ SEALS

■ SUBMITTAL

NO.	DESCRIPTION	BY	DATE
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2			
3			
4			

■ REVISIONS

NO.	DESCRIPTION	DATE
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△		
△		
△		
△		

■ OWNER NAME & ADDRESS

ROYAL EXCEL ENTERPRISES

ROYAL EXCEL
7033 CANOGA AVE. #2,
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: WS
■ CHECKED BY: WS
■ DATE DRAWN: 10.10.17
■ SCALE: AS SHOWN
■ SHEET TITLE

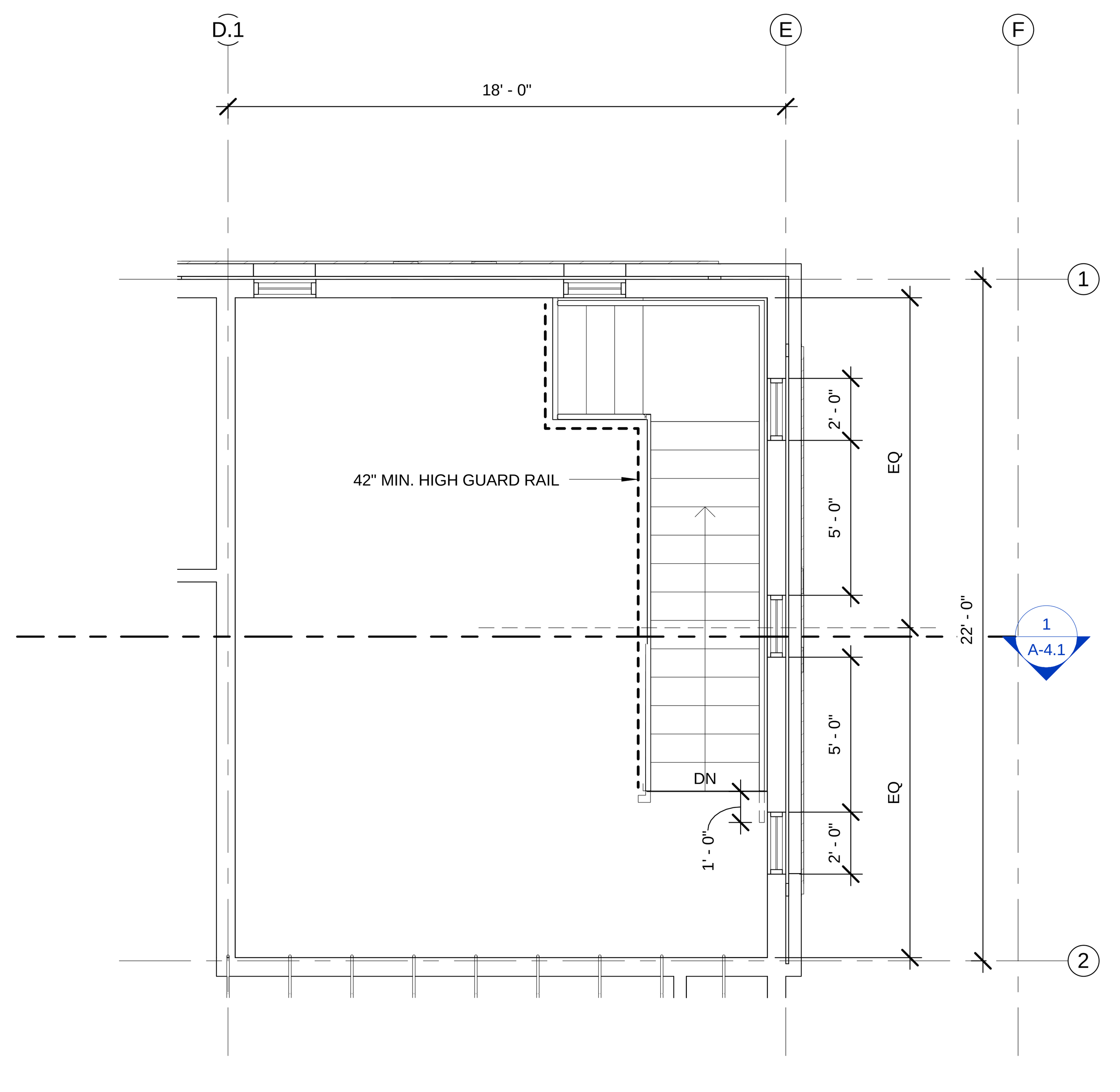
FLOOR PLAN - CARWASH

■ SHEET NUMBER

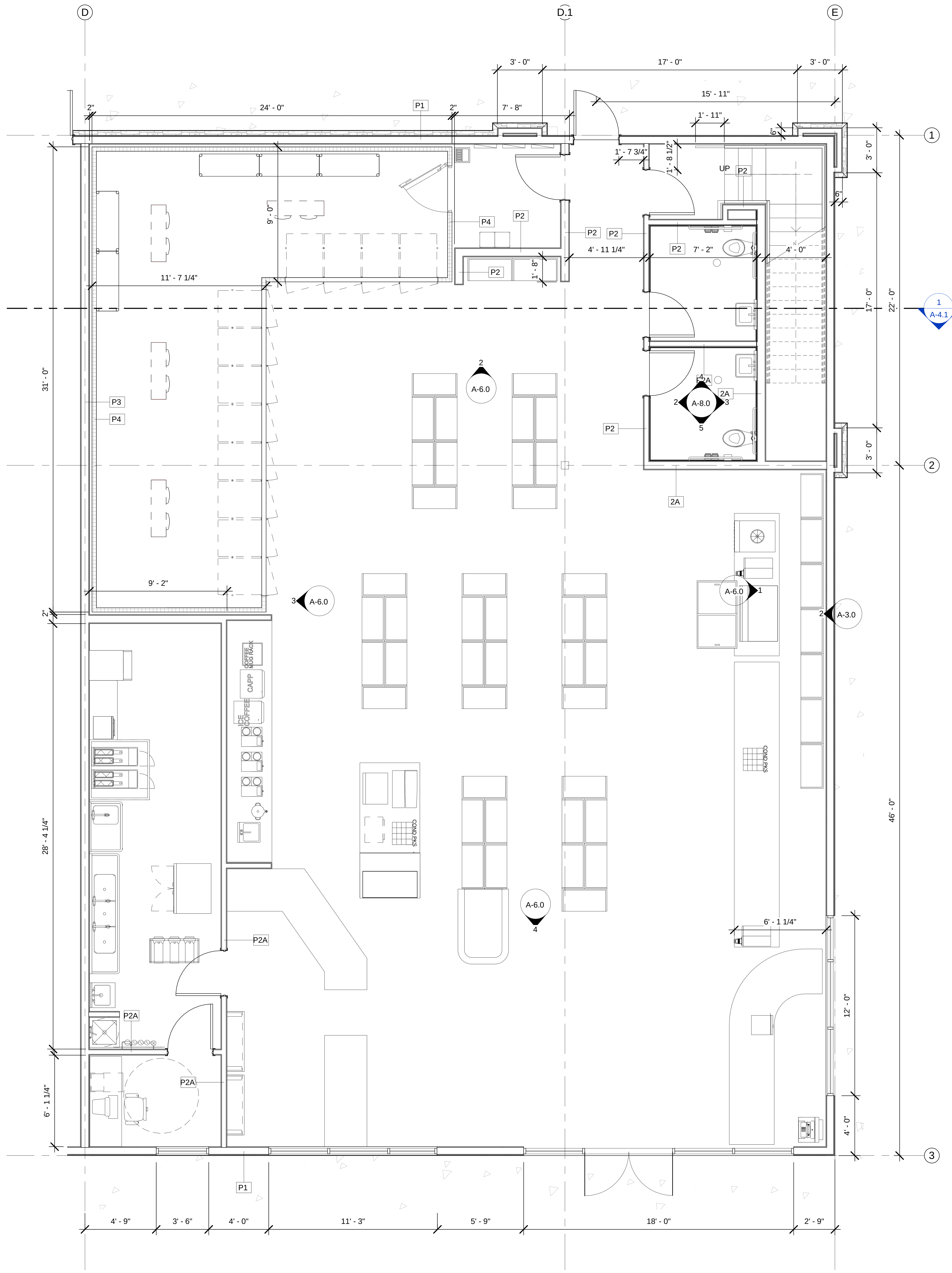
A-1.1

■ JOB No E97617
■ CUP No -
■ AP No -
-

Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)



2 MEZZANINE - C-STORE
1/4" = 1'-0"



1 FLOOR PLAN - CONVENIENCE STORE
1/4" = 1'-0"

WALL LEGEND

- E — EXISTING
- P1 — 8" THICK PRECISION BLOCK CMU WALL (7/8" CEMENT PLASTER-EXTERIOR SIDE) + (5/8" GYP BD ON METAL FURRING-INTERIOR SIDE) SEE EXTERIOR ELEVATIONS FOR COLORS & FINISHES; REFER TO INTERIOR ELEVATIONS & FINISH SCHEDULE FOR INTERIOR FINISHES
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- D — COUNTER HEIGHT SHALL BE 28" MIN. TO 34" MAX. SALES COUNTERS & SERVICE COUNTERS SHALL COMPLY WITH CBC SECTION 11B-904.4.1 OR 11B-904.4.2
- E — POST SIGN WITH 1" HIGH LETTERS STATING : "THIS DOOR TO REMAIN UNLOCK DURING BUSINESS HOURS"
- F — PUBLIC FACILITIES SHALL BE PROVIDED WITH SIGNS THAT DESIGNATE SEX (P) 2902.14

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www.karakiws.com

■ CONSULTANT/ SEALS

■ SUBMITTAL

NO.	DESCRIPTION	BY	DATE
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■ REVISIONS

NO.	DESCRIPTION	DATE
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■ OWNER NAME & ADDRESS

ROYAL EXCEL
7033 CANOGA AVE. #2,
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: Designer
■ DRAWN BY: Author
■ CHECKED BY: Checker
■ DATE DRAWN: 12/23/15
■ SCALE: AS SHOWN
■ SHEET TITLE

PLAN -CONVENIENCE STORE

■ SHEET NUMBER

A-1.2

■ JOB No E97617
■ CUP No -
■ AP No -

Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)

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ROOF KEYNOTES

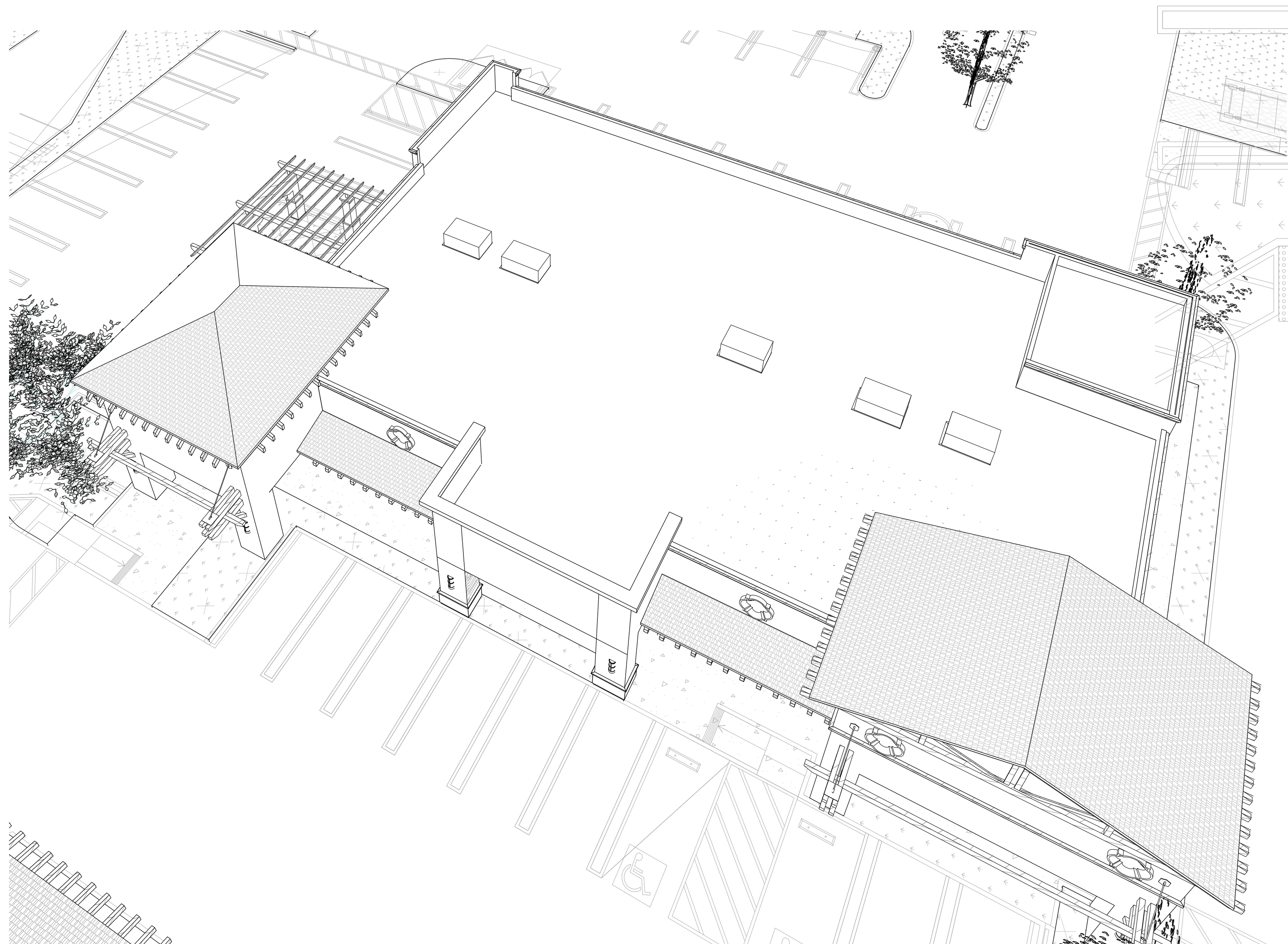
RF-1	BUILT-UP CLASS "A" ROOFING 4 LAYERS FIBERGLASS REINFORCED BUILT-UP ROOFING USING MINERAL BUILT-UP COATED CAP SHEET AND ROBIN COATED SHEATING - FIRE RETARDANT
RF-2	CONCRETE ROOF TILES PONDEROSA CONCORD BLEND-5602 BY EAGLE ROOFING TILE (OR APPROVAL EQUAL)

ROOF KEYNOTES

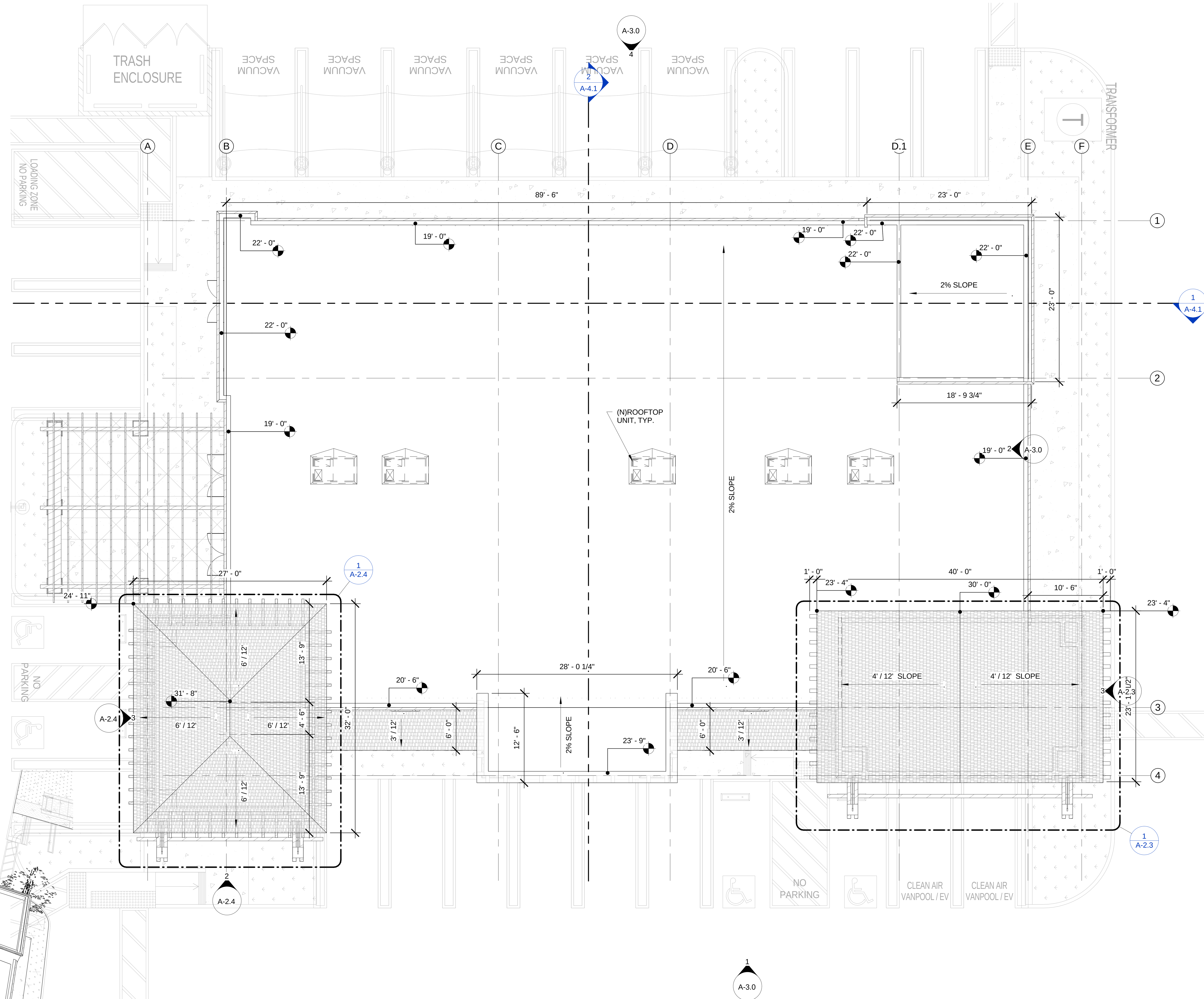
1	BUILDING OUTLINE BELOW
2	PARAPET WITH METAL COPING CAP
3	4" CANT STRIP
4	LINES REPRESENT LIMITS OF CRICKET FORMED BY TAPERED ROOF INSULATION.
5	ROOF DRAIN AND OVERFLOW DRAIN REFER TO DETAIL.
6	ROOF TOP MECHANICAL UNIT. REFER TO MECHANICAL DRAWING.
7	ROOF ACCESS HATCH REFER TO DETAIL.
8	NOT USED
9	NOT USED
10	NOT USED
11	EXHAUST DUCT. REFER TO MECHANICAL DRAWING.

ROOF FINISHES

1. DRAWINGS SHALL NOT BE SCALED FOR LAYOUT OF MATERIALS, USE WRITTEN DIMENSIONS. G.C. TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT OR FIELD ENGINEER BEFORE PROCEEDING TO CONSTRUCTION.
2. CONTRACTOR SHALL MINIMIZE ALL ROOF PENETRATIONS. ANY PENETRATION THAT IS REQUIRED SHALL BE DONE ON THE BACK SIDE OF THE ROOF. NO ITEMS SHALL BE SEEN FROM THE FRONT OR SIDE OF THE BUILDING.
3. ALL PENETRATIONS SHALL BE FLASHED PER ROOF MANUFACTURER RECOMMENDATIONS.
4. PAINT ALL VENT STACK PIPES, EXHAUST HOODS, FLASHING AND FRESH AIR VENTS TO MATCH ROOF.
5. ROOF TOP MECHANICAL EQUIPMENT LOCATIONS ARE APPROXIMATE LOCATIONS ONLY. FINAL LOCATION TO BE COORDINATED WITH STRUCTURAL AND MECHANICAL DRAWINGS. HOWEVER, THE EQUIPMENT SHALL NOT BE VISIBLE FROM ANY OF PUBLIC VIEWS.
6. G.C. TO PROVIDE BLOCKING FOR ALL CONDENSING UNITS AND HVAC UNITS ACCORDING TO STRUCTURAL DETAILS. EXACT LOCATION OF CONDENSING UNIT LOCATIONS SHALL BE OBTAINED FROM VENDOR PRIOR TO INSTALLATION OF BLOCKING. HVAC UNIT LOCATIONS ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
7. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL FLASHING, COUNTER FLASHING, WATER DIVERSION AND SEALING OF ROOF FOR A WATERTIGHT INSTALLATION. GENERAL CONTRACTOR SHALL SEAL AND COORDINATE THE WORK OF ALL VENDORS PROVIDING ROOF TOP EQUIPMENT.
8. FLASHING (FACTORY FABRICATED OR LOCALLY FABRICATED) UNLESS OTHERWISE SPECIFIED, ALL EXPOSED ADJACENT FLASHING SHALL BE OF THE SAME MATERIAL AND FINISH AS PANEL SYSTEM.
9. FIELD PROTECTION MUST BE PROVIDED BY THE CONTRACTOR AT THE JOB SITE SO MATERIALS ARE NOT EXPOSED TO WEATHER AND MOISTURE.



2 3D ROOF VIEW



3 ROOF PLAN - C-STORE
1/8" = 1'-0"

ROOF NOTE:

- SIZE THE ROOF DRAINS AND OVERFLOW DRAINS ACCORDING TO CHAPTER 11 OF THE LAPC. (1503.4)
- THE ROOF DRAIN AND OVERFLOW DRAIN MUST BE INDEPENDENT LINES TO A YARD BOX.
- ROOF DRAINAGE IS NOT PERMITTED TO FLOW OVER PUBLIC PROPERTY.
- OVERFLOW SCUPPERS SHALL BE DESIGNED IN ACCORDANCE TO 1101.11.2.1 OF THE LAPC
- ROOFING MATERIAL: LARR 25463

KARAKI WSe
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ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
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■ CONSULTANT/ SEALS

■ SUBMITTAL

NO.	DESCRIPTION	BY	DATE
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4			

■ REVISIONS

NO.	DESCRIPTION	DATE
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■ OWNER NAME & ADDRESS

ROYAL EXCEL
7033 CANOGA AVE. #2,
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY:	WS
■ DRAWN BY:	WS
■ CHECKED BY:	WS
■ DATE DRAWN:	10.10.17
■ SCALE:	AS SHOWN

■ SHEET TITLE

ROOF PLAN - STORE

■ SHEET NUMBER

A-2.0

■ JOB No E97617 ■ CUP No - ■ AP No -

Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)

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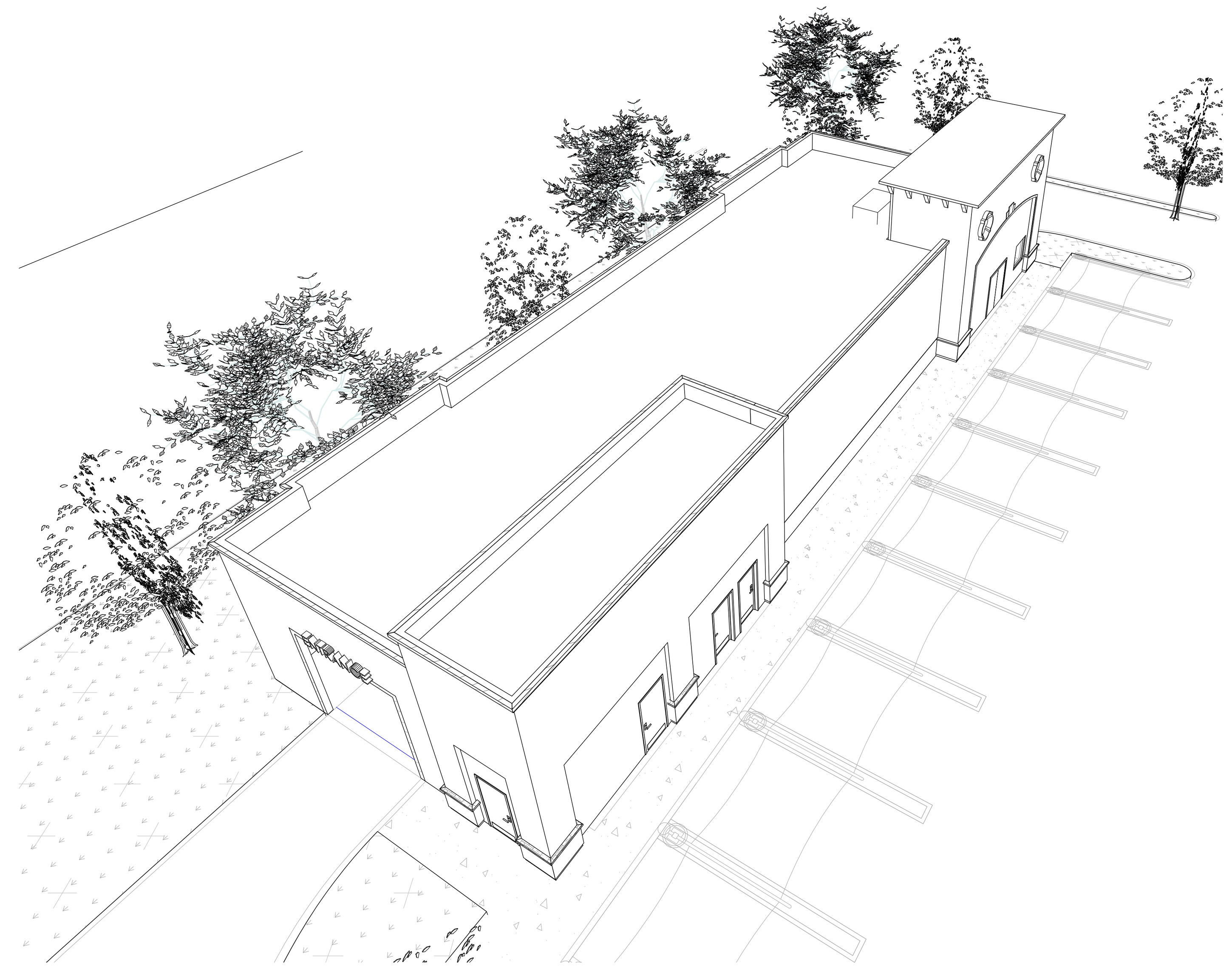

2 3D View 5

ROOF NOTE:

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ROOF KEYNOTES

RF-1 BUILT-UP CLASS "A" ROOFING
4 LAYERS FIBERGLASS REINFORCED BUILT-UP ROOFING USING MINERAL BUILT-UP COATED CAP SHEET AND ROBIN COATED SHEATING - FIRE RETARDANT

RF-2 CONCRETE ROOF TILES PONDEROSA CONCORD BLEND-5602 BY EAGLE ROOFING TILE (OR APPROVAL EQUAL)

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1 BUILDING OUTLINE BELOW

2 PARAPET WITH METAL COPING CAP

3 4" CANT STRIP

4 LINES REPRESENT LIMITS OF CRICKET FORMED BY TAPERED ROOF INSULATION.

5 ROOF DRAIN AND OVERFLOW DRAIN REFER TO DETAIL.

6 ROOF TOP MECHANICAL UNIT. REFER TO MECHANICAL DRAWING.

7 ROOF ACCESS HATCH REFER TO DETAIL.

8 NOT USED

9 NOT USED

10 NOT USED

11 EXHAUST DUCT. REFER TO MECHANICAL DRAWING.

ROOF FINISHES

1. DRAWINGS SHALL NOT BE SCALED FOR LAYOUT OF MATERIALS, USE WRITTEN DIMENSIONS. G.C. TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT OR FIELD ENGINEER BEFORE PROCEEDING TO CONSTRUCTION.
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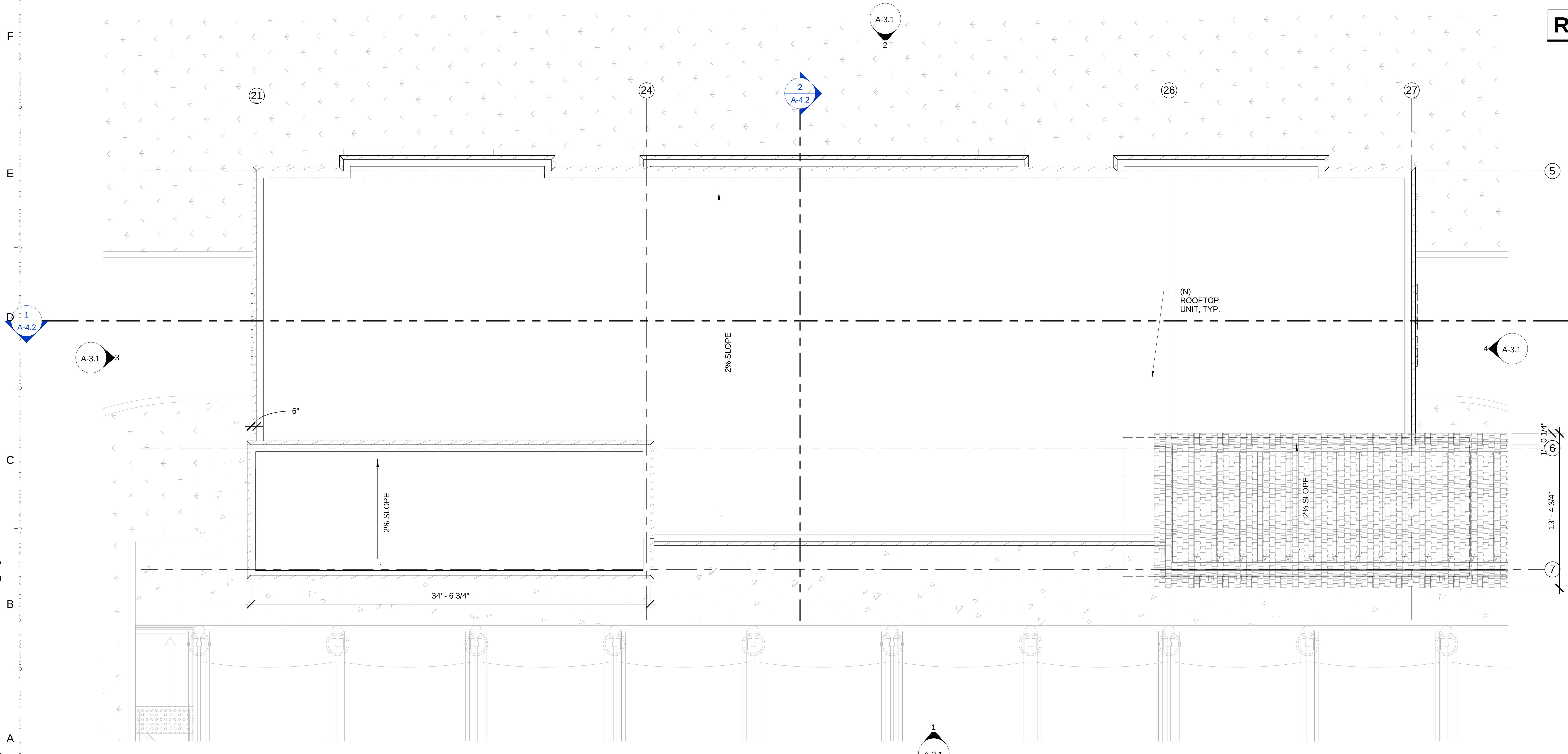

1 ROOF PLAN - CARWASH
3/16" = 1'-0"

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www.karakiws.com

■ CONSULTANT/ SEALS

■ SUBMITTAL

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■ REVISIONS

NO.	DESCRIPTION	DATE
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■ OWNER NAME & ADDRESS

ROYAL EXCEL ENTERPRISES

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CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

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■ DRAWN BY: WS
■ CHECKED BY: WS
■ DATE DRAWN: 10.10.17
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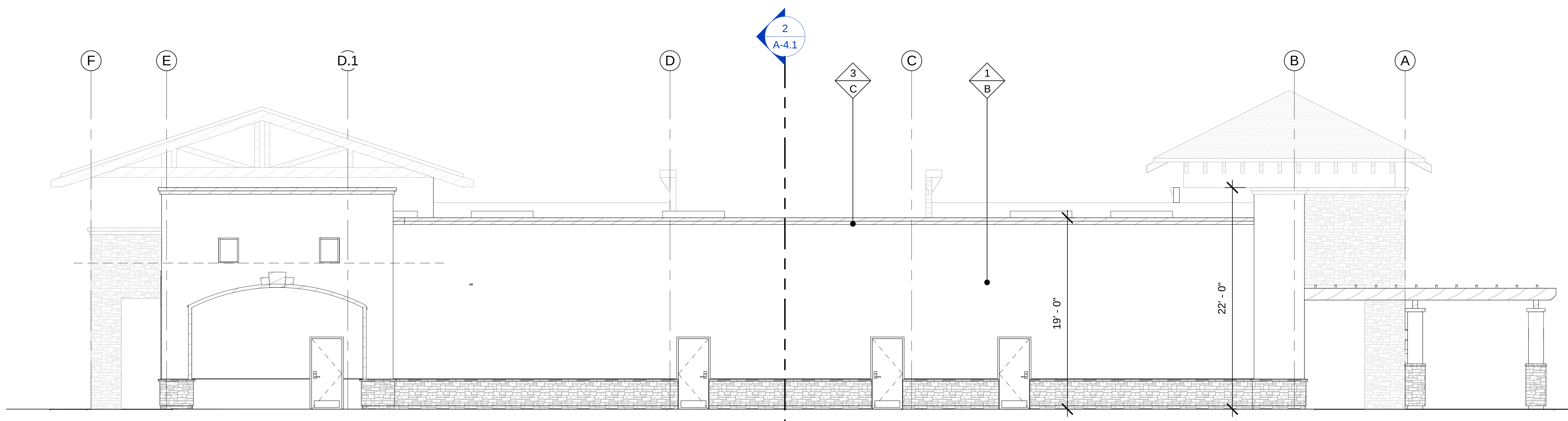
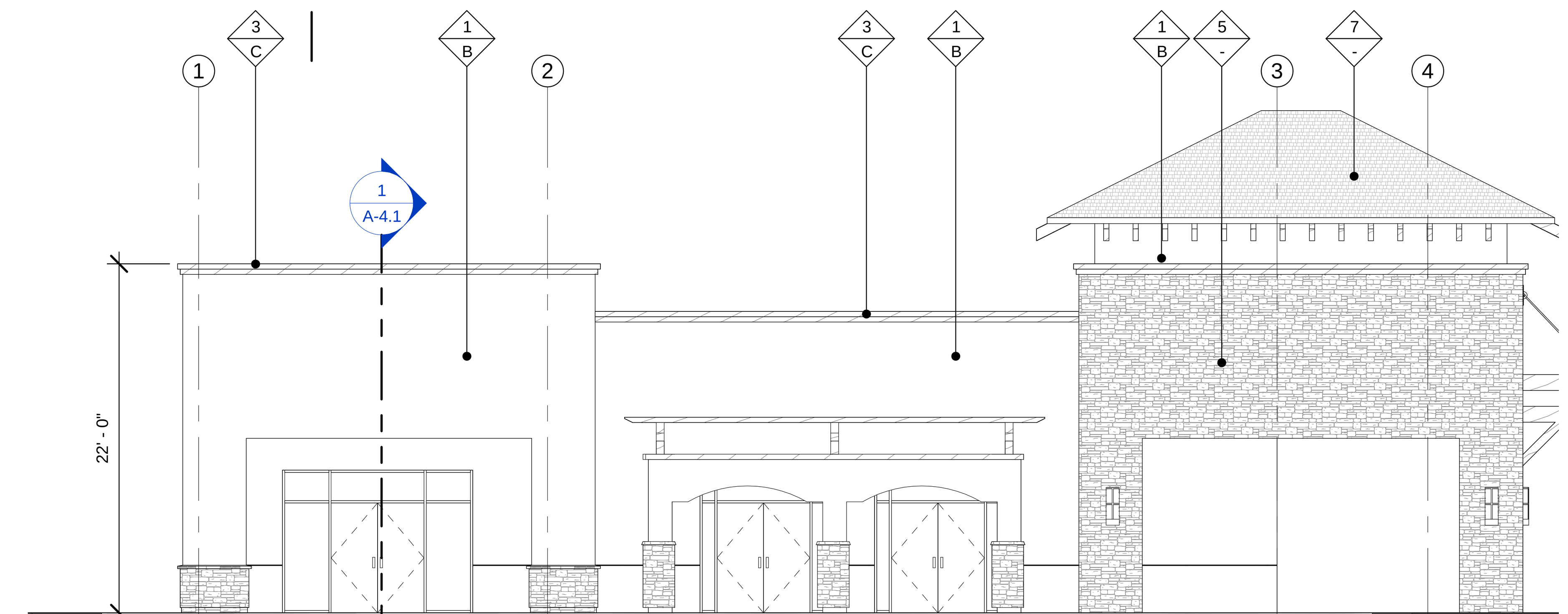


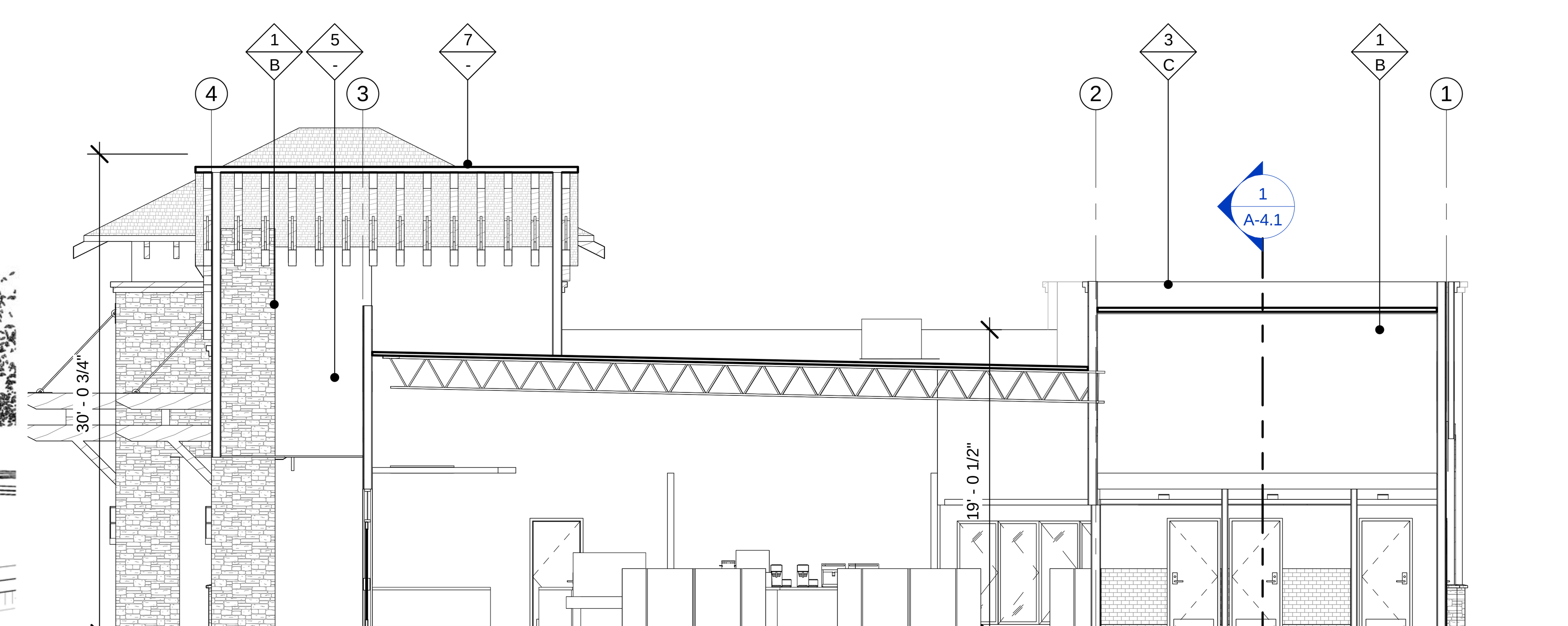
4 STORE ELEVATION-WEST
1/8" = 1'-0"

5 3D View 1

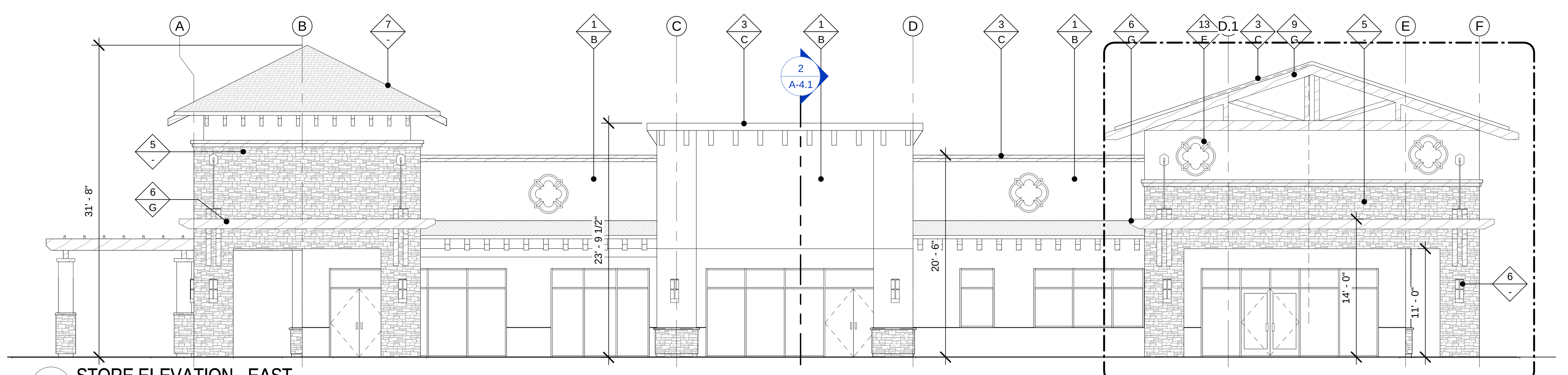


3 STORE ELEVATION-SOUTH
1/8" = 1'-0"

6 3D View 2



2 STORE ELEVATION-NORTH
1/8" = 1'-0"



1 STORE ELEVATION - EAST
1/8" = 1'-0"

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ELEVATION KEYNOTES

MATERIAL

1. 7/8" EXTERIOR CEMENT PLASTER 20/30 STUCCO FINISH (LA HABRA STUCCO COMPANY I.C.B.O. #ER-4226 OR EQUAL) OVER GALV. METAL LATH & 15lb. BUILDING PAPER. USE A MIN. 2 LAYERS GRADE D PAPER OVER ALL WOOD BASED SHEATHING. (USE SCREWS INSTEAD OF STAPLES).
2. ALUMINUM STOREFRONT (REFER TO DOOR & WINDOW SCHEDULE)
3. FOAM CORNICE WITH METAL COPING CAP
4. STUCCO TRIMS & MOULDINGS
5. CORONADO LEDGESTONE VENEER - CHABLIS PRO-LEDGE (OR APPROVED EQUAL)
6. WALL SCONCE (FINAL MATERIAL & SPECS T.B.D.)
7. CONCRETE ROOF TILES - PONDEROSA CONCORD BLEND-5602 BY EAGLE ROOFING TILE (OR APPROVED EQUAL)
8. EXPOSED RAFTER TAILS
9. EXPOSED TRUSS DESIGN
10. SIGNAGE - UNDER SEPARATE PERMIT (BY OTHERS)
11. WOOD TRELLIS / CORBELS
12. CONTROL JOINTS/REVEALS
13. DECORATIVE QUATREFOIL FORM (FINAL DESIGN T.B.D.)
14. METAL EXIT DOOR (PAINT TO MATCH ADJ. WALL)
15. OPEN WOOD RAFTER TRELLIS
16. METAL WALL TRELLIS (FOR L.S. VINES)
17. ROOF TOP EQUIPMENT UNITS (APPROX. LOCATIONS)
18. EXTERIOR HOLLOW METAL DOOR
19. PLANTER POTS (FINAL SPECS T.B.D.)
20. PRE-CAST STONE TRIM/MOULDING TO MATCH STONE VENEER (VERIFY WITH STONE VENEER MANUFACTURER)
21. LINE OF ROOFING (REFER TO ROOF PLAN & BUILDING SECTIONS)
22. ROOF ACCESS PROTECTIVE RAILINGS MIN 42" HIGH FROM FINISH ROOF LINE - CBC 1013.2; 1013.6

FINISH COLORS

- A: PAINT FINISH TO MATCH - TERRACOTTA (OR APPROVED EQUAL)
- B: PAINT FINISH TO MATCH - WHITE (OR APPROVED EQUAL)
- C: PAINT FINISH TO MATCH - DARK BROWN (OR APPROVED EQUAL)
- D: ANODIZED BRONZE
- E: TO MATCH STONE VENEER
- F: PAINT FINISH TO MATCH ADJACENT MATERIAL COLOR
- G: WOOD STAIN (WEATHERPROOF) FINISH TO MATCH COLOR C
- H: PAINT FINISH SEMI-GLOSS (COLOR TO MATCH B)
- J: WOOD STAIN FINISH (WEATHERPROOF) TO MATCH COLOR B

KARAKI WSe
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4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.karakiws.com

■ CONSULTANT/ SEALS

■ SUBMITTAL

NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			

■ REVISIONS

NO.	DESCRIPTION	DATE
△		
△		
△		
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△		

■ OWNER NAME & ADDRESS

ROYAL EXCEL
7033 CANOGA AVE. #2,
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: WS
■ CHECKED BY: WS
■ DATE DRAWN: 10.10.17
■ SCALE: AS SHOWN
■ SHEET TITLE

BLDG ELEVATIONS - STORE

■ SHEET NUMBER

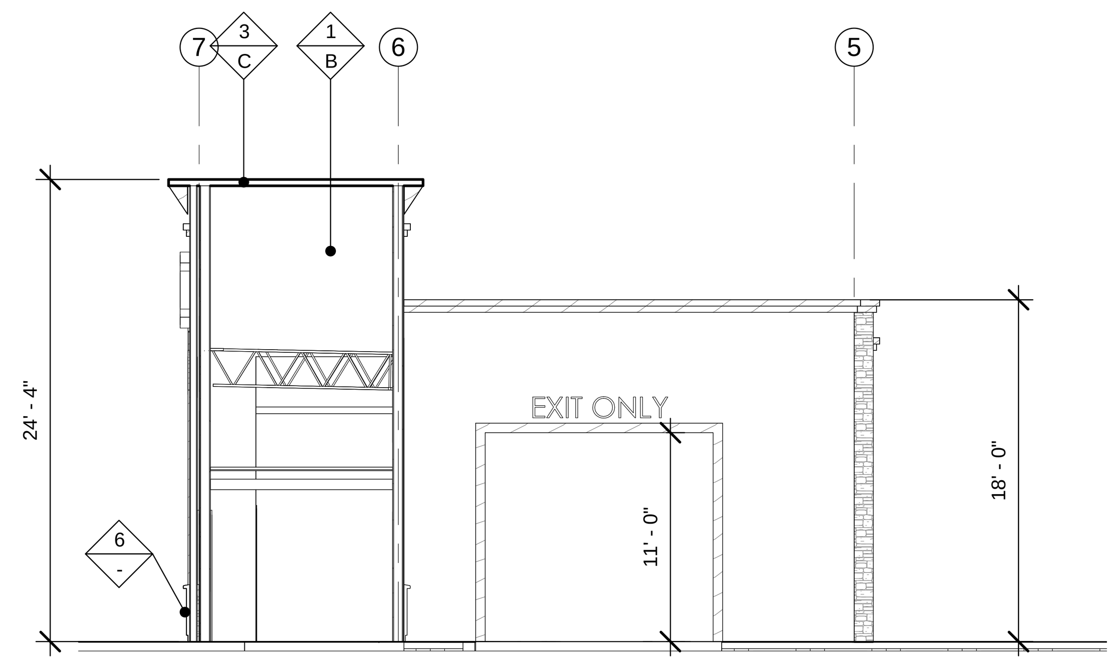
A-3.0

■ JOB No E97617
■ CUP No -
■ AP No -

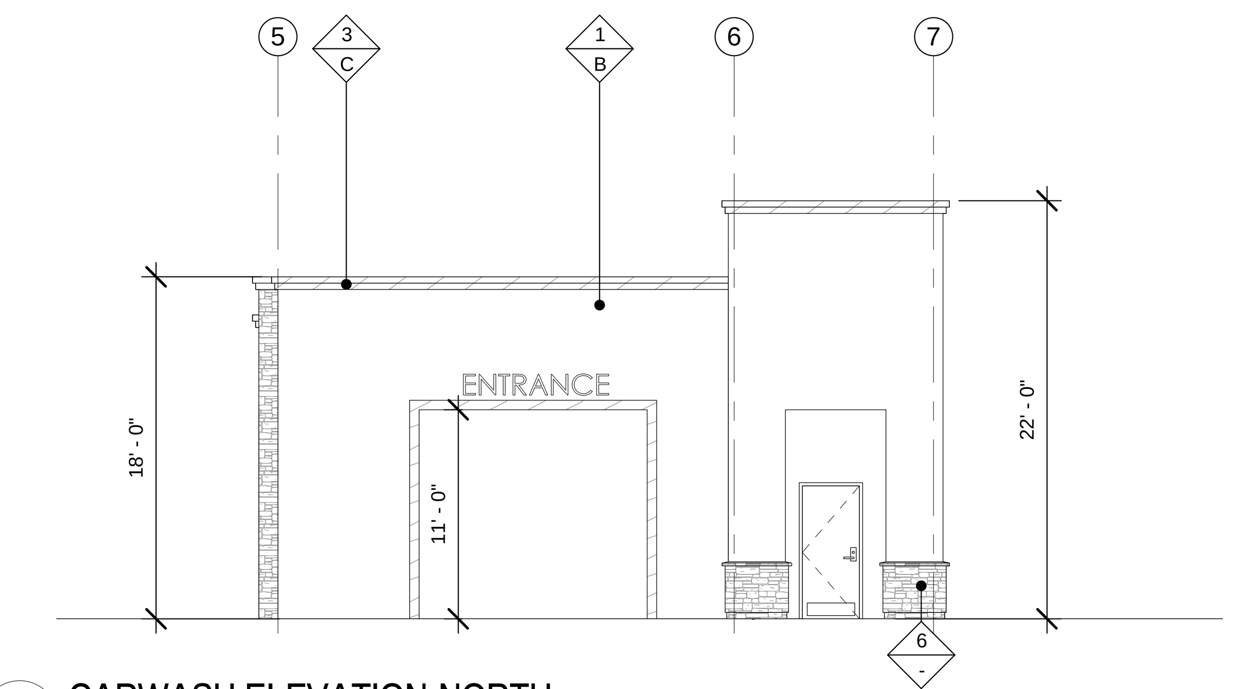
Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)

6 3D View 4

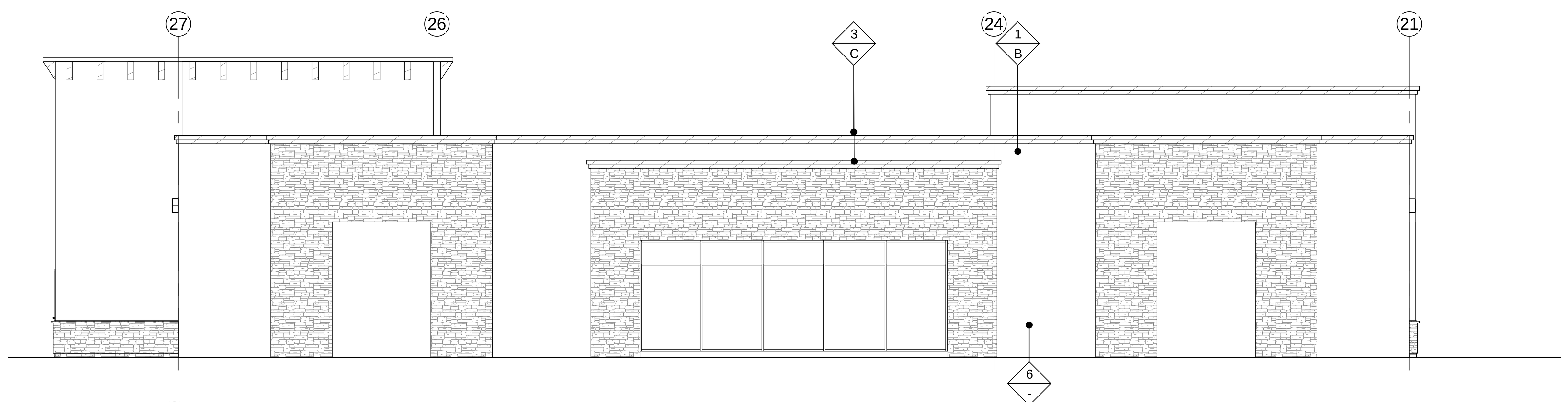
5 3D View 3



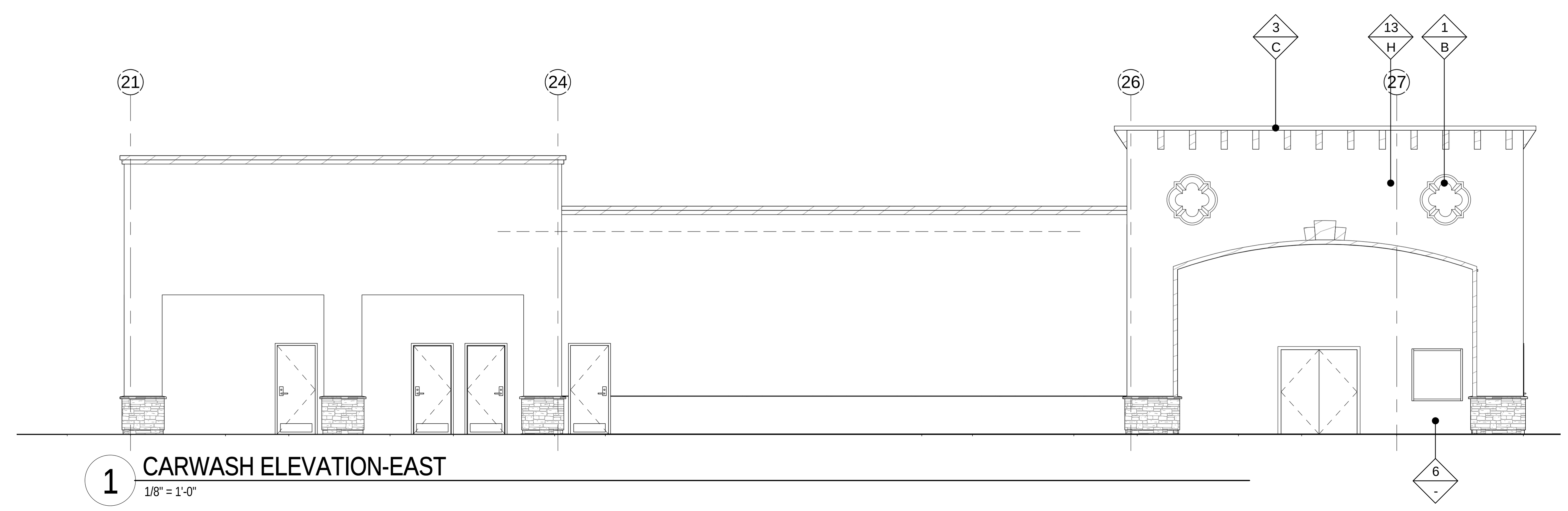
4 CARWASH ELEVATION-SOUTH
1/8" = 1'-0"



3 CARWASH ELEVATION-NORTH
1/8" = 1'-0"



2 CARWASH ELEVATION-WEST
1/8" = 1'-0"



1 CARWASH ELEVATION-EAST
1/8" = 1'-0"

ELEVATION KEYNOTES

MATERIAL

1. 7/8" EXTERIOR CEMENT PLASTER 20/30 STUCCO FINISH (LA HABRA STUCCO COMPANY I.C.B.O. #ER-4226 OR EQUAL) OVER GALV. METAL LATH & 15lb. BUILDING PAPER. USE A MIN. 2 LAYERS GRADE D PAPER OVER ALL WOOD BASED SHEATHING. (USE SCREWS INSTEAD OF STAPLES).
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■ OWNER NAME & ADDRESS

ROYAL EXCEL ENTERPRISES

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■ PROJECT NAME & ADDRESS

BUSINESS CTR.

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MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: WS
■ CHECKED BY: WS
■ DATE DRAWN: 10.10.17
■ SCALE: AS SHOWN
■ SHEET TITLE

BLDG ELEVATIONS - CARWASH

■ SHEET NUMBER

A-3.1

■ JOB No E97617
■ CUP No -
■ AP No -

Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)

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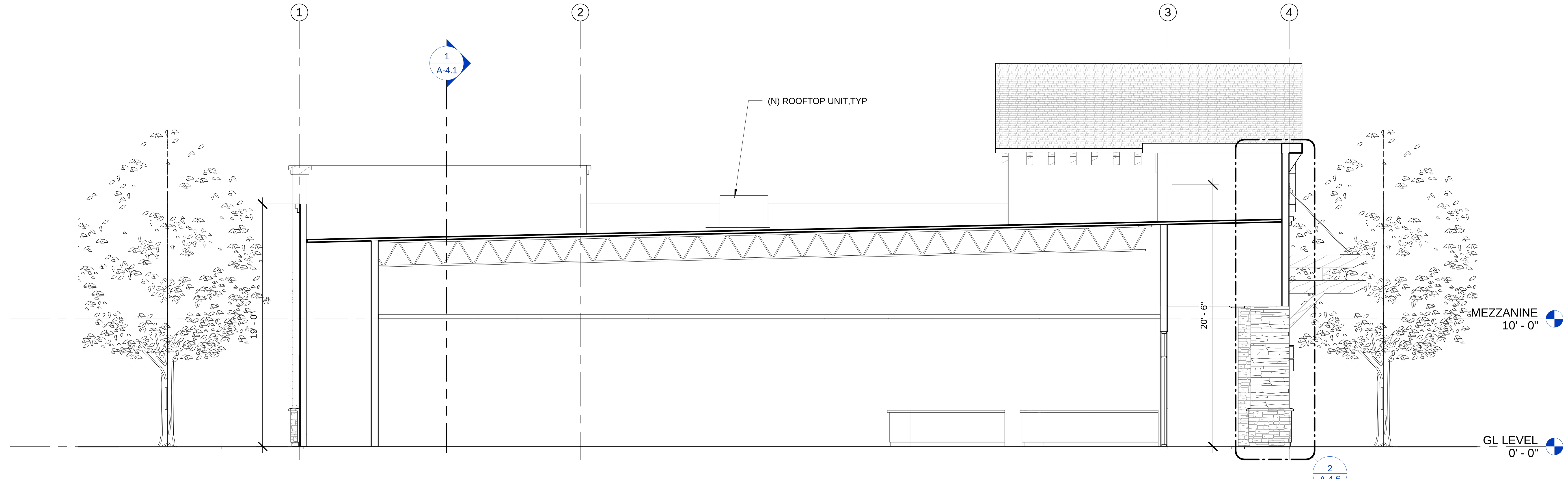
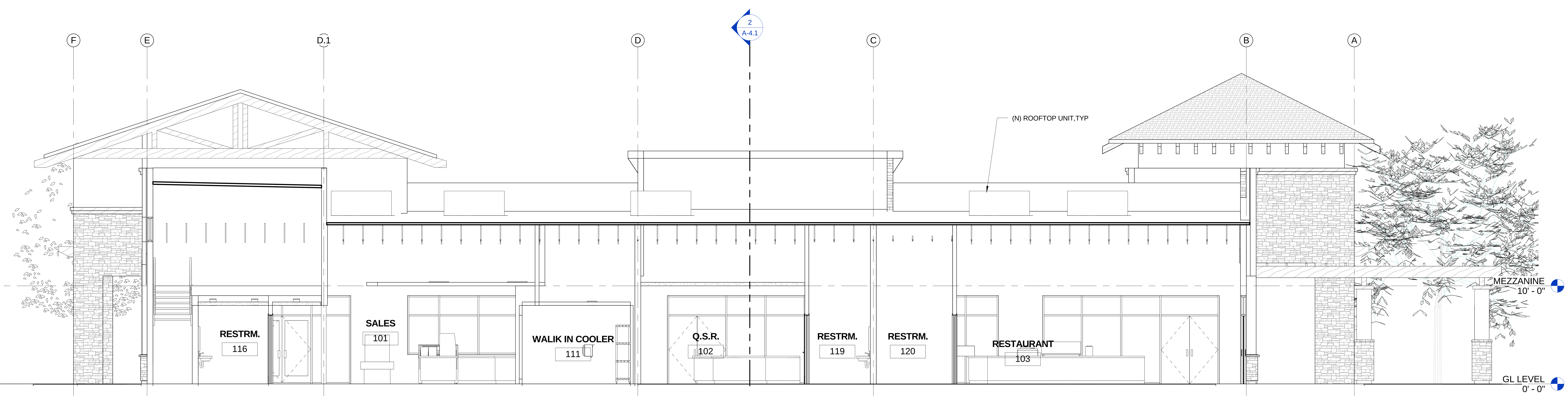


2 BUILDING SECTION 2 - STORE
3/16" = 1'-0"



1 BUILDING SECTION 1- STORE
3/16" = 1'-0"

4/2/2018 10:33:43 AM

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■ REVISIONS

NO.	DESCRIPTION	DATE
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■ OWNER NAME & ADDRESS

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7033 CANOGA AVE. #2,
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

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BEACH DRV
MORENO VALLEY, CA 92555

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■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: WS
■ CHECKED BY: WS
■ DATE DRAWN: 10.10.17
■ SCALE: AS SHOWN
■ SHEET TITLE

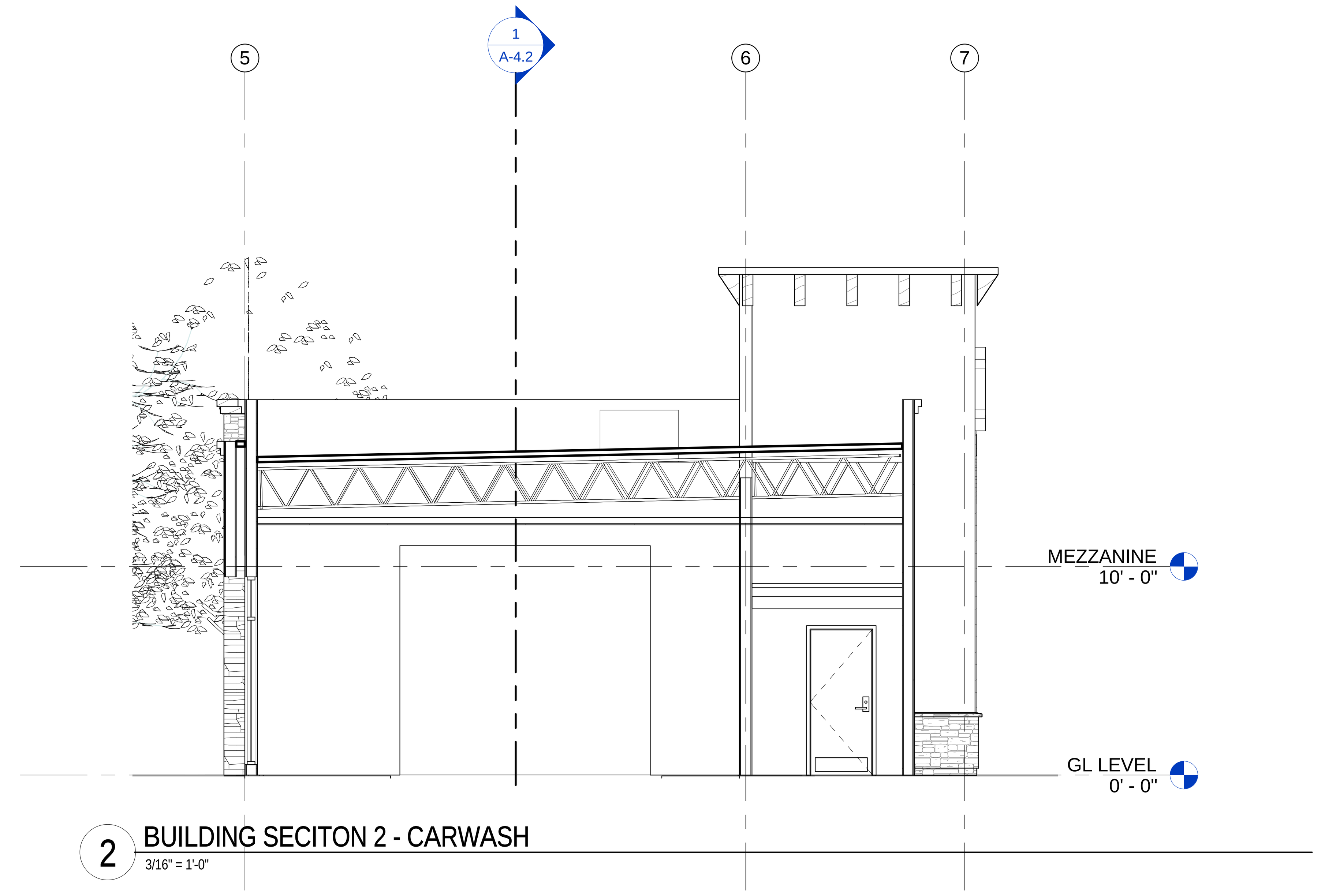
BLDG SECTIONS - STORE

■ SHEET NUMBER

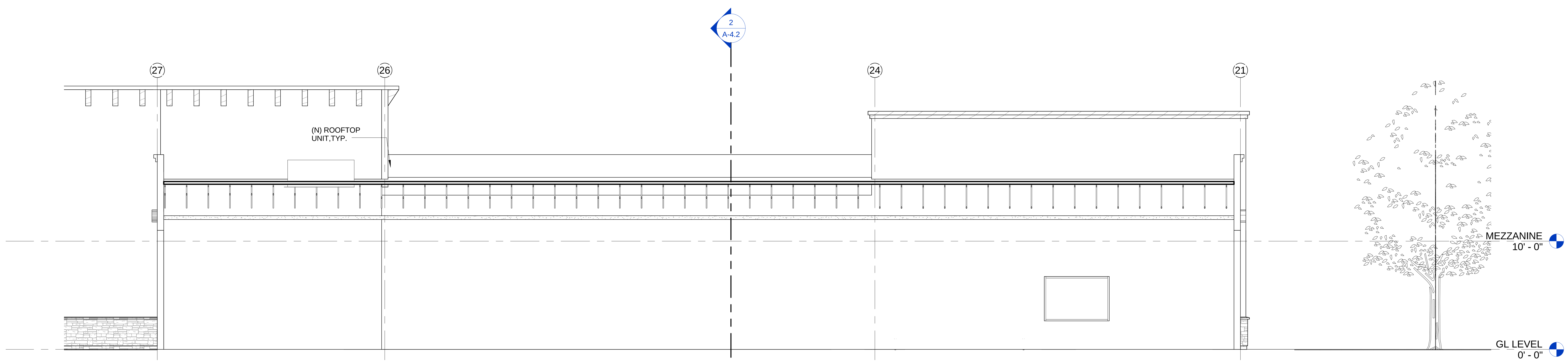
A-4.1

■ JOB No E97617
■ CUP No -
■ AP No -
-

Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)



2 BUILDING SECITON 2 - CARWASH
3/16" = 1'-0"



1 BUIDING SECTION 1 - CARWASH
3/16" = 1'-0"

4/2/2018 10:33:45 AM

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■ REVISIONS

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■ OWNER NAME & ADDRESS

ROYAL EXCEL
ROYAL EXCEL
7033 CANOGA AVE. #2,
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

BUSINESS CTR.

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: WS
■ CHECKED BY: WS
■ DATE DRAWN: 10.10.17
■ SCALE: AS SHOWN
■ SHEET TITLE

BLDG SECTIONS - CARWASH

■ SHEET NUMBER

A-4.2

■ JOB No E97617
■ CUP No -
■ AP No -

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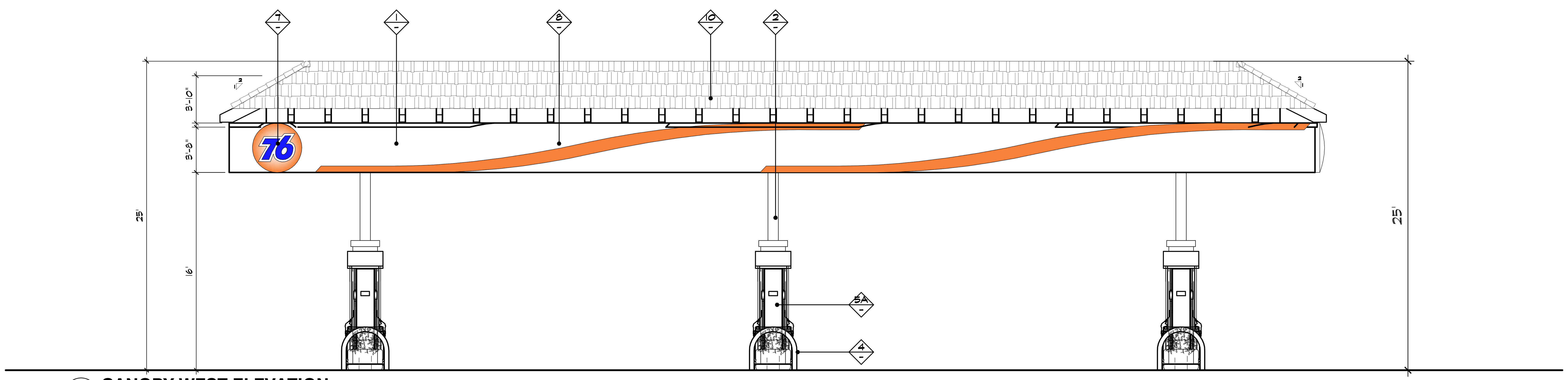
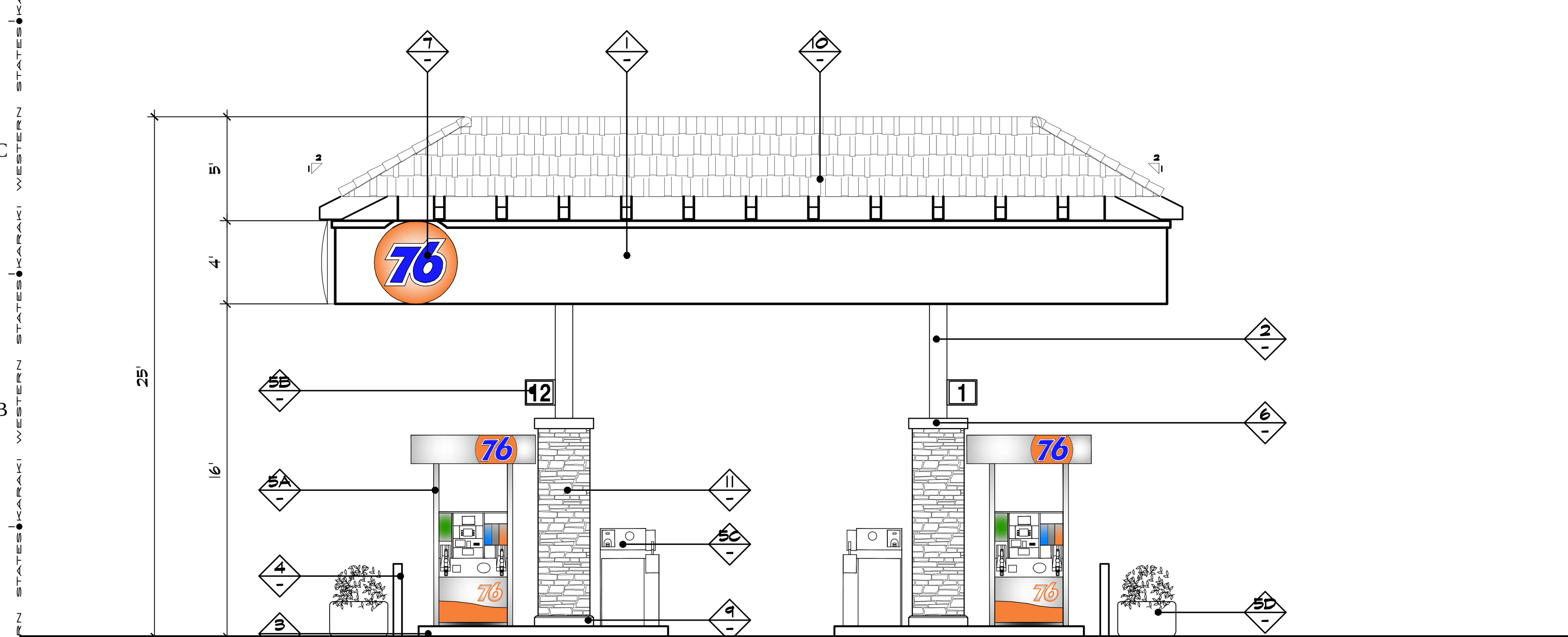
Attachment: Architectural Plans (3058 : Moreno Beach Commercial Center)



4 **CANOPY WEST ELEVATION**
SCALE: 3/16" = 1'-0"



4 **CANOPY SOUTH ELEVATION**
SCALE: 3/16" = 1'-0"

CANOPY ELEV. KEYNOTES

MATERIAL

- ☐ 1 — CANOPY ROOF METAL FASCIA
- ☐ 2 — CANOPY STEEL COLUMNS PAINTED
- ☐ 3 — 6" HIGH CONCRETE CURB ISLAND PAINTED "76-GUNMETAL GRAY"
- ☐ 4 — 6" DIA. U-SHAPED STEEL CONCRETE BOLLARD PAINTED "76-WAVE ORANGE"
- ☐ 5A — 76 MULTI-PRODUCT FUEL DISPENSERS
- ☐ 5B — FUELING POSITION FLAG SIGN
- ☐ 5C — WASTE RECEPTACLE AND WINDSHIELD SERVICE AMENITY UNIT
- ☐ 5D — FLOWER PLANTERS
- ☐ 6 — PRECAST CONCRETE CAPPING
- ☐ 7 — 76 LOGO WITH L.E.D. LIGHTING
- ☐ 8 — NEW 76 CANOPY PARAPET METAL FACIA DESIGN (BY OTHERS)
- ☐ 9 — PRE-CAST CONCRETE BASE
- ☐ 10 — CONCRETE ROOF TILES TO MATCH C-STORE
- ☐ 11 — BRICK VENEER CLADDING TO MATCH C-STORE

ELEVATION KEYNOTES

MATERIAL

- ☐ 1 — 7/8" EXTERIOR CEMENT PLASTER 20/30 STUCCO FINISH (LA HABRA STUCCO COMPANY I.C.B.O. #ER-4226 OR EQUAL) OVER GALV. METAL LATH & 15lb. BUILDING PAPER. USE A MIN. 2 LAYERS GRADE D PAPER OVER ALL WOOD BASED SHEATHING. (USE SCREWS INSTEAD OF STAPLES).
- ☐ 2 — ALUMINUM STOREFRONT (REFER TO DOOR & WINDOW SCHEDULE)
- ☐ 3 — FOAM CORNICE WITH METAL COPING CAP
- ☐ 4 — STUCCO TRIMS & MOULDINGS
- ☐ 5 — CORONADO LEDGESTONE VENEER - CHABLIS PRO-LEDGE (OR APPROVED EQUAL)
- ☐ 6 — WALL SCONCE (FINAL MATERIAL & SPECS T.B.D.)
- ☐ 7 — CONCRETE ROOF TILES - PONDEROSA CONCORD BLEND-5602 BY EAGLE ROOFING TILE (OR APPROVED EQUAL)
- ☐ 8 — EXPOSED RAFTER TAILS
- ☐ 9 — EXPOSED TRUSS DESIGN
- ☐ 10 — SIGNAGE - UNDER SEPARATE PERMIT (BY OTHERS)
- ☐ 11 — WOOD TRELLIS / CORBELS
- ☐ 12 — CONTROL JOINTS/REVEALS
- ☐ 13 — DECORATIVE QUATREFOIL FORM (FINAL DESIGN T.B.D.)
- ☐ 14 — METAL EXIT DOOR (PAINT TO MATCH ADJ. WALL)
- ☐ 15 — OPEN WOOD RAFTER TRELLIS
- ☐ 16 — METAL WALL TRELLIS (FOR L.S. VINES)
- ☐ 17 — ROOF TOP EQUIPMENT UNITS (APPROX. LOCATIONS)
- ☐ 18 — EXTERIOR HOLLOW METAL DOOR
- ☐ 19 — PLANTER POTS (FINAL SPECS T.B.D.)
- ☐ 20 — PRE-CAST STONE TRIM/MOULDING TO MATCH STONE VENEER (VERIFY WITH STONE VENEER MANUFACTURER)
- ☐ 21 — LINE OF ROOFING (REFER TO ROOF PLAN & BUILDING SECTIONS)
- ☐ 22 — ROOF ACCESS PROTECTIVE RAILINGS MIN 42" HIGH FROM FINISH ROOF LINE - CBC 1013.2; 1013.6

FINISH COLORS

- ☐ A — PAINT FINISH TO MATCH - TERRACOTTA (OR APPROVED EQUAL)
- ☐ B — PAINT FINISH TO MATCH - WHITE (OR APPROVED EQUAL)
- ☐ C — PAINT FINISH TO MATCH - DARK BROWN (OR APPROVED EQUAL)
- ☐ D — ANODIZED BRONZE
- ☐ E — TO MATCH STONE VENEER
- ☐ F — PAINT FINISH TO MATCH ADJACENT MATERIAL COLOR
- ☐ G — WOOD STAIN (WEATHERPROOF) FINISH TO MATCH COLOR C
- ☐ H — PAINT FINISH SEMI-GLOSS (COLOR TO MATCH B)
- ☐ I — WOOD STAIN FINISH (WEATHERPROOF) TO MATCH COLOR B

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ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

■ CONSULTANT/ SEALS

■ SUBMITTAL

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4			

■ REVISIONS

NO.	DESCRIPTION	BY	DATE
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△			
△			
△			
△			

■ OWNER NAME & ADDRESS

ROYAL EXCEL
ENTERPRISES

7033 CANOGA AVE #2
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

76 GAS STATION
C-STORE / Q.S.R.
CARWASH

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY: WS
■ DRAWN BY: WS
■ CHECKED BY: JK
■ DATE DRAWN: 01.02.18
■ SCALE: 3/16" = 1'-0"
■ SHEET TITLE

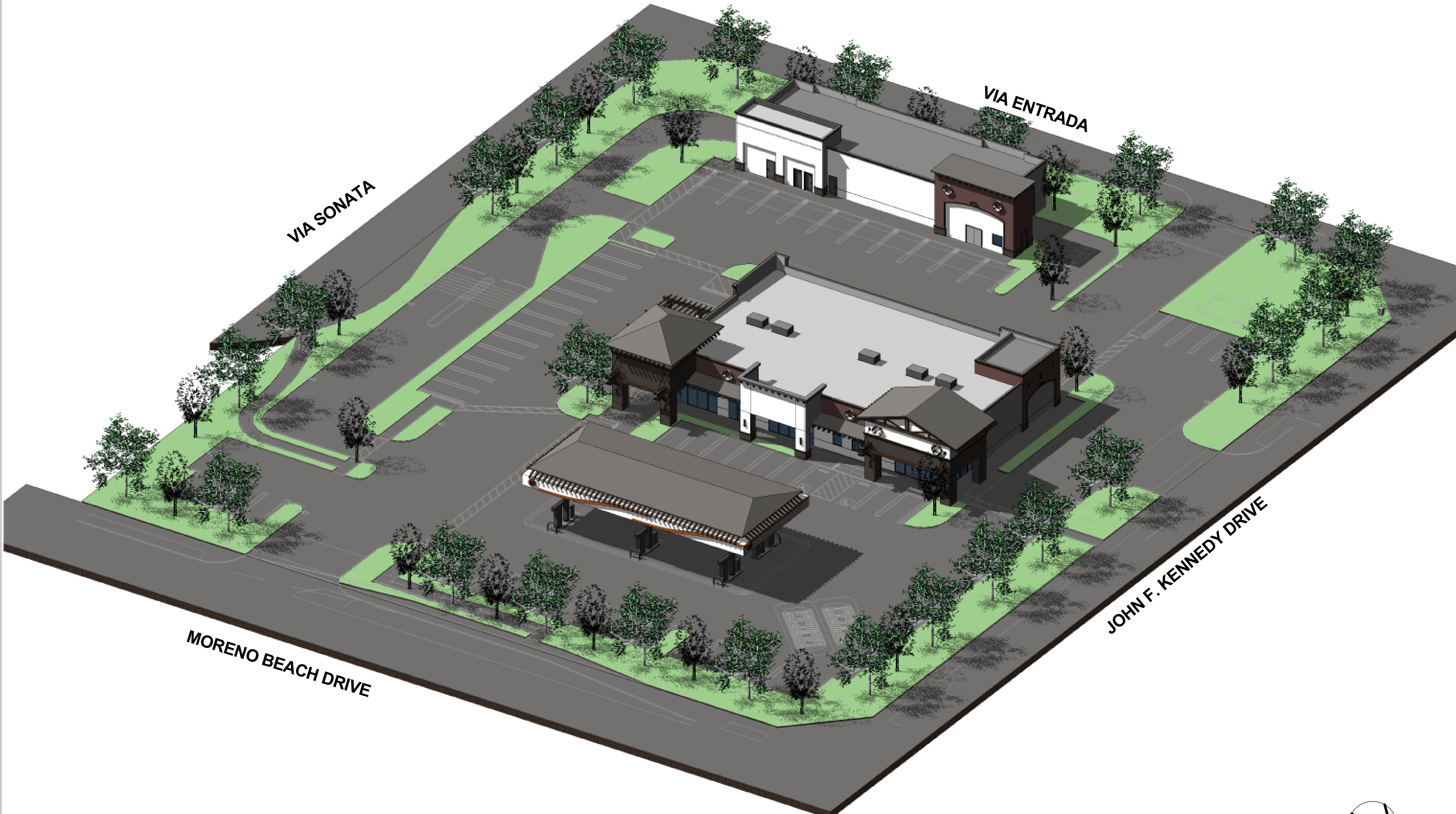
PROPOSED
SITE PLAN

■ SHEET NUMBER

A-3.2

■ JOB No E97617
■ CUP No -

Attachment: Architectural Plans (3658 : Moreno Beach Commercial Center)



1 3D - BIRD EYE VIEW

1.o

Project Owne

ROYAL EXCEL ENTERPRISES

ROYAL EXCI

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI WSe

KARAKI
WESTERN
STATES

4887 E. LA PALMA AVE.
ANAHEIM, CA 9208

714.695.9300
www.karakiws.com

Project Address:

S.W.C. JFK &
MORENO BEAC
DRV
MORENO VALLE
CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

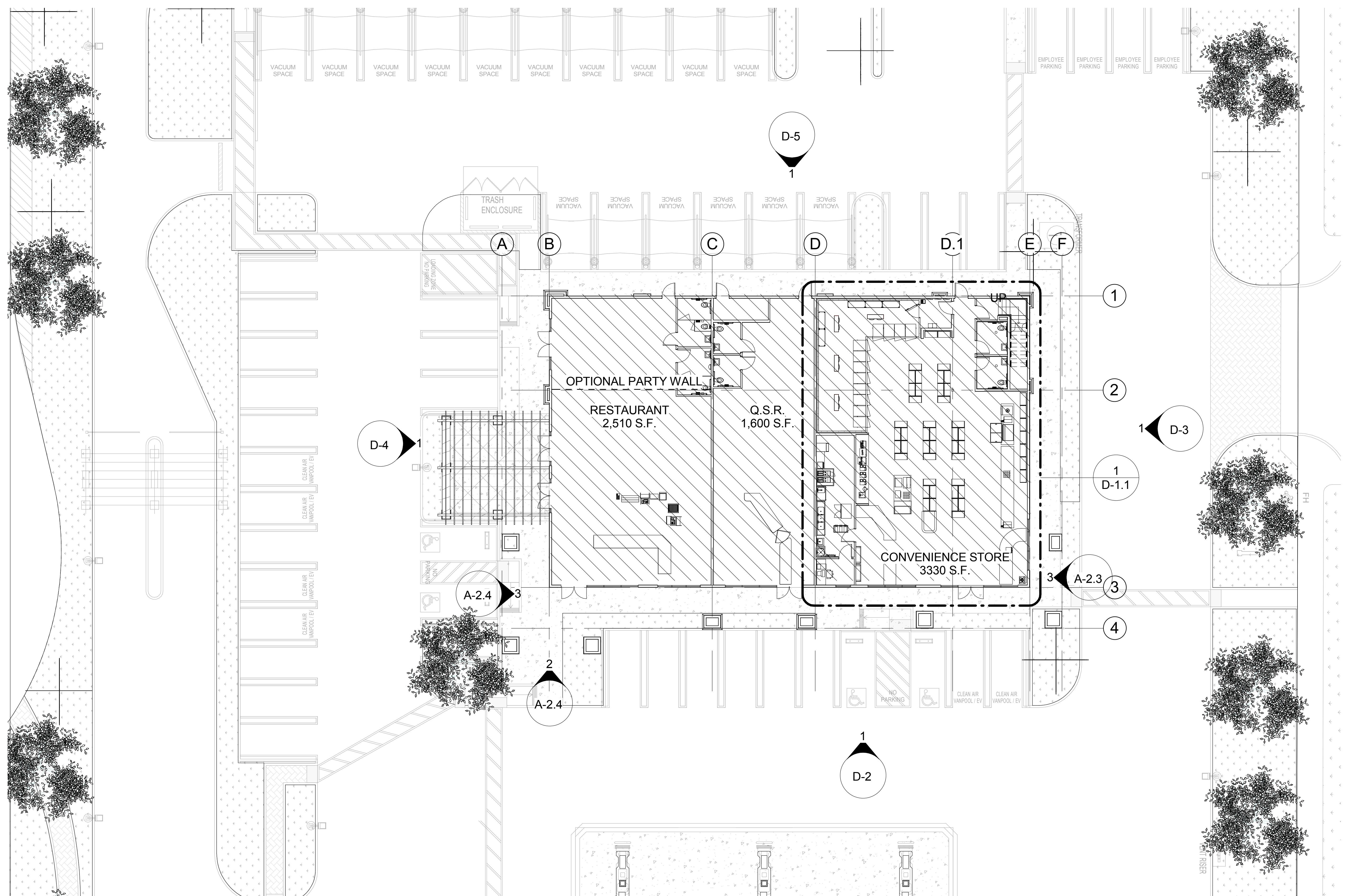
Sheet Title:

MALL VIEW

Sheet:

D-0.1

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)



1 FLOOR PLAN - STORE
3/64" = 1'-0"

Project Owner: 1.o

ROYAL EXCEL ENTERPRISES

ROYAL EXCI

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI WSe

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DRV
MORENO VALLE
CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

Sheet Title:

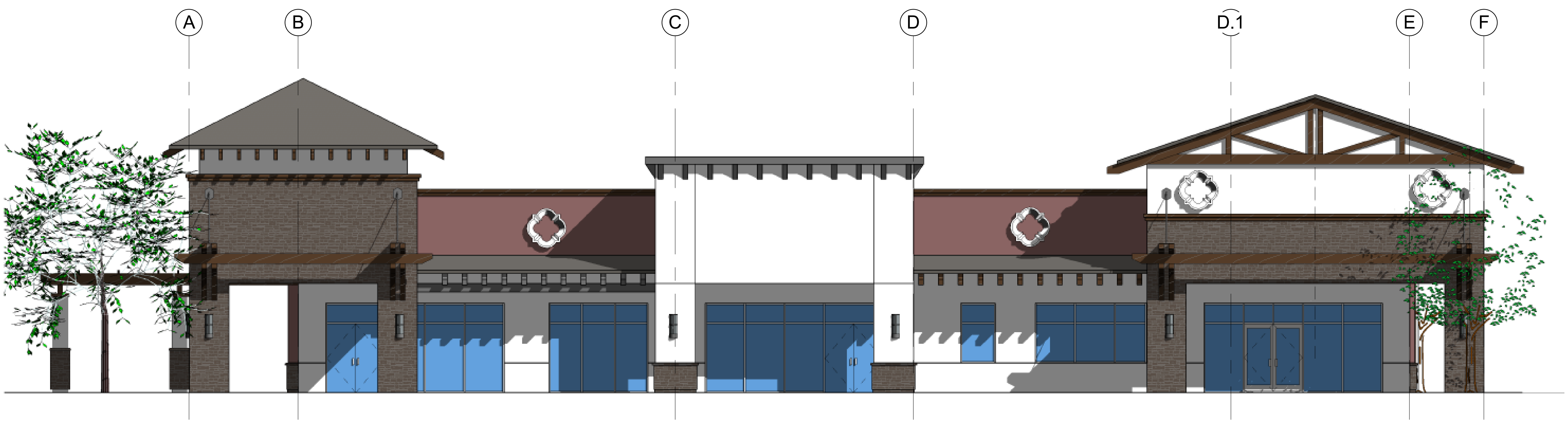
STORE PLA

Sheet:

D-1

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)

2 STORE 3D EAST



1 STORE ELEVATION EAST
3/32" = 1'-0"

Project Owner:

1.o

ROYAL EXCEL
ENTERPRISES

ROYAL EXC

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI
WSE

KARAKI
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DRV
MORENO VALLE
CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

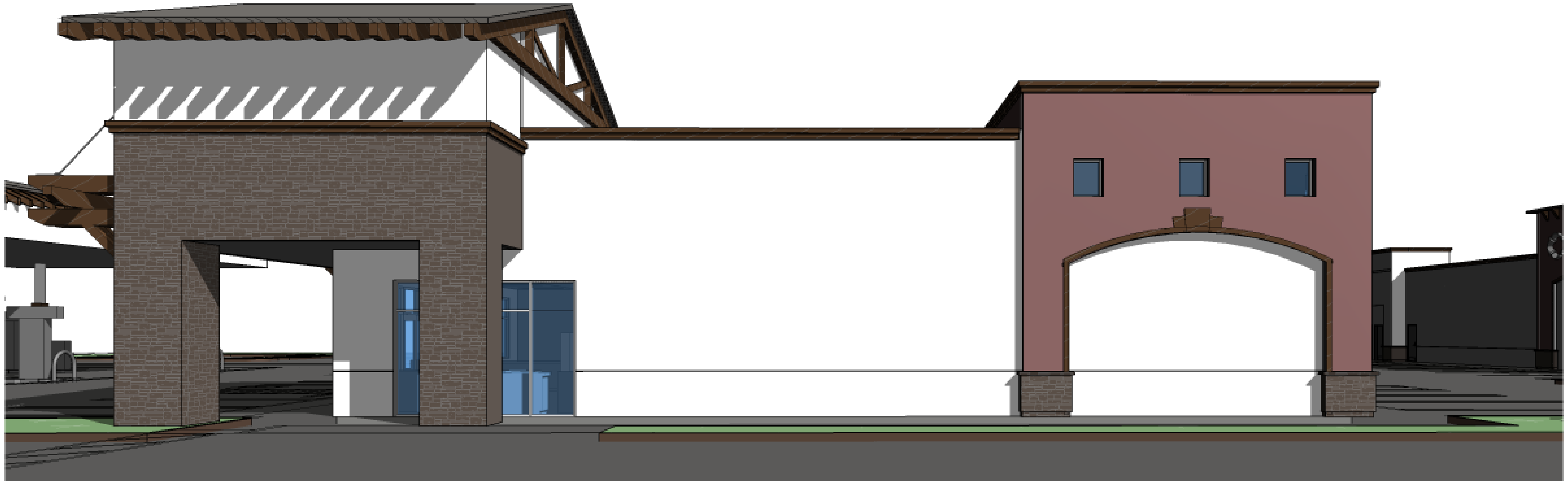
Sheet Title:

STORE
ELEVATION
EAST

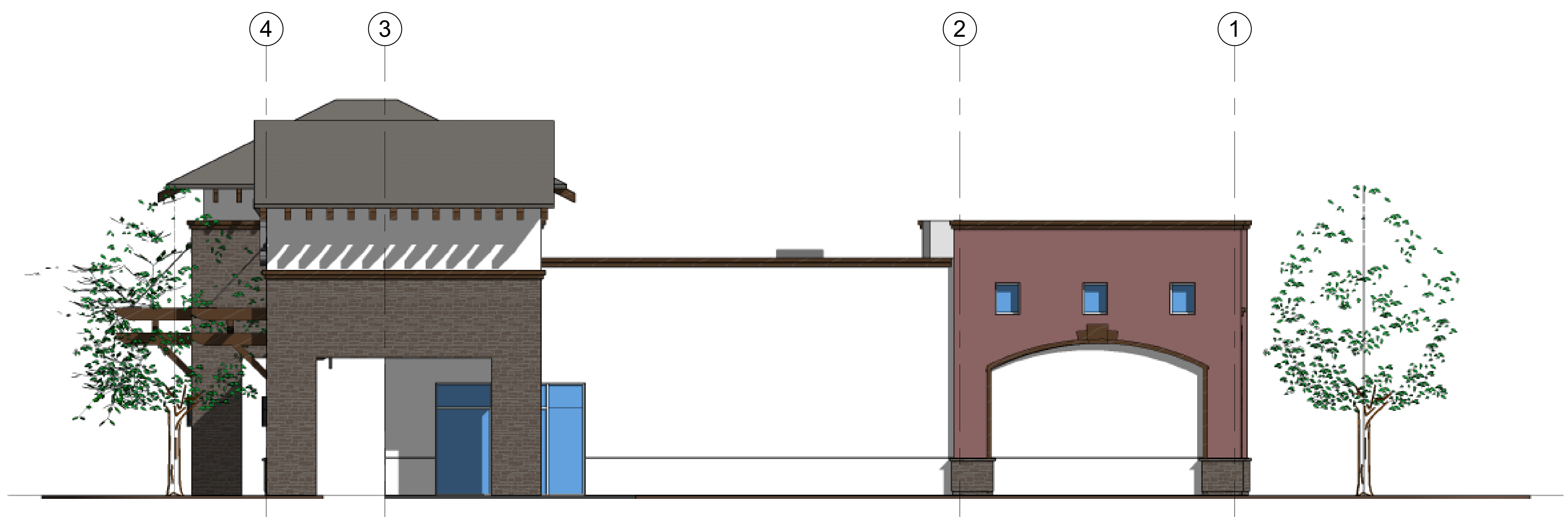
Sheet:

D-2

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)



2 STORE 3D NORTH



1 STORE ELEVATION NORTH
3/32" = 1'-0"

Project Owner: 1.o

ROYAL EXCEL ENTERPRISES

ROYAL EXCI

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI WSe

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76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

Sheet Title:

STORE
ELEVATION
NORTH

Sheet:

D-3

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)

2 STORE 3D SOUTH

1 STORE ELEVATION SOUTH
3/64" = 1'-0"

Project Owner: 1.o

ROYAL EXCEL ENTERPRISES

ROYAL EXC

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI WSe

KARAKI
WESTERN
STATES

4887 E. LA PALMA AVE.
ANAHEIM, CA 9208

714.695.9300
www.karakiws.com

Project Address:

S.W.C. JFK &
MORENO BEAC
DRV
MORENO VALLE
CA 92555

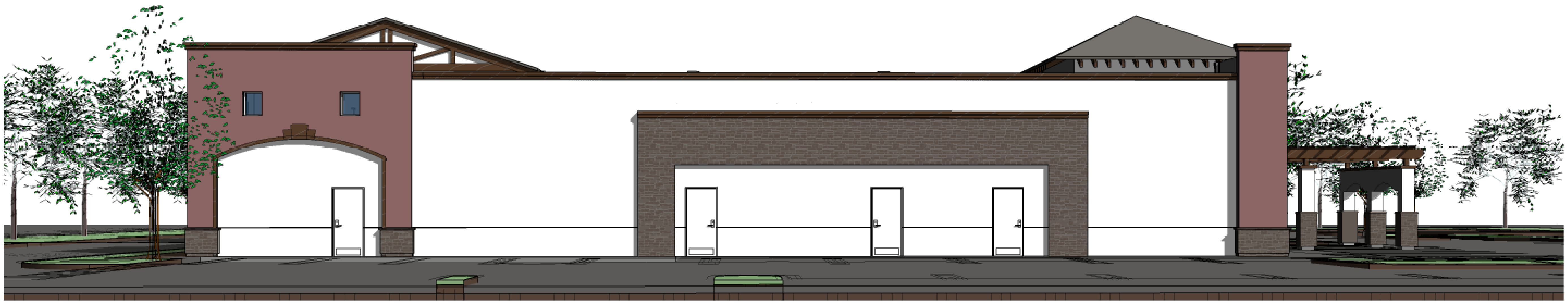
76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

Sheet Title:

STORE
ELEVATION
SOUTH

Sheet:

D-4



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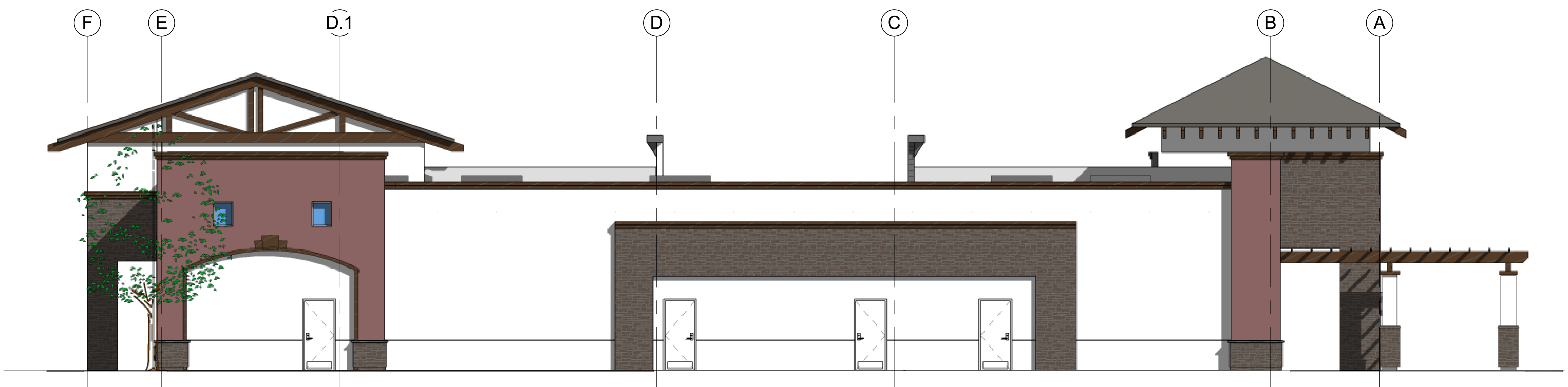

1 STORE ELEVATION WEST
3/32" = 1'-0"

Project Owne 1.o

ROYAL EXCEL
ENTERPRISES

ROYAL EXCI

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI
WSe

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CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

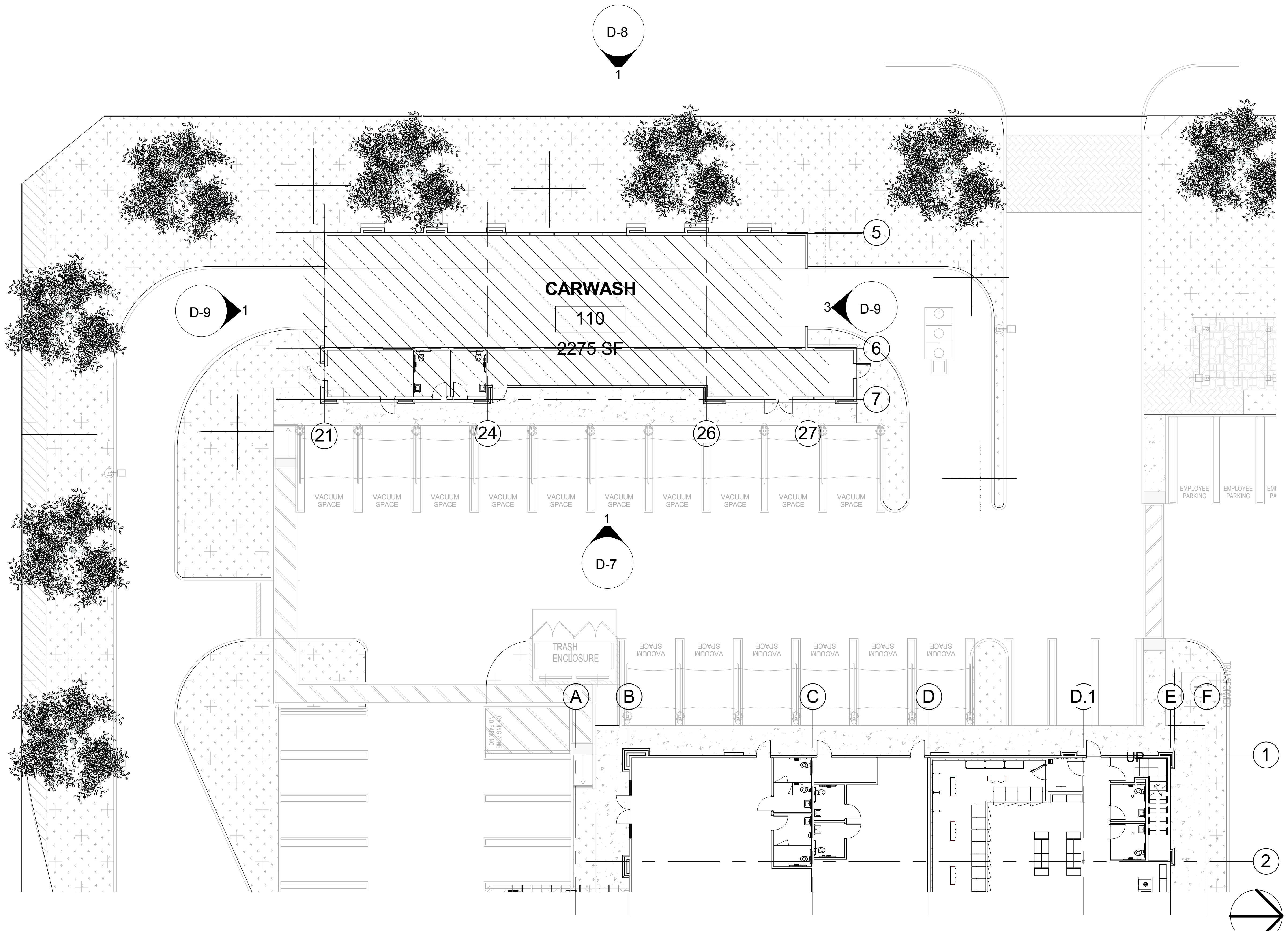
Sheet Title:

STORE
ELEVATION
WEST

Sheet:

D-5

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)



Project Owner: 1.o

ROYAL EXCEL ENTERPRISES

ROYAL EXCEL

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

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DRV
MORENO VALLE
CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

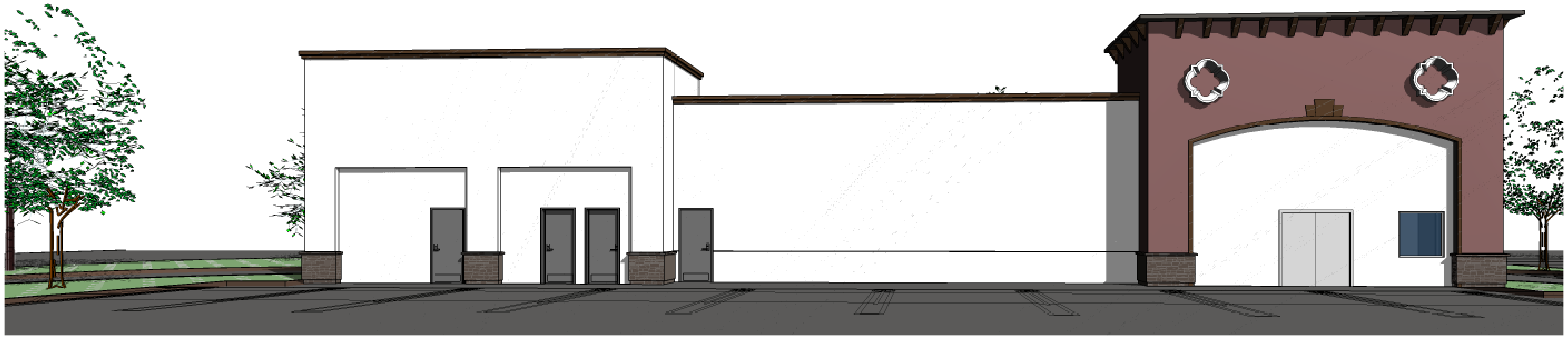
Sheet Title:

CARWASH
PLAN

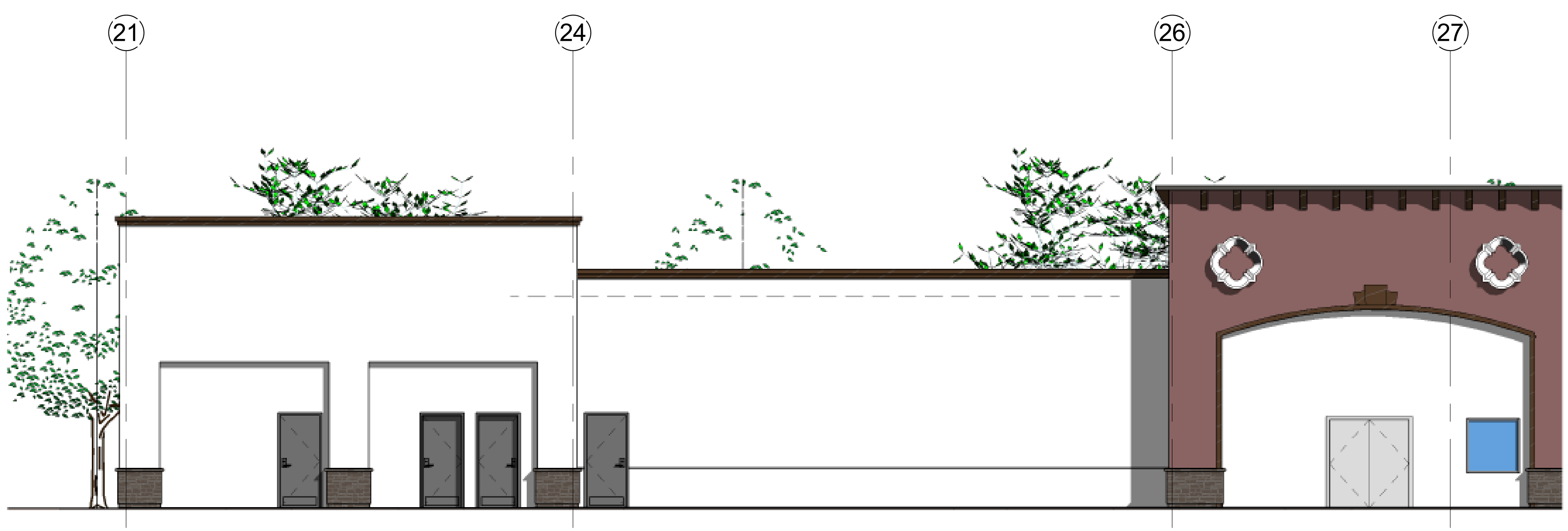
Sheet:

D-6

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)



2 CARWASH 3D EAST



1 CARWASH ELEVATION EAST
3/32" = 1'-0"

Project Owne 1.o

ROYAL EXCEL ENTERPRISES

ROYAL EXC

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

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MORENO VALLE
CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

Sheet Title:

CARWASH
ELEVATION
EAST

Sheet:

D-7

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)

Project Owner:

ROYAL EXCEL ENTERPRISES

ROYAL EXCI

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI WSe

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WESTERN
STATES

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Project Address:

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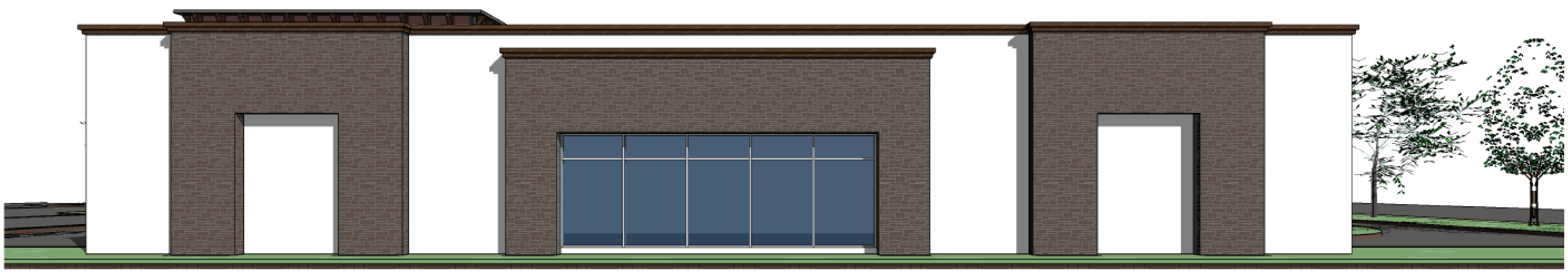
MOREND BEAC
DRV
MORENO VALLE
CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH



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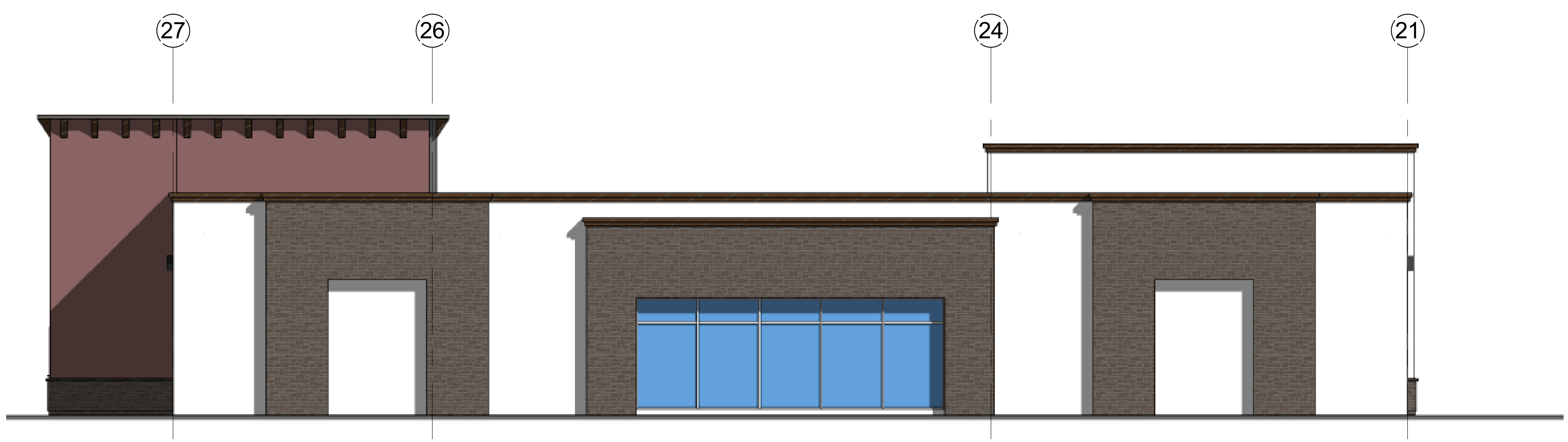


1 CARWASH ELEVATION WEST
3/32" = 1'-0"

Sheet Title:

CARWASH
ELEVATION
WEST

Sheet:

D-8

Project Owner: 1.o

ROYAL EXCEL ENTERPRISES

ROYAL EXCI

7033 CANOGA AVE. #2
CANOGA PARK, CA 9130

Design-Builder:

KARAKI WSe

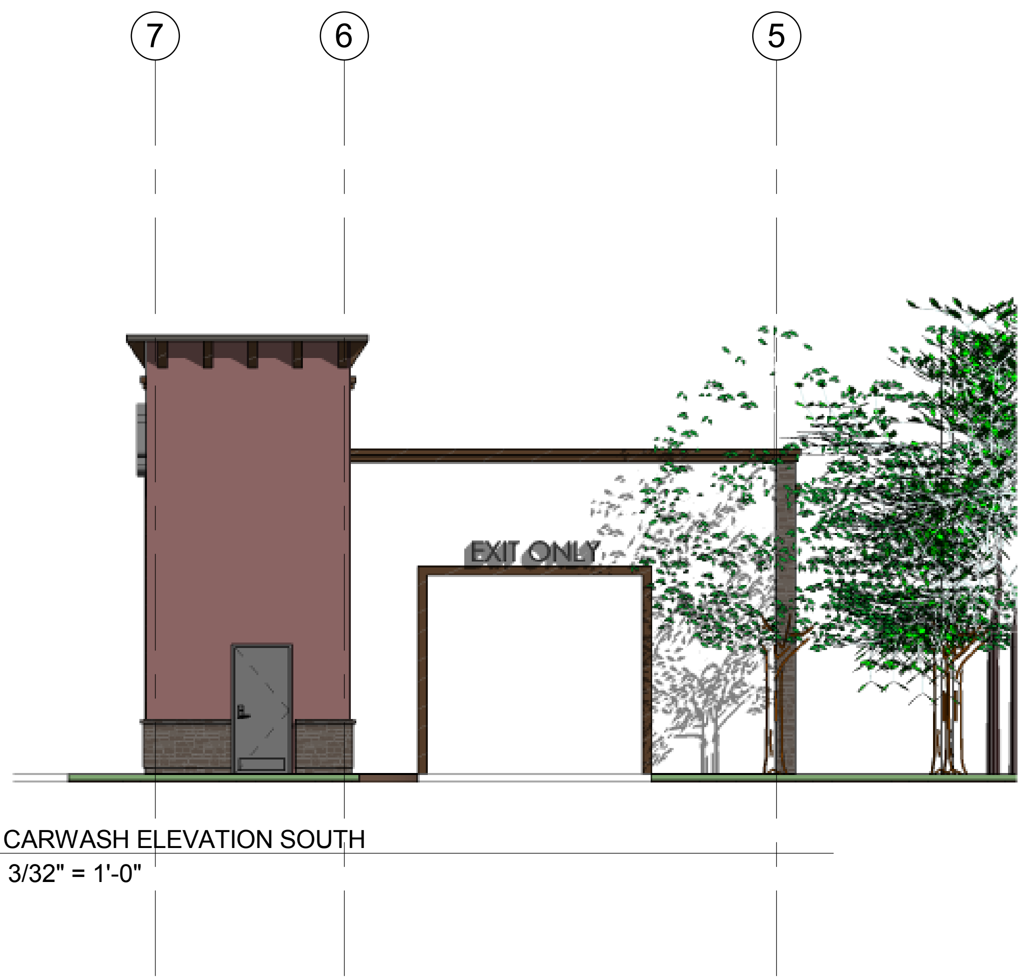
KARAKI
WESTERN
STATES

4887 E. LA PALMA AVE.
ANAHEIM, CA 9208

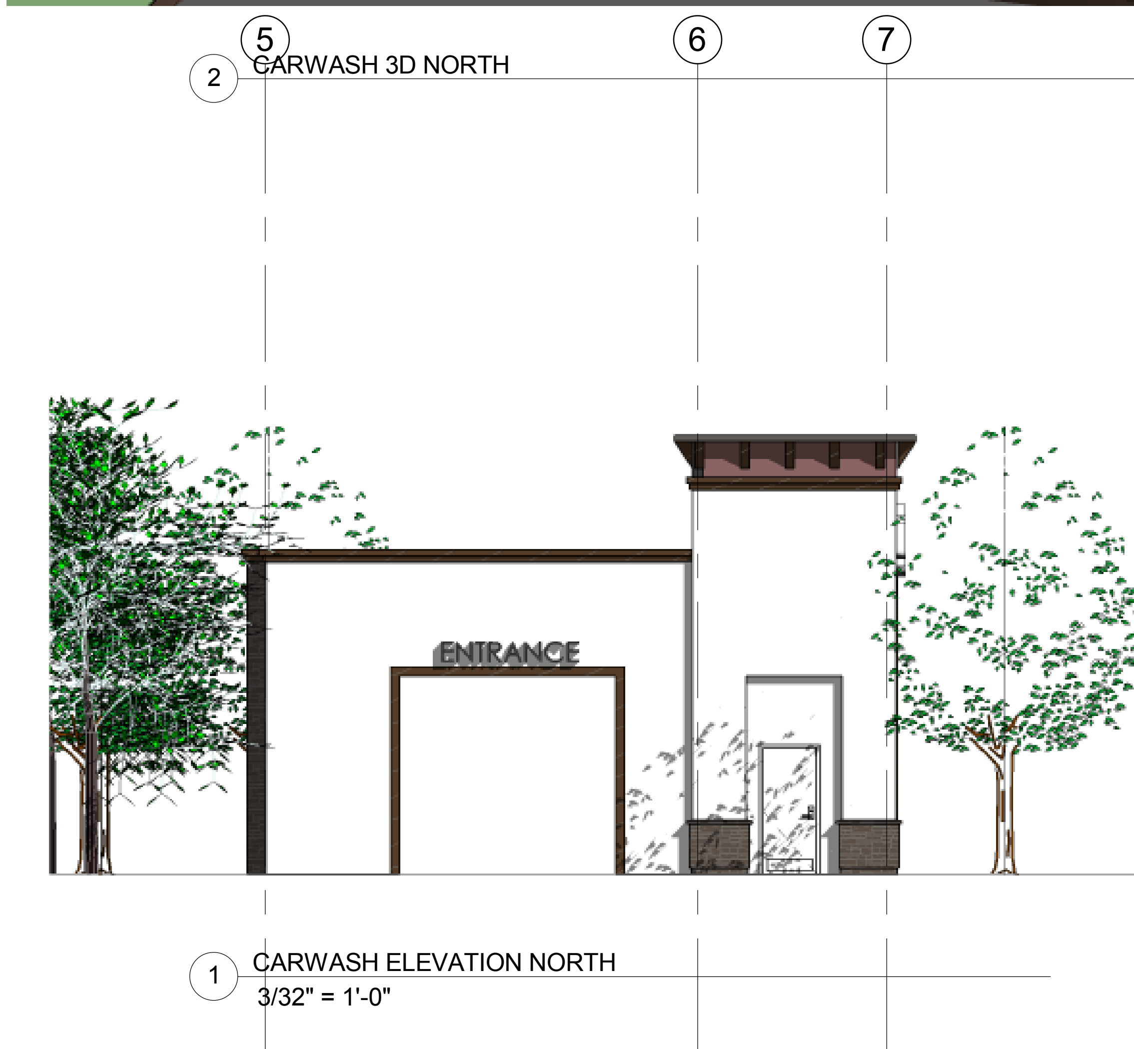
714.695.9300
www.karakiws.com

4 CARWASH 3D SOUTH

2 CARWASH 3D NORTH



3 CARWASH ELEVATION SOUTH
3/32" = 1'-0"



1 CARWASH ELEVATION NORTH
3/32" = 1'-0"

Project Address:

S.W.C. JFK &
MORENO BEAC
DRV
MORENO VALLI
CA 92555

76 GAS STAION, C-STOR
Q.S.R., RESTAURANT &
CARWASH

Sheet Title:

CARWASH
ELEVATION
- NORTH /
SOUTH

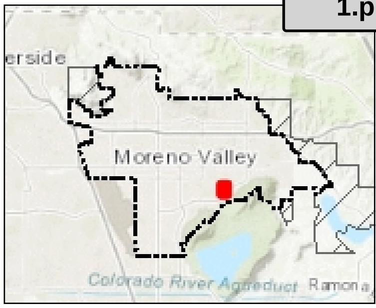
Sheet:

D-9

Attachment: Color Renderings (3058 : Moreno Beach Commercial Center)

MORENO VALLEY
WHERE DREAMS SOAR

Moreno Beach Commercial Center



Legend

Public Facilities

- Public Facilities; Employment Reso Permanente Moreno Valley Medica Conference & Recreation Center; M Mall Branch
- Fire Stations

Parcels

City Boundary

Sphere of Influence

Notes

631.0 0 315.48 631.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 4/3/2018

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: Aerial Map (3058 : Moreno Beach Commercial Center)

Air Quality and Greenhouse Gas Emissions Impact Analysis

76 Gas Station and Restaurants Project

City of Moreno Valley

Lead Agency:
City of Moreno Valley

Prepared By:

Vista Environmental
1021 Didrikson Way
Laguna Beach, California 92651
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Telephone (949) 510-5355
Facsimile (949) 494-3150

Project No. 17096

January 2, 2018

TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

APPENDIX

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf_4	tetrafluoromethane
C_2F_6	hexafluoroethane
C_2H_6	ethane
CH_4	Methane
City	City of Moreno Valley
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPUC	California Public Utilities Commission
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change

LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
O_3	Ozone
OPR	Office of Planning and Research
Pb	Lead
Pfc	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SAR	Second Assessment Report
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SCS	Sustainable communities strategy
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality and greenhouse gas (GHG) emissions impacts associated with the proposed 76 Gas Station and Restaurants project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the air quality and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the short-term construction related and long-term operational air quality and GHG emissions impacts;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP); and
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

1.2 Site Location and Study Area

The project site is located in the southeastern portion of the City of Moreno Valley (City) on the southwest corner of John F. Kennedy Drive and Moreno Beach Drive. The approximately 2.5-acre project site is currently vacant and is bounded by John F. Kennedy Drive and residential uses to the north, Moreno Beach Drive and residential uses to the east, Via Sonata and residential uses to the south, and Via Entrada and a municipal storage building to the west. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptor to the project site is the single-family home located adjacent to the southern edge of the project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the project site on the north side of John F. Kennedy Drive. The nearest school to the project site is Landmark Middle School, which is located as near as 0.2 mile west of the project site.

1.3 Proposed Project Description

The proposed project would consist of the development of a 12-vehicle fueling position gas station with a 4,600-square foot canopy, a 3,400-square foot convenience store (C-Store), and a 3,518-square foot carwash. The proposed project would also include a 2,584-square foot sit-down restaurant, a 1,632-square foot quick serve restaurant (QSR), and a 74-space parking lot. The proposed site plan is shown in Figure 2.

1.4 Executive Summary

Standard Air Quality and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable, but not limited to the proposed project.

- Rule 402 Nuisance – Controls the emissions of odors and other air contaminants;
- Rule 403 Fugitive Dust – Controls the emissions of fugitive dust;
- Rule 461 Gasoline Dispensing Facilities – Controls gas station emissions;
- Rules 1108 and 1108.1 Cutback and Emulsified Asphalt – Controls the VOC content in asphalt;
- Rule 1113 Architectural Coatings – Controls the VOC content in paints and solvents;
- Rule 1138 Restaurant Operations – Controls VOC and PM emissions from charbroilers; and
- Rule 1143 Paint Thinners – Controls the VOC content in paint thinners.

State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets; and
- CCR Title 24 Part 11 – California Green Building Standards.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than significant impact.

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?

Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

Create objectionable odors affecting a substantial number of people?
Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?
Less than significant impact.

1.5 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features.

Project Design Feature 1
The project applicant shall institute a transportation demand program that is open to all employees. The transportation demand program shall include a board in the employee break room that details information on ride sharing, bus routes, bicycling to work, and any other alternative transportation methods available to the project site. The project applicant shall designate an employee to be responsible for maintaining the board and for coordinating employees interested in participating in the ride sharing portion of the program.

Project Design Feature 2
The project applicant shall provide separate onsite bins for disposal of recyclables and trash.

1.6 Mitigation Measures Required for the Proposed Project

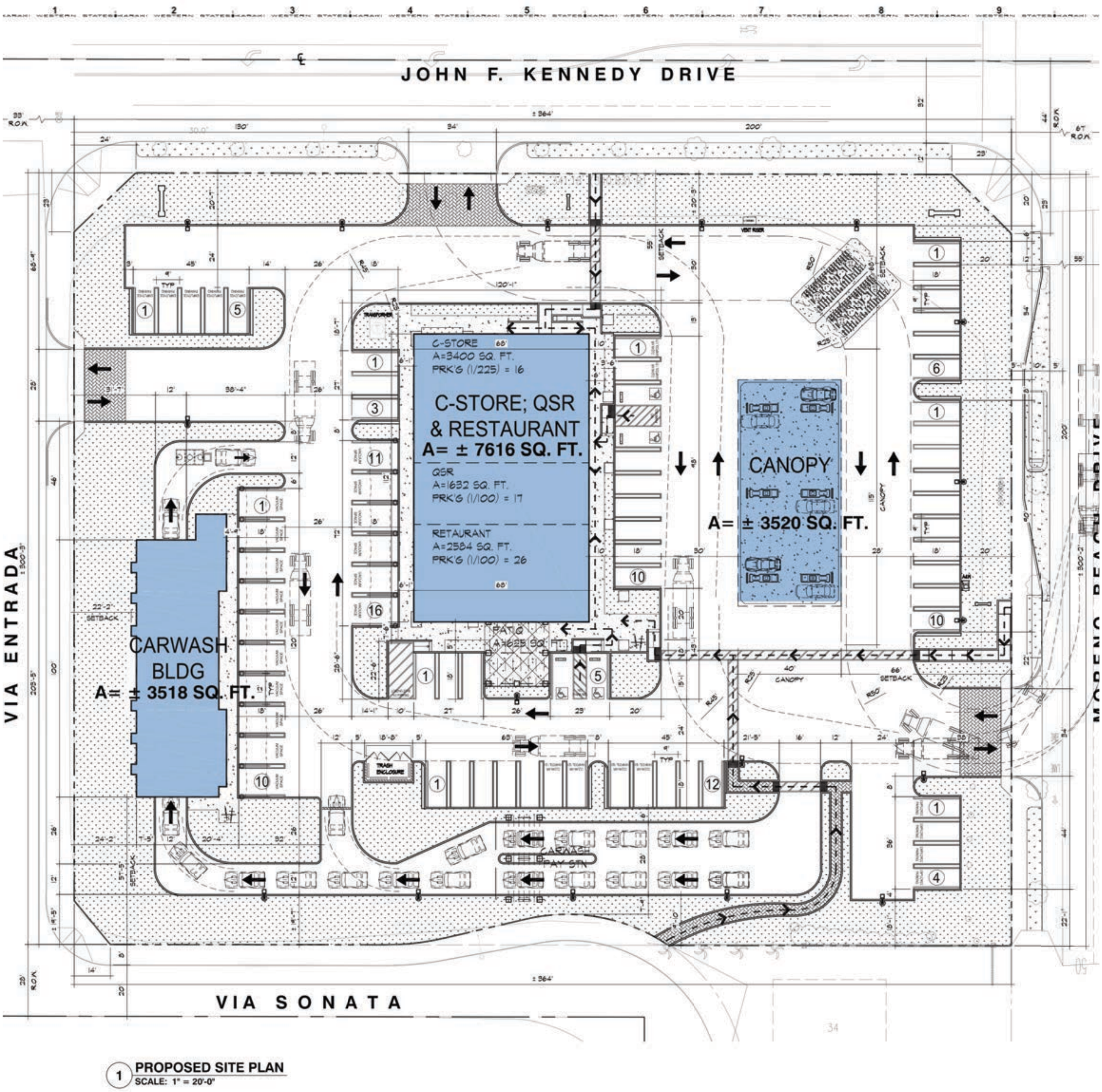
This analysis found that implementation of the State and SCAQMD air quality and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality and GHG emissions.

SOURCE: Google Earth.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area

Attachment: Air Quality and Greenhouse Gas Emissions Impact Analysis [Revision 1] (3058 : Moreno Beach Commercial Center)



SOURCE: Karaki Western States, November 27, 2017.

N

VISTA ENVIRONMENTAL

Figure 2

Prop

2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants and Ozone Precursors

The criteria pollutants consist of: ozone, NO_x, CO, SO_x, lead (Pb), and particulate matter (PM). The ozone precursors consist of NO_x and VOC. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

Nitrogen Oxides

Nitrogen Oxides (NOx) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of NO_2 can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air but in the vicinity of ground-level is created by a chemical reaction between NOx and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

Sulfur Oxide (SOx) gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

Particle matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Volatile Organic Compounds

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered toxic air contaminants (TACs). There are no separate health standards for VOCs as a group.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported*

Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California, prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 45 miles southeast of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

3.0 GREENHOUSE GASES

3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and Chlorofluorocarbons (CFCs)). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the

1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e. As such, the GWP of CO_2 is equal to 1. The GWP values used in this analysis are based on the IPCC Second Assessment Report (SAR) and United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines, and are detailed in Table A. The SAR GWPs are used in CARB's California inventory and Assembly Bill (AB) 32 Scoping Plan estimates.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:
[1] Defined as the half-life of the gas.
[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.2),that is used in this report (CalEEMod user guide: Appendix A).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The Environmental Protection Agency (EPA) was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B on page 14.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C on page 15, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone (O_3) and suspended particulates (PM10 and PM2.5) and partial non-attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2).

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time: California Standards	Concentration / Averaging Time: Federal Primary Standards	Most Relevant Effects
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 $\mu g/m^3$ / 24-hour 20 $\mu g/m^3$ / annual	150 $\mu g/m^3$ / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.
Suspended Particulate Matter ($PM_{2.5}$)	12 $\mu g/m^3$ / annual	35 $\mu g/m^3$ / 24-hour 12 $\mu g/m^3$ / annual	
Sulfates	25 $\mu g/m^3$ / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 $\mu g/m^3$ / 30-day	0.15 $\mu g/m^3$ /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

Table C – South Coast Air Basin Attainment Status

Criteria Pollutant	Standard	Averaging Time	Designation[a]	Attainment Date[b]
1-Hour Ozone[c]	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (revised deadline)
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone[d]	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	7/20/2032
	NAAQS	2015 8-Hour (0.070 ppm)	Pending – Expect Nonattainment (Extreme)	Pending (beyond 2032)
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO_2[e]	NAAQS	2010 1-Hour (0.10 ppm)	Unclassifiable/ Attainment	N/A (attained)
	NAAQS	1971 Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO_2[f]	NAAQS	2010 1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/ Attainment)	N/A (attained)
	NAAQS	1971 24-Hour (0.14 ppm) 1971 Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (attained)
PM10	NAAQS	1987 24-hour (150 µg/m^3)	Attainment (Maintenance)[g]	7/26/2013 (attained)
	CAAQS	24-hour (50 µg/m^3) Annual (20 µg/m^3)	Nonattainment	N/A
PM2.5[h]	NAAQS	2006 24-Hour (35 µg/m^3)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 µg/m^3)	Attainment (final determination pending)	4/5/2015 (attained 2013)
	NAAQS	2012 Annual (12.0 µg/m^3)	Nonattainment (Moderate)	12/31/2021
	CAAQS	Annual (12.0 µg/m^3)	Nonattainment	N/A
Lead[i]	NAAQS	2008 3-Months Rolling (0.15 µg/m^3)	Nonattainment (Partial) (Attainment determination requested)	12/31/2015

Source: SCAQMD, February 2016
Notes:
a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable
b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration
c) The 1979 1-hour O_3 standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard
d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm. Effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour O_3 NAAQS (0.08 ppm) was revoked in the 2008 O_3 implementation rule, effective 4/6/15;there are continuing obligations under the revoked 1997 and revised 2008 O_3 until they are attained.
e) New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO_2 standard retained
f) The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.
g) Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.
h) The attainment deadline for the 2006 24-Hour PM2.5 NAAQS was 12/31/15 for the former “moderate” classification; EPA approved

reclassification to "serious", effective 2/12/16 with an attainment deadline of 12/31/19; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 μg/m^3; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 EPA finalized a determination that the Basin attained the 1997 annual (15.0 μg/m^3) and 24-hour PM2.5 (65 μg/m^3) NAAQS, effective August 24, 2016
i) Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data; attainment re-designation request pending.

In 2015, one or more stations in the Air Basin exceeded the most current federal standards on a total of 146 days (40 percent of the year), including: 8-hour ozone (113 days over 2015 ozone NAAQS), 24-hour PM2.5 (30 days, including near-road sites; 25 days for ambient sites only), PM10 (2 days), and NO_2 (1 day). Despite substantial improvement in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS for ozone more frequently than any other area in the United States. Seven of the top 10 stations in the nation most frequently exceeding the 2015 8-hour ozone NAAQS in 2015 were located within the Air Basin, including stations in San Bernardino, Riverside, and Los Angeles Counties.

PM2.5 levels in the Air Basin have improved significantly in recent years. By 2013 and again in 2014 and 2015, there were no stations measuring PM2.5 in the Air Basin that violated the former 1997 annual PM2.5 NAAQS (15.0 μg/m^3) for the 3-year design value period. On July 25, 2016 the EPA finalized a determination that the Basin attained the 1997 annual (15.0 μg/m^3) and 24-hour PM2.5 (65 μg/m^3) NAAQS, effective August 24, 2016. Of the 17 federal PM2.5 monitors at ambient stations in the Air Basin for the 2013-2015 period, five stations had design values over the current 2012 annual PM2.5 NAAQS (12.0 μg/m^3), including: Mira Loma (Air Basin maximum at 14.1 μg/m^3), Rubidoux, Fontana, Ontario, Central Los Angeles, and Compton. For the 24-hour PM2.5 NAAQS (35.0 μg/m^3) there were 14 stations in the Air Basin in 2015 that had one or more daily exceedances of the standard, with a combined total of 25 days over that standard in the Air Basin. While it was previously anticipated that the Air Basin's 24-hour PM2.5 NAAQS would be attained by 2015, this did not occur based on the data for 2013 through 2015. The higher number of days exceeding the 24-hour PM2.5 NAAQS over what was expected is largely attributed to the severe drought conditions over this period that allowed for more stagnant conditions in the Air Basin with multi-day buildups of higher PM2.5 concentrations. This was caused by the lack of storm-related dispersion and rain-out of PM and its precursors.

The Air Basin is currently in attainment for the federal standards for SO_2, CO, and NO_2. While the concentration level of the 1-hour NO_2 federal standard (100 ppb) was exceeded in the Air Basin for one day in 2015 (Long Beach- Hudson Station), the NAAQS NO_2 design value has not been exceeded. Therefore, the Basin remains in attainment of the NO_2 NAAQS.

Although much of the South Coast Air Basin, including the proposed site location of Riverside County, is in attainment for lead, the EPA designated the Los Angeles County portion of the Air Basin as nonattainment for the revised (2008) federal lead standard (0.15 μg/m^3, rolling 3-month average). This was due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the revised standard in the 2007-2009 period of data used. As of the 2009-2011 data period, only one of these stations (Vernon) still exceeded the lead standard. The *2012 Lead State Implementation Plan Los Angeles County*, prepared by SCAQMD and adopted on May 4, 2012, provided measures to meet attainment of lead by December 31, 2015. Current monitoring data shows that lead has been below the standards at all monitoring stations since 2015, and based on this data a re-designation request is pending with the EPA.

4.2 State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California

Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10, PM2.5 and lead. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, NO_2, SO_2, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all warehouse projects in the State.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the California Air Resources Board (CARB) adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce diesel particulate matter (DPM) and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of

California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

4.3 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2016 Air Quality Management Plan* (2016 AQMP) was adopted by the SCAQMD Board on March 3, 2016 and was adopted by CARB on March 23, 2017 for inclusion into the California State Implementation Plan (SIP). The 2016 AQMP was prepared in order to meet the following standards:

- 8-hour Ozone (75 ppb) by 2032
- Annual PM2.5 (12 µg/m3) by 2021-2025
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)
- 24-hour PM2.5 (35 µg/m^3) by 2019 (updated from the 2012 AQMP)

In addition to meeting the above standards, the 2016 AQMP also includes revisions to the attainment demonstrations for the 1997 8-hour ozone NAAQS and the 1979 1-hour ozone NAAQS. The prior 2012 AQMP was prepared in order to demonstrate attainment with the 24-hour PM2.5 standard by 2014 through adoption of all feasible measures. The prior 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These "black box" emissions reductions represent 65 percent of the remaining NOx emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NOx control measures have been provided in the 2012 AQMP even though the primary purpose was to show compliance with 24-hour PM2.5 emissions standards.

The 2016 AQMP provides a new approach that focuses on available, proven and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities to promote reductions in GHG emissions and TAC emissions as well as efficiencies in energy use, transportation, and goods movement. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy.

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

The following lists the SCAQMD rules that are applicable but not limited to all industrial projects in the Air Basin.

<u>Rule 402 - Nuisance</u>

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

<u>Rule 403- Fugitive Dust</u>

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

Rule 461- Gasoline Dispensing Facilities

Rule 461 governs the operation of gasoline stations and requires that all underground storage tanks are equipped with a "CARB certified" enhanced vapor recovery system, all fill tubes are equipped with vapor tight caps, all dry breaks are equipped with vapor tight seals, a spill box shall be installed to capture any gasoline spillage, and all equipment is required to be properly maintained per CARB regulations. All gasoline dispensing units are required to be equipped with a "CARB certified" vapor recovery system, the dispensing system components shall maintain vapor and liquid tight connections at all times and the breakaway coupling shall be equipped with a poppet valve that shall close when coupling is separated. Rule 461 also provides several additional requirements including detailed maintenance, testing, reporting and recordkeeping requirements for all gas stations.

Rules 1108 and 1108.1 – Cutback and Emulsified Asphalt

Rules 1108 and 1108.1 govern the sale, use, and manufacturing of asphalt and limits the VOC content in asphalt. This rule regulates the VOC contents of asphalt used during construction as well as any on-going maintenance during operations. Therefore, all asphalt used during construction and operation of the proposed project must comply with SCAQMD Rules 1108 and 1108.1.

Rule 1113 – Architectural Coatings

Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

Rule 1138 – Control of Emissions from Restaurant Operations

Rule 1138 governs the emissions from operators of commercial cooking operations. This rule regulates VOC and PM emissions from charbroilers and requires the installation of catalytic oxidizers and associated maintenance requirements for any restaurants that utilize a charbroiler.

Rule 1143 – Paint Thinners

Rule 1143 governs the sale, use, and manufacturing of paint thinners and multi-purpose solvents that are used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. This rule regulates the VOC content of solvents used during construction. Solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1143.

Southern California Association of Governments

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AQMP. The RTP/SCS, FTIP, and AQMP are based on projections originating within the City and County General Plans.

4.4 Local – City of Moreno Valley

Local jurisdictions, such as the City of Moreno Valley, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the AQMPs. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the County and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

<u>City of Moreno Valley General Plan</u>

The City of Moreno Valley General Plan contains the following air quality-related objectives and policies that are applicable to the proposed project.

Objective 6.6

Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.

Policies

6.6.1 Provide sites for new neighborhood commercial facilities within close proximity to the residential areas they serve.

6.6.2 Provide multi-family residential development sites in close proximity to neighborhood commercial centers in order to encourage pedestrian instead of vehicular travel.

6.6.3 Locate neighborhood parks in close proximity to the appropriate concentration of residents in order to encourage pedestrian and bicycle travel to local recreation areas.

Objective 6.7

Reduce mobile and stationary source air pollutant emissions.

Policies

6.7.5 Require grading activities to comply with SCAQMD's Rule 403 regarding the control of fugitive dust.

6.7.6 Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.

5.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

5.1 International

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement, however the Paris Agreement is still legally binding by the other remaining nations.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

5.2 Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO_2 gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per MWh for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). On February 9, 2016 the Supreme Court stayed implementation of the Clean Power Plan due to a legal challenge from 29 states and in April 2017, the Supreme Court put the case on a 60 day hold and directed both sides to make arguments for whether it should keep the case on hold indefinitely or close it and remand the issue to the EPA. On October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan, however the repeal of the Plan will require following the same rule-making system used to create regulations and will likely result in court challenges.

5.3 State

The California Air Resources Board (CARB) has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a “comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health” (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB, 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California’s 2017 Climate Change Scoping Plan, November 2017 (CARB, 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

Title 24 standards are updated on a three-year schedule and the most current 2016 standards went into effect on January 1, 2017. The Title 24 standards require the installation of insulated hot water pipes, improved window performance, improved wall insulation, and mandatory duct sealing. Title 24 also requires roofs to be constructed to be solar ready, with cool roofing shingles, a minimum 1-inch air space between roof material and roof deck, and a minimum of R-22 roof/ceiling insulation. All lighting is required to be high efficiency and daylight sensors and motion sensors are required for outdoor lighting, bathrooms, utility rooms and other spaces. The forced air systems are required to limit leakage to 5 percent or less and requires all heat pump systems to be equipped with liquid line filter driers. The 2016 Title 24 Part 6 standards are anticipated to reduce electricity consumption by 281 gigawatt-hours per year and natural gas consumption by 16 million therms per year (http://www.energy.ca.gov/2015publications/CEC-400-2015-037/CEC-400-2015-037-CMF.pdf).

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (Title 24) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The most current version is the 2016 California Green Building Standards Code (CalGreen), which became effective on January 1, 2017 and replaced the 2013 CalGreen.

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 code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Some of the notable changes in the 2016 CALGreen Code over the prior 2013 CALGreen Code include: an increase in amount of bicycle parking requirements; an increase in number of EV charging stations and clean air vehicle parking at non-residential buildings; a reduction in water usage in urinals to 0.125 gallons per flush; an increased rate of diversion for construction and operational waste to 65 percent as well as adding organic waste as waste to be diverted; and a requirement for fireplaces to meet new EPA standards.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Senate Bill 350

Senate Bill 350 (SB 350) was adopted October 2015 in order to implement the goals of Executive Order B-30-15. SB 350 increases the State's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. In addition SB 350 requires the State to double statewide energy efficiency savings for both electricity and natural gas uses by 2030. SB 350 is being implemented by requiring all large utilities to develop and submit Integrated Resource Plans that detail how they will meet their customers energy needs, reduce GHG emissions and deploy clean energy resources. SB 350 superseded the renewable energy requirements set by SB 1078, SB 107, and SB X1-2.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years and in June 2017 CARB released *Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Target*, which provides recommended GHG emissions reduction targets for SCAG of 8 percent by 2020 and 21 percent by 2035.

The *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), adopted by SCAG April, 2016 provides a 2020 GHG emission reduction target of 8 percent and a 2035 GHG emission reduction target of 18 percent. SCAG will need to develop additional strategies in its next revision of the RTP/SCS in order to meet CARB's new 21 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that addresses GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate Action Plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports must specifically consider a project's energy use and energy efficiency potential.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 million metric tons of CO2e ($MMTCO_2e$). The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap and Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Executive Order S-3-05

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing GHG emissions to 2000 levels by 2010.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. The second set of regulations "Pavley II" is currently in development and will be phased in between model years 2017 through 2025 and will reduce emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards are being developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles. In September 2009, the Pavley I regulations were adopted by CARB.

5.3 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The SCAQMD is also responsible for GHG emissions for projects where it is the lead agency. However, for other projects in the SCAB where it is not the lead agency, it is limited to providing resources to other lead agencies in order to assist them in determining GHG emission thresholds and GHG reduction measures. In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, and 2702, which are described below.

SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 $MTCO_2e$ for residential uses, 1,400 $MTCO_2e$ for commercial uses, and 3,000 $MTCO_2e$ for mixed uses. An alternative annual threshold of 3,000 $MTCO_2e$ for all land use types is also proposed.

Southern California Association of Governments

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5.4 Local – City of Moreno Valley

The *City of Moreno Valley Energy Efficiency and Climate Action Strategy*, prepared October 2012 and the *City of Moreno Valley Greenhouse Gas Analysis*, prepared February 2012 provide several GHG reduction measures that are applicable to the proposed project and are detailed below:

R2-T1: Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.

R2-T3: Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.

R2-E5: New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards. (Reach Code)

R2-L1: Electric Landscaping Equipment. Promote the use of electric landscaping equipment.

R3-L2: Heat Island Plan. Develop measures that address "heat islands". Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index (SRI) of at least 29, using an open grid paving system, or provide covered parking.

R2-W1: Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.

R2-S1: City Diversion Program. This measure sets a target for the City to increase the waste diverted from landfills to 75% by 2020.

6.0 ATMOSPHERIC SETTING

6.1 South Coast Air Basin

The project site is located within the western portion of Riverside County, which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties and all of Orange County. The Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

6.2 Regional Climate

The climate of western Riverside County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western Riverside County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the densely populated areas located west of the project site. This airflow brings polluted air into western Riverside County late in the afternoon. This transport pattern creates unhealthful air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western Riverside County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the Air Basin into the interior valleys which become trapped by the mountains that border the eastern and northern edges of the Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the Air Basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the Riverside Citrus EXP Monitoring Station, which is the nearest weather station to the project site with historical data are shown below in Table D. Table D shows that August is typically the warmest month and January is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table D – Monthly Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Max. Temperature	66.6	67.9	70.0	75.1	79.6	86.5	94.0	94.4	90.7	82.5	73.5	67.5
Avg. Min. Temperature	41.7	43.3	45.0	47.9	52.7	56.3	60.8	61.3	58.5	52.5	45.5	41.3
Avg. Total Precipitation (in.)	2.12	2.16	1.64	0.78	0.23	0.06	0.04	0.11	0.24	0.32	0.92	1.22

Source: Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7473

6.3 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust. The 2016 AQMP found that since 2012 AQMP projections were made stationary source VOC emissions have decreased by approximately 12 percent, but mobile VOC emissions have increased by 5 percent. The percentage of NOx emissions remain unchanged between the 2012 and 2016 projections.

SCAQMD has divided the Air Basin into 38 air-monitoring areas. The project site is located in Air Monitoring Area 24, which is located in western Riverside County and covers the Perris and Moreno Valley areas to the San Bernardino County Line. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project site have been used; Perris Monitoring Station (Perris Station) and Riverside-Magnolia Monitoring Station (Riverside-Magnolia Station).

The Perris Station is located approximately 8.4 miles southwest of the project site at 237 ½ N. D Street, Perris and the Riverside-Magnolia Station is located approximately 13 miles northwest of the project site at 7002 Magnolia Avenue, Riverside. The monitoring data is presented in Table E and shows the most recent three years of monitoring data from CARB. Ozone and PM10 were measured at the Perris Station and NO_2 and PM2.5 were measured at the Riverside-Magnolia Station. CO measurements have not been provided, since CO is currently in attainment in the Air Basin and monitoring of CO within the Air Basin ended on March 31, 2013. Table E shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below:

Ozone

The State 1-hour concentration standard for ozone has been exceeded between 16 and 25 days each year over the past three years at the Perris Station. The State 8-hour ozone standard has been exceeded between 50 and 63 days each year over the past three years at the Riverside-Magnolia Station. The Federal 8-hour ozone standard has been exceeded between 49 and 59 days each year over the past three years at the Riverside Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Table E – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year 2014	Year 2015	Year 2016
Ozone[1]:			
Maximum 1-Hour Concentration (ppm)	0.117	0.124	0.131
Days > CAAQS (0.09 ppm)	**16**	**25**	**23**
Maximum 8-Hour Concentration (ppm)	0.094	0.103	0.099
Days > NAAQS (0.070 ppm)	**59**	**49**	**55**
Days > CAAQs (0.070 ppm)	**63**	**50**	**56**
Nitrogen Dioxide[2]:			
Maximum 1-Hour Concentration (ppb)	59.9	57.4	73.1
Days > NAAQS (100 ppb)	0	0	0
Inhalable Particulates (PM10) [1]:			
Maximum 24-Hour California Measurement (ug/m^3)	87.0	188.0	76.0
Days > NAAQS (150 ug/m^3)	0	6.6	0
Days > CAAQS (50 ug/m^3)	**36.4**	**25.7**	**ND**
Annual Arithmetic Mean (AAM) (ug/m^3)	35.1	33.1	32.2
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5) [2]:			
Maximum 24-Hour National Measurement (ug/m^3)	50.6	61.1	60.8
Days > NAAQS (35 ug/m^3)	**5**	**9**	**5**
Annual Arithmetic Mean (AAM) (ug/m^3)	16.8	15.4	12.6
Annual > NAAQS and CAAQS (12 ug/m^3)	**Yes**	**Yes**	**Yes**

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from the Perris Station.
[2] Data obtained from the Riverside-Magnolia Station.
Source: http://www.arb.ca.gov/adam/

Nitrogen Dioxide

The Riverside-Magnolia Station did not record an exceedance of the Federal 1-hour NO_2 standard for the last three years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 25.7 and 36.4 days each year over the past three years at the Perris Station. Over the past three years the Federal 24-hour standard for PM10 has been exceeded 6.6 days over the past three years at the Riverside-Magnolia Station. The annual PM10 concentration at the Riverside-Magnolia Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has been exceeded between five and nine days each year over the past three years at the Riverside-Magnolia Station. The annual PM2.5 concentration exceeded both the State and Federal standard over the past three years. There does not appear to be a noticeable trend for PM10 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

6.4 Toxic Air Contaminant Levels in the Air Basin

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the SCAQMD's MATES-IV study, the project site has an estimated cancer risk of 478 per million persons chance of cancer. In comparison, the average cancer risk for the Air Basin is 991 per million persons, which is based on the use of age-sensitivity factors detailed in the OEHHA Guidelines (OEHHA, 2015).

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between 1 in 3 to 4 and 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

7.0 MODELING PARAMETERS AND ASSUMPTIONS

7.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for South Coast Air Basin portion of Riverside County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2014 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod were set to a project location of the South Coast Air Basin portion of Riverside County, a Climate Zone of 10, utility company of Southern California Edison, and the opening year of 2019 was utilized in this analysis.

Land Use Parameters

The proposed project would consist of the development of a 12-vehicle fueling position gas station with a 4,600-square foot canopy, a 3,400-square foot convenience store (C-Store), and a 3,518-square foot carwash. The proposed project would also include a 2,584-square foot sit-down restaurant, a 1,632-square foot quick serve restaurant (QSR), and a 74-space parking lot. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table F.

Table F – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving[3] (square feet)
Gas Station, C-Store, & Carwash	Gasoline/Service Station	12 PM	0.34	11,518
Sit Down Restaurant	High-Turnover (Sit-Down) Restaurant	2.584 TSF	0.34	2,584
Quick Serve Restaurant (QSR)	Fast Food Restaurant without Drive Thru	1.632 TSF	0.34	1,632
Parking Lot	Parking Lot	74 PS	1.47	29,600

Notes:
[1] PM = Pump, TSF = Thousand Square Foot, PS = Parking Space
[2] Lot acreage calculated based on a total lot acreage of 2.50
[3] Building/Paving square feet represent area where architectural coatings will be applied.
[4] The land use designations were obtained from the Traffic Impact Analysis (K2 Traffic Engineering, Inc., 2017)

Construction Parameters

Construction activities are anticipated to start around summer 2018 and take approximately 12 months to complete. The construction-related GHG emissions were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The phases of construction activities that have been analyzed are detailed below and include: 1) site preparation, 2) grading, 3) building construction, 4) paving, and 5) application of architectural coatings.

Site Preparation

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation phase was modelled as starting in June 2018 and was modeled as occurring over approximately three days. The site preparation activities would require 8 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the site preparation phase. The onsite equipment would consist of one grader, one scraper, and either one tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas three times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

<u>Grading</u>

The grading phase would occur after completion of the site preparation phase and is anticipated to take place over approximately two weeks. The proposed grading is balanced, which would result in no dirt being imported or exported from the project site. The onsite equipment would consist of one grader, one rubber tired dozer, and two tractors, loaders, or backhoes. The grading activities would require 10 worker trips per day. In order to account for water truck emissions, six daily vendor truck trips were added to the grading phase. The mitigation of water all exposed areas three times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

<u>Building Construction</u>

The building construction would occur after the completion of the grading phase and is anticipated to take place over approximately 10 months. The building construction would require up to 18 worker trips and 7 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, one generator set, three welders, two forklifts, and one tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix.

<u>Paving</u>

The paving would occur after the completion of the building construction phase. The paving activities was modeled as occurring over two weeks and would require up to 15 worker trips per day. The onsite equipment would consist of the simultaneous operation of one cement and mortar mixer, one paver, one paving equipment, two rollers, and one tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix.

<u>Architectural Coating</u>

The application of architectural coatings would occur after the completion of the paving phase and is anticipated to take place over approximately two weeks. The architectural coating phase was modeled based on covering 23,601 square feet of nonresidential interior area, 7,867 square feet of nonresidential exterior area, and 1,776 square feet of parking area that includes striping of the parking lots, painting of signs, and other architectural coatings in public areas. The architectural coating phase was modeled as occurring over two weeks and would require up to 4 worker trip per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix.

Operational Emissions Modeling

The operations-related criteria air pollutant emissions and GHG emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the CalEEMod model based on the land use parameters provided above.

<u>Mobile Sources</u>

Mobile sources include emissions the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed through use of a trip rate of: 315.17

daily trips per 1,000 square feet at the proposed fast casual restaurant; 112.18 daily trips per 1,000 square feet at the proposed high-turnover (sit down) restaurant; and a trip rate of 205.36 daily trips per vehicle fueling position at the proposed gas station and convenience store that were obtained from the *Focused Traffic Impact Study New 76 Gas Station and Restaurants At SWC of Moreno Beach Drive and John F. Kennedy Drive, Moreno Valley* (Traffic Impact Analysis), prepared by K2 Traffic Engineering, December 20, 2017. This resulted in the proposed fast food restaurant generating 1,260 trips per day and the proposed gas station and convenience store generating 2,930 trips per day, for a total of 4,190 trips generated by the proposed project per day. This resulted in the proposed project generating 2,232 daily trips on weekdays, 2,325 daily trips on Saturdays, and 2,216 daily trips on Sundays. No other changes were made to the CalEEMod default mobile source parameters.

Both the year 2019 and year 2020 analyses included the mitigation of improve pedestrian network onsite and connecting offsite, since there are already sidewalks on the project site adjacent to John F Kennedy Drive, Moreno Beach Drive, Via Entrada, and Via Sonata that connect to sidewalks on adjacent properties. The year 2020 GHG analysis included implementation of Executive Order S-1-07 (EO S-1-07) and Assembly Bill 1493 (AB 1493). EO S-1-07 establishes performance standards for the carbon intensity of transportation fuels and AB 1493 limits GHG emissions from new vehicles sold in California. The year 2020 GHG analysis also accounted for the bus stop that is located approximately 0.02 miles north of the project site on the northwest corner of John F. Kennedy Drive and Moreno Beach Drive and Project Design Feature 1, which requires the implementation of a Transportation Demand Program.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. The area source emissions were based on the on-going use of the proposed gas station, convenience store, carwash, and restaurant facilities in the CalEEMod model. No changes were made to the default area source parameters in the CalEEMod model.

Energy Usage

Energy usage includes emissions from electricity and natural gas used onsite. The energy usage was based on the ongoing use of the proposed gas station, convenience store, carwash, and restaurant facilities in the CalEEMod Model. No changes were made to the default energy usage parameters in the CalEEMod model.

Solid Waste

Waste includes the GHG emissions associated with the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. The analysis was based on the default CalEEMod waste generation rates of 56 tons of solid waste per year from the proposed project. No changes were made to the default solid waste parameters or mitigation measures in the CalEEMod model.

The CalEEMod mitigation of a 75 percent reduction in landfill waste was selected for year 2020 analysis to account for implementation of AB 341 that provides strategies to reduce, recycle or compost solid waste by 75 percent by 2020 and Project Design Feature 2 has been detailed above in order to clearly identify the onsite recycling steps required to meet this target. Since SB 939 and 1374 were enacted prior to the project opening year, it was assumed that for year 2019 analysis a 50 percent reduction in landfill waste was selected.

Water and Wastewater

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. The analysis was based on the default CalEEMod water usage rate of 1,437,260 gallons per year of indoor water usage and 82,543 gallons per year of outdoor water usage. No changes were made to the default water and wastewater parameters in the CalEEMod model.

The CalEEMod mitigation of the use of low flow faucets, and toilets and use of smart irrigation system controllers were selected to account for the implementation of the 2016 CCR Title 24 Part 11 (CalGreen) requirements in the year 2020 analyses.

8.0 THRESHOLDS OF SIGNIFICANCE

8.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table G.

Table G – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	NOx	CO	SOx	PM10	PM2.5	Lead
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

The regional criteria pollutants analysis for both construction and operation of the proposed project can be found below in Section 9.3.

8.2 Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. The project site is approximately 2.50 acres. In order to provide a conservative analysis, the 2-acre project site shown in the Look-Up Tables has been utilized in this analysis. As detailed above in Section 4.1, the project site is located in Air Monitoring Area 24, which covers the Perris Valley area. The nearest offsite sensitive receptors to the project site consist of single-family homes located adjacent to the project site. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25 meter thresholds. Table H below shows the LSTs for NO_2, PM10 and PM2.5 for both construction and operational activities.

Table H – SCAQMD Local Air Quality Thresholds of Significance

Activity	Allowable Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Construction	170	883	7	4
Operation	170	883	2	1

Notes:
[1] The nearest sensitive receptor is a single-family home located adjacent to the southern side of the project site. According to SCAQMD Methodology, all receptors closer than 25 meters are based on the 25 meter threshold.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for two acres in Air Monitoring Area 24.

8.3 Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to toxic air contaminants (TACs), the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create TACs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the TAC and the toxicity of the hazardous air pollutant (HAP) should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

The TAC analysis for both construction and operation of the proposed project can be found below in Section 9.5.

8.4 Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
>
> The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

The odor analysis for both construction and operation of the proposed project can be found below in Section 9.6.

8.5 Greenhouse Gas Emissions

The City of Moreno Valley has adopted the *City of Moreno Valley Energy Efficiency and Climate Action Strategy*, on October 9, 2012, which along with the *City of Moreno Valley Greenhouse Gas Analysis*, prepared February 2012, detail potential programs and policies to reduce overall City energy consumption and increase the use of renewable energy. The Greenhouse Gas Analysis develops a target of a 15 percent decrease in GHG emissions over 2007 levels by 2020. The Greenhouse Gas Analysis has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Consistent with the CARB Scoping Plan, the City of Moreno Valley has chosen a reduction target of 15 percent below 2007 GHG emissions levels by 2020.

It should be noted that the Moreno Valley thresholds were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, the California Supreme Court's ruling on *Cleveland National Forest Foundation v. San Diego Association of Governments* (Cleveland v. SANDAG), Filed July 13, 2017 stated:

> SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation].

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such this analysis has relied on the Moreno Valley thresholds. Therefore, the proposed project would be considered to create a significant cumulative GHG emissions impact if the proposed project's GHG emissions are not 15 percent less in 2020 than GHG emissions from business-as-usual conditions for a similar size project in year 2007.

9.0 IMPACT ANALYSIS

9.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality and global climate change would occur if the proposed project is determined to result in:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people.
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

9.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 8.1 or local thresholds of significance discussed above in Section 8.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 8.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS and FTIP. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Moreno Valley General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The proposed project is currently designated as Commercial (C) in the General Plan and is zoned Commercial (C). The proposed project is consistent with the current land use designation and would not require a General Plan Amendment or zone change. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

Level of Significance

Less than significant impact.

9.3 Air Quality Standard Violation

The proposed project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

Construction Emissions

The construction activities for the proposed project are anticipated to include site preparation and grading of the 2.5-acre project site, building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant, paving of the onsite driveways and parking areas, and application of architectural coatings. The construction emissions have been analyzed for both regional and local air quality impacts as well as potential toxic air impacts.

Construction-Related Regional Impacts

The CalEEMod model has been utilized to calculate the construction-related regional emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 7.1. The worst-case summer or winter daily construction-related criteria pollutant emissions from the proposed project for each phase of construction activities are shown below in Table I and the CalEEMod daily printouts are shown in Appendix B. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently, Table I also shows the combined criteria pollutant emissions from building construction, paving, and architectural coating phases of construction.

Table I – Construction-Related Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Site Preparation[1]						
Onsite[2]	1.90	23.62	12.75	0.02	1.57	0.94
Offsite[3]	0.07	0.76	0.54	0.00	0.13	0.04
Total	**1.97**	**24.38**	**13.29**	**0.02**	**1.70**	**0.98**
Grading[1]						
Onsite	2.15	24.29	10.38	0.02	3.72	2.39
Offsite	0.08	0.77	0.64	0.00	0.16	0.05
Total	**2.23**	**25.06**	**11.02**	**0.02**	**3.88**	**2.44**
Building Construction						
Onsite	2.91	20.71	15.72	0.03	1.26	1.21
Offsite	0.13	0.92	1.05	0.00	0.25	0.07
Total	**3.04**	**21.63**	**16.77**	**0.03**	**1.51**	**1.28**
Paving						
Onsite	1.63	12.57	11.85	0.02	0.73	0.67
Offsite	0.08	0.05	0.67	0.00	0.17	0.05
Total	**1.71**	**12.62**	**12.52**	**0.02**	**0.90**	**0.72**
Architectural Coatings						
Onsite	7.97	1.84	1.84	0.00	0.13	0.13
Offsite	0.02	0.01	0.18	0.00	0.05	0.01
Total	**7.99**	**1.85**	**2.02**	**0.00**	**0.18**	**0.14**
Combined Building Construction, Paving, and Architectural Coatings	**12.74**	**36.10**	**31.31**	**0.05**	**2.59**	**2.14**
SCQAMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Site Preparation and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] Onsite emissions from equipment not operated on public roads.
[3] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod Version 2016.3.2.

Table I shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during site preparation or grading or the combined building construction, paving, and architectural coatings phases. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from construction were analyzed through utilizing the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria pollutant emissions of concern are NOx, CO, PM10, and PM2.5. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table J shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated localized emissions thresholds that have been detailed above in Section 8.2. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently, Table J also shows the combined local criteria pollutant emissions from building construction, paving and architectural coating phases of construction.

Table J – Construction-Related Local Criteria Pollutant Emissions

Phase	Pollutant Emissions (pounds/day)			
	NOx	**CO**	**PM10**	**PM2.5**
Site Preparation[1]	23.62	12.75	1.57	0.94
Grading[1]	24.29	10.38	3.72	2.39
Combined Building Construction, Paving, Gravel Installation and Architectural Coatings	35.12	29.41	2.12	2.01
- *Building Construction*	*20.71*	*15.72*	*1.26*	*1.21*
- *Paving*	*12.57*	*11.85*	*0.73*	*0.67*
- *Architectural Coatings*	*1.84*	*1.84*	*0.13*	*0.13*
SCAQMD Thresholds for 25 meters (82 feet)[2]	**170**	**883**	**7**	**4**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Site Preparation and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] The nearest sensitive receptor is a single-family home located adjacent to the southern side of the project site. According to SCAQMD Methodology, all receptors closer than 25 meters are based on the 25 meter threshold.
Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres in Air Monitoring Area 24.

The data provided in Table J shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either the site preparation or grading phases or the combined building construction, paving, and architectural coatings phases. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Operational Emissions

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to regional air quality and local air quality impacts with the on-going operations of the proposed project.

Operations-Related Criteria Pollutant Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 7.2. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table K and the CalEEMod daily emissions printouts are shown in Appendix B.

Table K – Operational Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	0.37	0.00	0.01	0.00	0.00	0.00
Energy Usage[2]	0.05	0.41	0.34	0.00	0.03	0.03
Mobile Sources[3]	5.85	34.66	35.60	0.12	6.22	1.74
Total Emissions	**6.27**	**35.07**	**35.95**	**0.12**	**6.25**	**1.77**
SCQAMD Operational Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (excluding hearths).
[3] Mobile sources consist of emissions from vehicles and road dust.
Source: Calculated from CalEEMod Version 2016.3.2.

The data provided in Table K above shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

Operations-Related Local Air Quality Impacts

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analyzes the vehicular CO emissions and local impacts from on-site operations.

Local CO Hotspot Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards of 20 ppm over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. In 2007, the Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los

Angeles during the peak morning and afternoon periods and did not predict a violation of CO standards[1]. Since the nearby intersections to the proposed project are much smaller with less traffic than what was analyzed by the SCAQMD, no local CO Hotspot are anticipated to be created from the proposed project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

Local Criteria Pollutant Impacts from Onsite Operations

Project-related air emissions from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from onsite operations were analyzed using the SCAQMD's Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table L shows the on-site emissions from the CalEEMod model that includes area sources, energy usage, and vehicles operating in the immediate vicinity of the project site and the calculated emissions thresholds.

Table L – Operations-Related Local Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)			
Onsite Emission Source	**NOx**	**CO**	**PM10**	**PM2.5**
Area Sources	0.00	0.01	0.00	0.00
Energy Usage	0.41	0.34	0.03	0.03
Onsite Vehicle Emissions[1]	4.33	4.45	0.78	0.22
Total Emissions	**4.74**	**4.80**	**0.81**	**0.25**
SCAQMD Thresholds for 25 meters (82 feet)[2]	**170**	**883**	**2**	**1**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Onsite vehicle emissions based on 1/8 of the gross vehicular emissions, which is the estimated portion of vehicle emissions occurring within a quarter mile of the project site.
[2] The nearest sensitive receptor is a single-family homes located adjacent to the south side of the project site. According to SCAQMD Methodology, all receptors closer than 25 meters are based on the 25 meter threshold.
Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres in Air Monitoring Area 24.

The data provided in Table L shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Level of Significance

Less than significant impact.

[1] The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour.

9.4 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel throughout the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature. The project area is out of attainment for ozone and PM10 and PM2.5 particulate matter. In accordance with CEQA Guidelines Section 15130(b), this analysis of cumulative impacts incorporates a three-tiered approach to assess cumulative air quality impacts.

- Consistency with the SCAQMD project specific thresholds for construction and operations;
- Project consistency with existing air quality plans; and
- Assessment of the cumulative health effects of the pollutants.

Consistency with Project Specific Thresholds

Construction-Related Impacts

The project site is located in the South Coast Air Basin, which is currently designated by the EPA for federal standards as a non-attainment area for ozone and PM2.5 and by CARB for the state standards as a non-attainment area for ozone, PM10, and PM2.5. The regional ozone, PM10, and PM2.5 emissions associated with construction of the proposed project have been calculated above in Section 9.3. The above analysis found that development of the proposed project would result in less than significant regional emissions of VOC and NOx (ozone precursors), PM10, and PM2.5 during construction of the proposed project. Therefore, a less than significant cumulative impact would occur from construction of the proposed project.

Operational-Related Impacts

The greatest cumulative operational impact on the air quality to the Air Basin will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development. In accordance with SCAQMD methodology, projects that do not exceed SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The regional ozone, PM10, and PM2.5 emissions created from the on-going operations of the proposed project have been calculated above in Section 9.3. The above analysis found that development of the proposed project would result in less than significant regional emissions of VOC and NOx (ozone precursors), PM10, and PM2.5 during operation of the proposed project. With respect to long-term emissions, this project would create a less than significant cumulative impact.

Consistency with Air Quality Plans

As detailed above in Section 9.2, the project site is currently designated as Commercial (C) in the General Plan and is zoned Commercial (C). The proposed project is consistent with the current land use designation and would not require a General Plan Amendment or zone change. Therefore, the proposed project would not result in an inconsistency with the current land use designation. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMPs for the Air Basin.

Cumulative Health Impacts

The Air Basin is designated as nonattainment for ozone, PM10, and PM2.5, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (elderly, children, and the sick). Therefore, when the concentrations of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects. The regional analysis detailed above in Section 9.3 found that the proposed project would not exceed the SCAQMD regional significance thresholds for VOC and NOx (ozone precursors), PM10 and PM2.5. As such, the proposed project would result in a less than significant cumulative health impact.

Level of Significance

Less than significant impact.

9.5 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 9.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest sensitive receptor to the project site consists of a single-family home located adjacent to the south side of the project site.

Construction-Related Sensitive Receptor Impacts

Construction of the proposed project may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

<u>Local Criteria Pollutant Impacts from Construction</u>

The local air quality impacts from construction of the proposed project has been analyzed above in Section 9.3 and found that the construction of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

<u>Toxic Air Contaminants Impacts from Construction</u>

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and toxic air contaminant impacts.

<u>Local CO Hotspot Impacts from Project-Generated Vehicle Trips</u>

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided above in Section 9.3 shows that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the proposed project. Therefore, operation of the proposed project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

<u>Local Criteria Pollutant Impacts from Onsite Operations</u>

The local air quality impacts from the operation of the proposed project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above in Section 9.3 found that the operation of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

<u>Operations-Related Toxic Air Contaminant Impacts</u>

The proposed project would include a 12-fueling position gas and diesel station that has been estimated to have a throughput of 1.5 million gallons of gasoline per year. The *Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations* (Gas Station Risk Assessment), prepared by SCAQMD, January 2007, analyzed the TAC emissions and associated cancer risks from gasoline dispensing facilities at locations throughout the Air Basin. It should be noted that the proposed project would also sell diesel fuel, however the Gas Station Risk Assessment did not find diesel fueling activities as a source of substantial TAC emissions and therefore this analysis has been limited to the analysis of TAC emissions created from gasoline dispensing stations.

The Gas Station Risk Assessment provides residential cancer risk Look Up Tables for representative monitoring stations throughout Southern California. The Riverside Monitoring Station data from the Look Up Tables was utilized as that is the nearest location provided in the Look Up Tables to the project site. Based on a worst-case analysis of the nearest homes being located as near as 44 meters (145 feet) downwind from the gas fuel dispensers, the Look Up Tables show that a one million gallon per year gas throughput gas station would create a residential cancer risk of 2.21 per million persons. Based on the formula provided in the Gas Station Risk Assessment, the proposed project with a throughput of 1.5 million gallons per year would create a **<u>cancer risk of 3.3 per million persons</u>**. The project-related cancer risk of 3.3 per million persons would be within the SCAQMD's threshold of 10 per million detailed above in Section 6.3. As such, the TAC emissions and associated cancer risks from the proposed gas station would result in a less than significant impact to the nearby residents.

Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

9.6 Objectionable Odors

The proposed project would not create objectionable odors affecting a substantial number of people. Potential odor impacts have been analyzed separately for construction and operations below.

Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. The objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. Potential sources that may emit odors during the on-going operations of the proposed project would primarily occur from odor emissions from gas dispensing activities, restaurant cooking emissions, and from the trash storage area. Pursuant to SCAQMD Rule 461 the proposed gas station will be required to utilize gas dispensing equipment that minimizes vapor and liquid leaks and requires that the equipment be maintained at proper working order, which will minimize odor impacts occurring from the gasoline and diesel dispensing facilities. Pursuant to SCAQMD Rule 1138, a catalytic oxidizer is required to be installed if a charbroiler is installed in either restaurant, which would limit cooking odor emissions. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. Diesel truck emissions odors would be generated intermittently from deliveries to the project site and would not likely be noticeable for extended periods of time beyond the project site boundaries. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rules 461 and 1138 and City trash storage regulations, no significant impact related to odors would occur during the on-going operations of the proposed project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Level of Significance

Less than significant impact.

9.7 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would result in the development of a 12-pump gas station with an associated convenience store, car wash, sit-down restaurant, quick serve restaurant, and parking lot. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment.

The City of Moreno Valley has adopted the *City of Moreno Valley Greenhouse Gas Analysis* that requires a 15 percent reduction in GHG emissions between years 2007 and 2020. In order to determine if the proposed project would comply with the Plan's standards, the GHG emissions from the proposed project were analyzed for both year 2019 (the opening year of the proposed project) and year 2020. Using year 2019 versus year 2007 provides a worst-case analysis, since the State has enacted several laws that took effect after 2007 that reduce GHG emissions and using the latter date means that less GHG reductions can be accounted for from the State measures.

The project's GHG emissions have been calculated with the CalEEMod model based on the construction parameters detailed in Section 7.1 above and the operational parameters detailed in Section 7.2 above. A summary of the results is shown below in Table M and the CalEEMod model run annual printouts for the year 2019 are provided in Appendix B and the year annual printouts for the year 2020 are provided in Appendix C.

The data provided in Table M shows that the proposed project would create 2,069.91 $MTCO_2e$ per year based on the opening year 2019 GHG emissions rates and would create 1,744.39 $MTCO_2e$ per year in the year 2020 based on approved Statewide GHG reduction regulations that would be fully implemented by year 2020 as well as from implementation of Project Design Features 1 and 2. More specifically the approved Statewide GHG reduction regulations include, but are not limited to implementation of: EO S-1-07, that establishes performance standards for the carbon intensity of transportation fuels; AB 149, which limits GHG emissions from new vehicles sold in California; AB 341 that reduces solid waste transferred to landfills; CCR Title 24, Part 6 2016 Building Energy Efficiency Standards; and CCR Title 24 Part 11 2016 CalGreen Standards that improves the energy efficiency of the proposed project.

Table M shows that the proposed project's GHG emissions would be reduced by 15.7 percent and would meet the City of Moreno Valley's minimum 15 percent GHG reduction standard. In addition, the proposed project would be below the SCAQMD draft significance threshold of 3,000 $MTCO_2e$ per year for both the year 2019 and year 2020 GHG emissions. Therefore, a less than significant generation of GHG emissions would occur from development and operation of the proposed project.

Table M –Project Related Greenhouse Gas Annual Emissions

Category	Greenhouse Gas Emissions (Metric Tons per Year) CO_2	CH_4	N_2O	CO_2e
Year 2019 BAU Emissions				
Area Sources[1]	0.00	0.00	0.00	0.00
Energy Usage[2]	185.76	0.01	0.00	186.62
Mobile Sources[3]	1,849.66	0.19	0.00	1,854.42
Solid Waste[4]	5.68	0.34	0.00	14.07
Water and Wastewater[5]	7.05	0.05	0.00	8.58
Construction[6]	6.19	0.00	0.00	6.22
Total 2019 Emissions	**2,054.34**	**0.59**	**0.00**	**2,069.91**
Year 2020 Emissions				
Area Sources[1]	0.00	0.00	0.00	0.00
Energy Usage[2]	185.76	0.01	0.00	186.62
Mobile Sources[3]	1,532.96	0.17	0.00	1,537.22
Solid Waste[4]	2.84	0.17	0.00	7.03
Water and Wastewater[5]	6.01	0.04	0.00	7.30
Construction[6]	6.19	0.00	0.00	6.22
Total 2020 Emissions	1,733.76	0.39	0.00	**1,744.39**
Percent Reduction between 2019 and 2020				**15.7%**
City of Moreno Valley Reduction Threshold				**15.0%**
			SCAQMD Draft Threshold of Significance	**3,000**
			Exceed Thresholds?	**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[5] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[6] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2016.3.2.

Level of Significance

Less than significant impact.

9.8 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plans for the proposed project are the *City of Moreno Valley Greenhouse Gas Analysis*, adopted February 2012 and the *City of Moreno Valley Energy Efficiency and Climate Action Strategy*, adopted October 2012. The City of Moreno Valley has adopted these plans in order to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Both Plans provide the same reduction measures to be implemented in new developments to reduce GHG emissions as well as a GHG emissions reduction target of 15 percent below 2007 GHG emissions levels by 2020. Consistent with the CARB Scoping Plan, the City of Moreno Valley has chosen a reduction target of 15 percent below 2007 GHG emissions levels by 2020. Therefore, the proposed project would be considered to be inconsistent with the City's Plans if the proposed project did not implement all applicable measures identified in the Plans and if the proposed project's GHG emissions are not 15 percent less than GHG emissions from business-as-usual conditions for a similar size project in year 2007.

It should be noted that the City of Moreno Valley's Climate Action Strategy and Greenhouse Gas Analysis were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, Cleveland v. SANDAG stated:

> SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation].

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such, this analysis has relied on the City of Moreno Valley Climate Action Strategy and Greenhouse Gas Analysis as the applicable GHG reduction plans for the proposed project.

The applicable measures provided in the City's GHG Plans were incorporated into the project design of the proposed project and include Project Design Feature 1 that requires the implementation of a transportation demand program, Project Design Feature 2 that requires providing separate onsite bins for disposal of recyclables and trash, as well as implementation of statewide measures that include utilization of low-flow water fixtures and smart irrigation controls to reduce water use. Section 9.7 above found that with implementation of Project Design Features 1 and 2 as well as various state requirements, the proposed project's GHG emissions would be reduced by 15.1 percent by year 2020. Therefore, the proposed project would not conflict with the City's GHG reduction plans.

In addition to the City's GHG reduction plans, the SCAQMD initiated a Working Group to develop a GHG emissions policy and provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use types. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, they have not been formally adopted because the SCAQMD was awaiting the outcome of the State Supreme Court decision of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), which was filed on December 17, 2015 and the SCAQMD Board has not yet approved these thresholds. Table M shows that both the year 2019 business-as-usual GHG emissions and the year 2020 GHG emissions would be below the SCAQMD draft significance threshold of 3,000 $MTCO_2e$ per year. Therefore with implementation of Project Design Features 1 and 2, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Level of Significance

Less than significant impact.

10.0 REFERENCES

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South Coast Air Quality Management District, *Rule 1143 Consumer Paint Thinners & Multi-Purpose Solvents,* Amended December 3, 2010.

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Southern California Association of Governments, *2015 Federal Transportation Improvement Program (FTIP) Guidelines*, October 2013.

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APPENDIX A

CalEEMod Model Daily Printouts

Moreno Valley Gas Station Opening Year 2019

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	74.00	Space	1.47	29,600.00	0
Fast Food Restaurant w/o Drive Thru	1.63	1000sqft	0.04	1,630.00	0
High Turnover (Sit Down Restaurant)	2.58	1000sqft	0.34	2,584.00	0
Gasoline/Service Station	12.00	Pump	0.34	11,518.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO_2 Intensity (lb/MWhr)	702.44	**CH_4 Intensity (lb/MWhr)**	0.029	**N_2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Opening Year 2019

Land Use - Land uses obtained from site plan and TIA.

Construction Phase - 3 days Site Prep, 10 days Grading, 220 days Construction, 10 days Paving, 20 days Painting.

Trips and VMT - 6 vendor trips added to Site Prep and Grading phases to account for water truck emissions.

Grading -

Vehicle Trips - Trip generation rates obtained from TIA.

Energy Use -

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 minimum requirements, water exposure 3x per day selected.

Mobile Land Use Mitigation - Improve Pedestrian Network onsite and connecting offsite

Waste Mitigation - 50% solid waste selected to account for SB 939 and 1374

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	6.00	10.00
tblLandUse	LandUseSquareFeet	2,580.00	2,584.00
tblLandUse	LandUseSquareFeet	1,694.10	11,518.00
tblLandUse	LotAcreage	0.67	1.47
tblLandUse	LotAcreage	0.06	0.34
tblLandUse	LotAcreage	0.04	0.34
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	696.00	315.17
tblVehicleTrips	ST_TR	168.56	205.36
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	SU_TR	500.00	315.17
tblVehicleTrips	SU_TR	168.56	205.36
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	WD_TR	716.00	315.17
tblVehicleTrips	WD_TR	168.56	205.36
tblVehicleTrips	WD_TR	127.15	112.18

2.0 Emissions Summary

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Summer

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					
2018	3.0469	25.0568	16.7731	0.0290	6.7025	1.2659	7.8777	3.4082	1.2131	4.4895	0.0000	2,736.357 0	2,736.357 0	0.7851	0.0000	2,749.468 4
2019	7.9918	19.7679	16.2035	0.0289	0.2460	1.0974	1.3435	0.0663	1.0519	1.1181	0.0000	2,711.0113	2,711.011 3	0.5465	0.0000	2,723.567 9
Maximum	**7.9918**	**25.0568**	**16.7731**	**0.0290**	**6.7025**	**1.2659**	**7.8777**	**3.4082**	**1.2131**	**4.4895**	**0.0000**	**2,736.357 0**	**2,736.357 0**	**0.7851**	**0.0000**	**2,749.468 4**

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					
2018	3.0469	25.0568	16.7731	0.0290	2.7056	1.2659	3.8807	1.3540	1.2131	2.4354	0.0000	2,736.357 0	2,736.357 0	0.7851	0.0000	2,749.468 4
2019	7.9918	19.7679	16.2035	0.0289	0.2460	1.0974	1.3435	0.0663	1.0519	1.1181	0.0000	2,711.0113	2,711.0113	0.5465	0.0000	2,723.567 9
Maximum	**7.9918**	**25.0568**	**16.7731**	**0.0290**	**2.7056**	**1.2659**	**3.8807**	**1.3540**	**1.2131**	**2.4354**	**0.0000**	**2,736.357 0**	**2,736.357 0**	**0.7851**	**0.0000**	**2,749.468 4**

	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**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.52**	**0.00**	**43.35**	**59.12**	**0.00**	**36.63**	**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	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Energy	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451
Mobile	5.8661	34.8036	36.0159	0.1174	6.2258	0.1143	6.3400	1.6661	0.1078	1.7739		12,015.1839	12,015.1839	1.1184		12,043.1449
Total	**6.2763**	**35.2137**	**36.3696**	**0.1198**	**6.2258**	**0.1455**	**6.3712**	**1.6661**	**0.1390**	**1.8051**		**12,507.2249**	**12,507.2249**	**1.1279**	**9.0200e-003**	**12,538.1110**

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	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Energy	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451
Mobile	5.8522	34.6587	35.6014	0.1158	6.1013	0.1125	6.2138	1.6328	0.1062	1.7390		11,852.4367	11,852.4367	1.1135		11,880.2749
Total	**6.2624**	**35.0688**	**35.9551**	**0.1182**	**6.1013**	**0.1437**	**6.2450**	**1.6328**	**0.1374**	**1.7702**		**12,344.4777**	**12,344.4777**	**1.1230**	**9.0200e-003**	**12,375.2411**

	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	N20	CO2e
Percent Reduction	0.22	0.41	1.14	1.34	2.00	1.18	1.98	2.00	1.17	1.94	0.00	1.30	1.30	0.44	0.00	1.30

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	6/1/2018	6/5/2018	5	3	
2	Grading	Grading	6/6/2018	6/19/2018	5	10	
3	Building Construction	Building Construction	6/20/2018	4/23/2019	5	220	
4	Paving	Paving	4/24/2019	5/7/2019	5	10	
5	Architectural Coating	Architectural Coating	5/8/2019	6/4/2019	5	20	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 5

Acres of Paving: 1.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 23,598; Non-Residential Outdoor: 7,866; Striped Parking Area: 1,776 (Architectural Coating – sqft)

OffRoad Equipment

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ilding Construction	8	18.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
chitectural Coating	1	4.00	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 - 2018

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.8995	23.6201	12.7461	0.0245		0.9540	0.9540		0.8777	0.8777		2,468.413 1	2,468.413 1	0.7685		2,487.624 4
Total	**1.8995**	**23.6201**	**12.7461**	**0.0245**	**1.5908**	**0.9540**	**2.5448**	**0.1718**	**0.8777**	**1.0494**		**2,468.413 1**	**2,468.413 1**	**0.7685**		**2,487.624 4**

3.2 Site Preparation - 2018

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
Vendor	0.0221	0.7290	0.1410	1.5900e-003	0.0384	6.1100e-003	0.0445	0.0111	5.8500e-003	0.0169		167.4790	167.4790	0.0138		167.8248
Worker	0.0482	0.0306	0.3957	9.4000e-004	0.0894	5.6000e-004	0.0900	0.0237	5.1000e-004	0.0242		93.8617	93.8617	2.8600e-003		93.9332
Total	**0.0703**	**0.7596**	**0.5367**	**2.5300e-003**	**0.1278**	**6.6700e-003**	**0.1345**	**0.0348**	**6.3600e-003**	**0.0411**		**261.3407**	**261.3407**	**0.0167**		**261.7580**

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					0.6204	0.0000	0.6204	0.0670	0.0000	0.0670			0.0000			0.0000
Off-Road	1.8995	23.6201	12.7461	0.0245		0.9540	0.9540		0.8777	0.8777	0.0000	2,468.413 1	2,468.413 1	0.7685		2,487.624 4
Total	**1.8995**	**23.6201**	**12.7461**	**0.0245**	**0.6204**	**0.9540**	**1.5744**	**0.0670**	**0.8777**	**0.9447**	**0.0000**	**2,468.413 1**	**2,468.413 1**	**0.7685**		**2,487.624 4**

3.2 Site Preparation - 2018

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
Vendor	0.0221	0.7290	0.1410	1.5900e-003	0.0384	6.1100e-003	0.0445	0.0111	5.8500e-003	0.0169		167.4790	167.4790	0.0138		167.8248
Worker	0.0482	0.0306	0.3957	9.4000e-004	0.0894	5.6000e-004	0.0900	0.0237	5.1000e-004	0.0242		93.8617	93.8617	2.8600e-003		93.9332
Total	**0.0703**	**0.7596**	**0.5367**	**2.5300e-003**	**0.1278**	**6.6700e-003**	**0.1345**	**0.0348**	**6.3600e-003**	**0.0411**		**261.3407**	**261.3407**	**0.0167**		**261.7580**

3.3 Grading - 2018

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	2.1515	24.2895	10.3804	0.0206		1.1683	1.1683		1.0748	1.0748		2,077.466 6	2,077.466 6	0.6467		2,093.635 2
Total	**2.1515**	**24.2895**	**10.3804**	**0.0206**	**6.5523**	**1.1683**	**7.7206**	**3.3675**	**1.0748**	**4.4423**		**2,077.466 6**	**2,077.466 6**	**0.6467**		**2,093.635 2**

3.3 Grading - 2018

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
Vendor	0.0221	0.7290	0.1410	1.5900e-003	0.0384	6.1100e-003	0.0445	0.0111	5.8500e-003	0.0169		167.4790	167.4790	0.0138		167.8248
Worker	0.0602	0.0383	0.4946	1.1800e-003	0.1118	7.0000e-004	0.1125	0.0296	6.4000e-004	0.0303		117.3271	117.3271	3.5700e-003		117.4164
Total	**0.0823**	**0.7673**	**0.6356**	**2.7700e-003**	**0.1502**	**6.8100e-003**	**0.1570**	**0.0407**	**6.4900e-003**	**0.0472**		**284.8062**	**284.8062**	**0.0174**		**285.2413**

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	2.1515	24.2895	10.3804	0.0206		1.1683	1.1683		1.0748	1.0748	0.0000	2,077.466 6	2,077.466 6	0.6467		2,093.635 2
Total	**2.1515**	**24.2895**	**10.3804**	**0.0206**	**2.5554**	**1.1683**	**3.7237**	**1.3133**	**1.0748**	**2.3882**	**0.0000**	**2,077.466 6**	**2,077.466 6**	**0.6467**		**2,093.635 2**

3.3 Grading - 2018

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
Vendor	0.0221	0.7290	0.1410	1.5900e-003	0.0384	6.1100e-003	0.0445	0.0111	5.8500e-003	0.0169		167.4790	167.4790	0.0138		167.8248
Worker	0.0602	0.0383	0.4946	1.1800e-003	0.1118	7.0000e-004	0.1125	0.0296	6.4000e-004	0.0303		117.3271	117.3271	3.5700e-003		117.4164
Total	**0.0823**	**0.7673**	**0.6356**	**2.7700e-003**	**0.1502**	**6.8100e-003**	**0.1570**	**0.0407**	**6.4900e-003**	**0.0472**		**284.8062**	**284.8062**	**0.0174**		**285.2413**

3.4 Building Construction - 2018

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	2.9127	20.7077	15.7183	0.0250		1.2575	1.2575		1.2051	1.2051		2,329.775 9	2,329.775 9	0.5019		2,342.323 2
Total	**2.9127**	**20.7077**	**15.7183**	**0.0250**		**1.2575**	**1.2575**		**1.2051**	**1.2051**		**2,329.775 9**	**2,329.775 9**	**0.5019**		**2,342.323 2**

3.4 Building Construction - 2018

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
Vendor	0.0258	0.8505	0.1645	1.8500e-003	0.0448	7.1300e-003	0.0520	0.0129	6.8200e-003	0.0197		195.3922	195.3922	0.0161		195.7956
Worker	0.1084	0.0689	0.8902	2.1200e-003	0.2012	1.2600e-003	0.2025	0.0534	1.1600e-003	0.0545		211.1889	211.1889	6.4300e-003		211.3496
Total	**0.1342**	**0.9194**	**1.0548**	**3.9700e-003**	**0.2460**	**8.3900e-003**	**0.2544**	**0.0663**	**7.9800e-003**	**0.0743**		**406.5810**	**406.5810**	**0.0226**		**407.1452**

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	2.9127	20.7077	15.7183	0.0250		1.2575	1.2575		1.2051	1.2051	0.0000	2,329.775 9	2,329.775 9	0.5019		2,342.323 2
Total	**2.9127**	**20.7077**	**15.7183**	**0.0250**		**1.2575**	**1.2575**		**1.2051**	**1.2051**	**0.0000**	**2,329.775 9**	**2,329.775 9**	**0.5019**		**2,342.323 2**

3.4 Building Construction - 2018

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
Vendor	0.0258	0.8505	0.1645	1.8500e-003	0.0448	7.1300e-003	0.0520	0.0129	6.8200e-003	0.0197		195.3922	195.3922	0.0161		195.7956
Worker	0.1084	0.0689	0.8902	2.1200e-003	0.2012	1.2600e-003	0.2025	0.0534	1.1600e-003	0.0545		211.1889	211.1889	6.4300e-003		211.3496
Total	**0.1342**	**0.9194**	**1.0548**	**3.9700e-003**	**0.2460**	**8.3900e-003**	**0.2544**	**0.0663**	**7.9800e-003**	**0.0743**		**406.5810**	**406.5810**	**0.0226**		**407.1452**

3.4 Building Construction - 2019

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	2.5581	18.9103	15.2545	0.0250		1.0901	1.0901		1.0449	1.0449		2,312.1454	2,312.1454	0.4810		2,324.1705
Total	**2.5581**	**18.9103**	**15.2545**	**0.0250**		**1.0901**	**1.0901**		**1.0449**	**1.0449**		**2,312.1454**	**2,312.1454**	**0.4810**		**2,324.1705**

3.4 Building Construction - 2019

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
Vendor	0.0233	0.7968	0.1493	1.8400e-003	0.0448	6.0500e-003	0.0509	0.0129	5.7900e-003	0.0187		194.1118	194.1118	0.0155		194.5001
Worker	0.0991	0.0608	0.7997	2.0600e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		204.7540	204.7540	5.7300e-003		204.8973
Total	**0.1224**	**0.8577**	**0.9490**	**3.9000e-003**	**0.2460**	**7.2900e-003**	**0.2533**	**0.0663**	**6.9300e-003**	**0.0732**		**398.8659**	**398.8659**	**0.0213**		**399.3974**

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	2.5581	18.9103	15.2545	0.0250		1.0901	1.0901		1.0449	1.0449	0.0000	2,312.1454	2,312.1454	0.4810		2,324.1705
Total	**2.5581**	**18.9103**	**15.2545**	**0.0250**		**1.0901**	**1.0901**		**1.0449**	**1.0449**	**0.0000**	**2,312.1454**	**2,312.1454**	**0.4810**		**2,324.1705**

3.4 Building Construction - 2019

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
Vendor	0.0233	0.7968	0.1493	1.8400e-003	0.0448	6.0500e-003	0.0509	0.0129	5.7900e-003	0.0187		194.1118	194.1118	0.0155		194.5001
Worker	0.0991	0.0608	0.7997	2.0600e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		204.7540	204.7540	5.7300e-003		204.8973
Total	**0.1224**	**0.8577**	**0.9490**	**3.9000e-003**	**0.2460**	**7.2900e-003**	**0.2533**	**0.0663**	**6.9300e-003**	**0.0732**		**398.8659**	**398.8659**	**0.0213**		**399.3974**

3.5 Paving - 2019

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	1.2453	12.5685	11.8507	0.0178		0.7301	0.7301		0.6728	0.6728		1,746.2432	1,746.2432	0.5418		1,759.7870
Paving	0.3851					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6305**	**12.5685**	**11.8507**	**0.0178**		**0.7301**	**0.7301**		**0.6728**	**0.6728**		**1,746.2432**	**1,746.2432**	**0.5418**		**1,759.7870**

3.5 Paving - 2019

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
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
Worker	0.0826	0.0507	0.6664	1.7100e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		170.6284	170.6284	4.7800e-003		170.7478
Total	**0.0826**	**0.0507**	**0.6664**	**1.7100e-003**	**0.1677**	**1.0300e-003**	**0.1687**	**0.0445**	**9.5000e-004**	**0.0454**		**170.6284**	**170.6284**	**4.7800e-003**		**170.7478**

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	1.2453	12.5685	11.8507	0.0178		0.7301	0.7301		0.6728	0.6728	0.0000	1,746.2432	1,746.2432	0.5418		1,759.7870
Paving	0.3851					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6305**	**12.5685**	**11.8507**	**0.0178**		**0.7301**	**0.7301**		**0.6728**	**0.6728**	**0.0000**	**1,746.2432**	**1,746.2432**	**0.5418**		**1,759.7870**

3.5 Paving - 2019

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
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
Worker	0.0826	0.0507	0.6664	1.7100e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		170.6284	170.6284	4.7800e-003		170.7478
Total	**0.0826**	**0.0507**	**0.6664**	**1.7100e-003**	**0.1677**	**1.0300e-003**	**0.1687**	**0.0445**	**9.5000e-004**	**0.0454**		**170.6284**	**170.6284**	**4.7800e-003**		**170.7478**

3.6 Architectural Coating - 2019

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	7.7034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**7.9698**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

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
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
Worker	0.0220	0.0135	0.1777	4.6000e-004	0.0447	2.8000e-004	0.0450	0.0119	2.5000e-004	0.0121		45.5009	45.5009	1.2700e-003		45.5327
Total	**0.0220**	**0.0135**	**0.1777**	**4.6000e-004**	**0.0447**	**2.8000e-004**	**0.0450**	**0.0119**	**2.5000e-004**	**0.0121**		**45.5009**	**45.5009**	**1.2700e-003**		**45.5327**

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	7.7034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**7.9698**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

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
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
Worker	0.0220	0.0135	0.1777	4.6000e-004	0.0447	2.8000e-004	0.0450	0.0119	2.5000e-004	0.0121		45.5009	45.5009	1.2700e-003		45.5327
Total	**0.0220**	**0.0135**	**0.1777**	**4.6000e-004**	**0.0447**	**2.8000e-004**	**0.0450**	**0.0119**	**2.5000e-004**	**0.0121**		**45.5009**	**45.5009**	**1.2700e-003**		**45.5327**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Summer

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					
Mitigated	5.8522	34.6587	35.6014	0.1158	6.1013	0.1125	6.2138	1.6328	0.1062	1.7390		11,852.4367	11,852.4367	1.1135		11,880.2749
Unmitigated	5.8661	34.8036	36.0159	0.1174	6.2258	0.1143	6.3400	1.6661	0.1078	1.7739		12,015.1839	12,015.1839	1.1184		12,043.1449

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant w/o Drive Thru	513.73	513.73	513.73	930,382	911,775
Gasoline/Service Station	2,464.32	2,464.32	2464.32	1,593,895	1,562,017
High Turnover (Sit Down Restaurant)	289.42	289.42	289.42	394,436	386,548
Parking Lot	0.00	0.00	0.00		
Total	3,267.47	3,267.47	3,267.47	2,918,713	2,860,339

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant w/o Drive Thru	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Gasoline/Service Station	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
High Turnover (Sit Down Restaurant)	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Parking Lot	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

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	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451
NaturalGas Unmitigated	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451

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					
Fast Food Restaurant w/o Drive Thru	1221.12	0.0132	0.1197	0.1006	7.2000e-004		9.1000e-003	9.1000e-003		9.1000e-003	9.1000e-003		143.6607	143.6607	2.7500e-003	2.6300e-003	144.5144
Gasoline/Service Station	1025.26	0.0111	0.1005	0.0844	6.0000e-004		7.6400e-003	7.6400e-003		7.6400e-003	7.6400e-003		120.6188	120.6188	2.3100e-003	2.2100e-003	121.3356
High Turnover (Sit Down Restaurant)	1935.81	0.0209	0.1898	0.1594	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.7418	227.7418	4.3700e-003	4.1800e-003	229.0952
Parking Lot	0	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
Total		**0.0451**	**0.4100**	**0.3444**	**2.4600e-003**		**0.0312**	**0.0312**		**0.0312**	**0.0312**		**492.0213**	**492.0213**	**9.4300e-003**	**9.0200e-003**	**494.9451**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	1.22112	0.0132	0.1197	0.1006	7.2000e-004		9.1000e-003	9.1000e-003		9.1000e-003	9.1000e-003		143.6607	143.6607	2.7500e-003	2.6300e-003	144.5144
Gasoline/Service Station	1.02526	0.0111	0.1005	0.0844	6.0000e-004		7.6400e-003	7.6400e-003		7.6400e-003	7.6400e-003		120.6188	120.6188	2.3100e-003	2.2100e-003	121.3356
High Turnover (Sit Down Restaurant)	1.93581	0.0209	0.1898	0.1594	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.7418	227.7418	4.3700e-003	4.1800e-003	229.0952
Parking Lot	0	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
Total		**0.0451**	**0.4100**	**0.3444**	**2.4600e-003**		**0.0312**	**0.0312**		**0.0312**	**0.0312**		**492.0213**	**492.0213**	**9.4300e-003**	**9.0200e-003**	**494.9451**

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	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Unmitigated	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211

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	0.0422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3220					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8000e-004	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Total	**0.3651**	**9.0000e-005**	**9.3000e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0197**	**0.0197**	**5.0000e-005**		**0.0211**

6.2 Area by SubCategory

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	0.0422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3220					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8000e-004	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Total	**0.3651**	**9.0000e-005**	**9.3000e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0197**	**0.0197**	**5.0000e-005**		**0.0211**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Moreno Valley Gas Station Opening Year 2019

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	74.00	Space	1.47	29,600.00	0
Fast Food Restaurant w/o Drive Thru	1.63	1000sqft	0.04	1,630.00	0
High Turnover (Sit Down Restaurant)	2.58	1000sqft	0.34	2,584.00	0
Gasoline/Service Station	12.00	Pump	0.34	11,518.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Opening Year 2019

Land Use - Land uses obtained from site plan and TIA.

Construction Phase - 3 days Site Prep, 10 days Grading, 220 days Construction, 10 days Paving, 20 days Painting.

Trips and VMT - 6 vendor trips added to Site Prep and Grading phases to account for water truck emissions.

Grading -

Vehicle Trips - Trip generation rates obtained from TIA.

Energy Use -

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 minimum requirements, water exposure 3x per day selected.

Mobile Land Use Mitigation - Improve Pedestrian Network onsite and connecting offsite

Waste Mitigation - 50% solid waste selected to account for SB 939 and 1374

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	6.00	10.00
tblLandUse	LandUseSquareFeet	2,580.00	2,584.00
tblLandUse	LandUseSquareFeet	1,694.10	11,518.00
tblLandUse	LotAcreage	0.67	1.47
tblLandUse	LotAcreage	0.06	0.34
tblLandUse	LotAcreage	0.04	0.34
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	696.00	315.17
tblVehicleTrips	ST_TR	168.56	205.36
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	SU_TR	500.00	315.17
tblVehicleTrips	SU_TR	168.56	205.36
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	WD_TR	716.00	315.17
tblVehicleTrips	WD_TR	168.56	205.36
tblVehicleTrips	WD_TR	127.15	112.18

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					
2018	3.0455	25.0575	16.6317	0.0287	6.7025	1.2660	7.8777	3.4082	1.2132	4.4896	0.0000	2,713.8711	2,713.8711	0.7863	0.0000	2,733.528 1
2019	7.9913	19.7682	16.0762	0.0286	0.2460	1.0975	1.3435	0.0663	1.0519	1.1182	0.0000	2,682.695 6	2,682.695 6	0.5459	0.0000	2,695.276 6
Maximum	**7.9913**	**25.0575**	**16.6317**	**0.0287**	**6.7025**	**1.2660**	**7.8777**	**3.4082**	**1.2132**	**4.4896**	**0.0000**	**2,713.871 1**	**2,713.871 1**	**0.7863**	**0.0000**	**2,733.528 1**

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					
2018	3.0455	25.0575	16.6317	0.0287	2.7056	1.2660	3.8808	1.3540	1.2132	2.4354	0.0000	2,713.8711	2,713.8711	0.7863	0.0000	2,733.528 1
2019	7.9913	19.7682	16.0762	0.0286	0.2460	1.0975	1.3435	0.0663	1.0519	1.1182	0.0000	2,682.695 6	2,682.695 6	0.5459	0.0000	2,695.276 6
Maximum	**7.9913**	**25.0575**	**16.6317**	**0.0287**	**2.7056**	**1.2660**	**3.8808**	**1.3540**	**1.2132**	**2.4354**	**0.0000**	**2,713.871 1**	**2,713.871 1**	**0.7863**	**0.0000**	**2,733.528 1**

	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**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.52**	**0.00**	**43.34**	**59.12**	**0.00**	**36.63**	**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	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Energy	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451
Mobile	4.8490	34.1231	34.9923	0.1072	6.2258	0.1182	6.3439	1.6661	0.1115	1.7777		10,979.8934	10,979.8934	1.2161		11,010.2950
Total	**5.2591**	**34.5332**	**35.3460**	**0.1097**	**6.2258**	**0.1494**	**6.3751**	**1.6661**	**0.1427**	**1.8088**		**11,471.9344**	**11,471.9344**	**1.2255**	**9.0200e-003**	**11,505.2611**

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	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Energy	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451
Mobile	4.8360	33.9709	34.6605	0.1058	6.1013	0.1164	6.2177	1.6328	0.1099	1.7427		10,828.9697	10,828.9697	1.2115		10,859.2583
Total	**5.2461**	**34.3811**	**35.0142**	**0.1082**	**6.1013**	**0.1476**	**6.2489**	**1.6328**	**0.1411**	**1.7739**		**11,321.0107**	**11,321.0107**	**1.2210**	**9.0200e-003**	**11,354.2245**

	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	N20	CO2e
Percent Reduction	0.25	0.44	0.94	1.35	2.00	1.15	1.98	2.00	1.14	1.93	0.00	1.32	1.32	0.37	0.00	1.31

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	6/1/2018	6/5/2018	5	3	
2	Grading	Grading	6/6/2018	6/19/2018	5	10	
3	Building Construction	Building Construction	6/20/2018	4/23/2019	5	220	
4	Paving	Paving	4/24/2019	5/7/2019	5	10	
5	Architectural Coating	Architectural Coating	5/8/2019	6/4/2019	5	20	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 5

Acres of Paving: 1.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 23,598; Non-Residential Outdoor: 7,866; Striped Parking Area: 1,776 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ilding Construction	8	18.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
chitectural Coating	1	4.00	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 - 2018

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.8995	23.6201	12.7461	0.0245		0.9540	0.9540		0.8777	0.8777		2,468.413 1	2,468.413 1	0.7685		2,487.624 4
Total	**1.8995**	**23.6201**	**12.7461**	**0.0245**	**1.5908**	**0.9540**	**2.5448**	**0.1718**	**0.8777**	**1.0494**		**2,468.413 1**	**2,468.413 1**	**0.7685**		**2,487.624 4**

3.2 Site Preparation - 2018

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
Vendor	0.0232	0.7284	0.1627	1.5300e-003	0.0384	6.1900e-003	0.0446	0.0111	5.9200e-003	0.0170		161.2405	161.2405	0.0153		161.6240
Worker	0.0470	0.0317	0.3216	8.5000e-004	0.0894	5.6000e-004	0.0900	0.0237	5.1000e-004	0.0242		84.2175	84.2175	2.4900e-003		84.2797
Total	**0.0702**	**0.7601**	**0.4843**	**2.3800e-003**	**0.1278**	**6.7500e-003**	**0.1346**	**0.0348**	**6.4300e-003**	**0.0412**		**245.4580**	**245.4580**	**0.0178**		**245.9037**

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					0.6204	0.0000	0.6204	0.0670	0.0000	0.0670			0.0000			0.0000
Off-Road	1.8995	23.6201	12.7461	0.0245		0.9540	0.9540		0.8777	0.8777	0.0000	2,468.413 1	2,468.413 1	0.7685		2,487.624 4
Total	**1.8995**	**23.6201**	**12.7461**	**0.0245**	**0.6204**	**0.9540**	**1.5744**	**0.0670**	**0.8777**	**0.9447**	**0.0000**	**2,468.413 1**	**2,468.413 1**	**0.7685**		**2,487.624 4**

3.2 Site Preparation - 2018

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
Vendor	0.0232	0.7284	0.1627	1.5300e-003	0.0384	6.1900e-003	0.0446	0.0111	5.9200e-003	0.0170		161.2405	161.2405	0.0153		161.6240
Worker	0.0470	0.0317	0.3216	8.5000e-004	0.0894	5.6000e-004	0.0900	0.0237	5.1000e-004	0.0242		84.2175	84.2175	2.4900e-003		84.2797
Total	**0.0702**	**0.7601**	**0.4843**	**2.3800e-003**	**0.1278**	**6.7500e-003**	**0.1346**	**0.0348**	**6.4300e-003**	**0.0412**		**245.4580**	**245.4580**	**0.0178**		**245.9037**

3.3 Grading - 2018

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	2.1515	24.2895	10.3804	0.0206		1.1683	1.1683		1.0748	1.0748		2,077.466 6	2,077.466 6	0.6467		2,093.635 2
Total	**2.1515**	**24.2895**	**10.3804**	**0.0206**	**6.5523**	**1.1683**	**7.7206**	**3.3675**	**1.0748**	**4.4423**		**2,077.466 6**	**2,077.466 6**	**0.6467**		**2,093.635 2**

3.3 Grading - 2018

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
Vendor	0.0232	0.7284	0.1627	1.5300e-003	0.0384	6.1900e-003	0.0446	0.0111	5.9200e-003	0.0170		161.2405	161.2405	0.0153		161.6240
Worker	0.0588	0.0397	0.4020	1.0600e-003	0.1118	7.0000e-004	0.1125	0.0296	6.4000e-004	0.0303		105.2718	105.2718	3.1100e-003		105.3497
Total	**0.0819**	**0.7681**	**0.5647**	**2.5900e-003**	**0.1502**	**6.8900e-003**	**0.1571**	**0.0407**	**6.5600e-003**	**0.0473**		**266.5123**	**266.5123**	**0.0185**		**266.9737**

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	2.1515	24.2895	10.3804	0.0206		1.1683	1.1683		1.0748	1.0748	0.0000	2,077.466 6	2,077.466 6	0.6467		2,093.635 2
Total	**2.1515**	**24.2895**	**10.3804**	**0.0206**	**2.5554**	**1.1683**	**3.7237**	**1.3133**	**1.0748**	**2.3882**	**0.0000**	**2,077.466 6**	**2,077.466 6**	**0.6467**		**2,093.635 2**

3.3 Grading - 2018

Mitigated Construction Off-Site

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					
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
Vendor	0.0232	0.7284	0.1627	1.5300e-003	0.0384	6.1900e-003	0.0446	0.0111	5.9200e-003	0.0170		161.2405	161.2405	0.0153		161.6240
Worker	0.0588	0.0397	0.4020	1.0600e-003	0.1118	7.0000e-004	0.1125	0.0296	6.4000e-004	0.0303		105.2718	105.2718	3.1100e-003		105.3497
Total	**0.0819**	**0.7681**	**0.5647**	**2.5900e-003**	**0.1502**	**6.8900e-003**	**0.1571**	**0.0407**	**6.5600e-003**	**0.0473**		**266.5123**	**266.5123**	**0.0185**		**266.9737**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

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					
Off-Road	2.9127	20.7077	15.7183	0.0250		1.2575	1.2575		1.2051	1.2051		2,329.775 9	2,329.775 9	0.5019		2,342.323 2
Total	**2.9127**	**20.7077**	**15.7183**	**0.0250**		**1.2575**	**1.2575**		**1.2051**	**1.2051**		**2,329.775 9**	**2,329.775 9**	**0.5019**		**2,342.323 2**

3.4 Building Construction - 2018

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
Vendor	0.0270	0.8498	0.1898	1.7900e-003	0.0448	7.2200e-003	0.0521	0.0129	6.9000e-003	0.0198		188.1139	188.1139	0.0179		188.5613
Worker	0.1057	0.0714	0.7236	1.9000e-003	0.2012	1.2600e-003	0.2025	0.0534	1.1600e-003	0.0545		189.4893	189.4893	5.6100e-003		189.6294
Total	**0.1328**	**0.9212**	**0.9134**	**3.6900e-003**	**0.2460**	**8.4800e-003**	**0.2545**	**0.0663**	**8.0600e-003**	**0.0743**		**377.6032**	**377.6032**	**0.0235**		**378.1907**

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	2.9127	20.7077	15.7183	0.0250		1.2575	1.2575		1.2051	1.2051	0.0000	2,329.775 9	2,329.775 9	0.5019		2,342.323 2
Total	**2.9127**	**20.7077**	**15.7183**	**0.0250**		**1.2575**	**1.2575**		**1.2051**	**1.2051**	**0.0000**	**2,329.775 9**	**2,329.775 9**	**0.5019**		**2,342.323 2**

3.4 Building Construction - 2018

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
Vendor	0.0270	0.8498	0.1898	1.7900e-003	0.0448	7.2200e-003	0.0521	0.0129	6.9000e-003	0.0198		188.1139	188.1139	0.0179		188.5613
Worker	0.1057	0.0714	0.7236	1.9000e-003	0.2012	1.2600e-003	0.2025	0.0534	1.1600e-003	0.0545		189.4893	189.4893	5.6100e-003		189.6294
Total	**0.1328**	**0.9212**	**0.9134**	**3.6900e-003**	**0.2460**	**8.4800e-003**	**0.2545**	**0.0663**	**8.0600e-003**	**0.0743**		**377.6032**	**377.6032**	**0.0235**		**378.1907**

3.4 Building Construction - 2019

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	2.5581	18.9103	15.2545	0.0250		1.0901	1.0901		1.0449	1.0449		2,312.145 4	2,312.145 4	0.4810		2,324.170 5
Total	**2.5581**	**18.9103**	**15.2545**	**0.0250**		**1.0901**	**1.0901**		**1.0449**	**1.0449**		**2,312.145 4**	**2,312.145 4**	**0.4810**		**2,324.170 5**

3.4 Building Construction - 2019

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
Vendor	0.0245	0.7950	0.1736	1.7700e-003	0.0448	6.1300e-003	0.0510	0.0129	5.8600e-003	0.0188		186.8571	186.8571	0.0173		187.2884
Worker	0.0968	0.0630	0.6481	1.8400e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		183.6931	183.6931	4.9800e-003		183.8177
Total	**0.1213**	**0.8580**	**0.8217**	**3.6100e-003**	**0.2460**	**7.3700e-003**	**0.2534**	**0.0663**	**7.0000e-003**	**0.0733**		**370.5501**	**370.5501**	**0.0222**		**371.1061**

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	2.5581	18.9103	15.2545	0.0250		1.0901	1.0901		1.0449	1.0449	0.0000	2,312.145 4	2,312.145 4	0.4810		2,324.170 5
Total	**2.5581**	**18.9103**	**15.2545**	**0.0250**		**1.0901**	**1.0901**		**1.0449**	**1.0449**	**0.0000**	**2,312.145 4**	**2,312.145 4**	**0.4810**		**2,324.170 5**

3.4 Building Construction - 2019

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
Vendor	0.0245	0.7950	0.1736	1.7700e-003	0.0448	6.1300e-003	0.0510	0.0129	5.8600e-003	0.0188		186.8571	186.8571	0.0173		187.2884
Worker	0.0968	0.0630	0.6481	1.8400e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		183.6931	183.6931	4.9800e-003		183.8177
Total	**0.1213**	**0.8580**	**0.8217**	**3.6100e-003**	**0.2460**	**7.3700e-003**	**0.2534**	**0.0663**	**7.0000e-003**	**0.0733**		**370.5501**	**370.5501**	**0.0222**		**371.1061**

3.5 Paving - 2019

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	1.2453	12.5685	11.8507	0.0178		0.7301	0.7301		0.6728	0.6728		1,746.243 2	1,746.243 2	0.5418		1,759.787 0
Paving	0.3851					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6305**	**12.5685**	**11.8507**	**0.0178**		**0.7301**	**0.7301**		**0.6728**	**0.6728**		**1,746.243 2**	**1,746.243 2**	**0.5418**		**1,759.787 0**

3.5 Paving - 2019

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
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
Worker	0.0807	0.0525	0.5401	1.5400e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		153.0776	153.0776	4.1500e-003		153.1814
Total	**0.0807**	**0.0525**	**0.5401**	**1.5400e-003**	**0.1677**	**1.0300e-003**	**0.1687**	**0.0445**	**9.5000e-004**	**0.0454**		**153.0776**	**153.0776**	**4.1500e-003**		**153.1814**

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	1.2453	12.5685	11.8507	0.0178		0.7301	0.7301		0.6728	0.6728	0.0000	1,746.243 2	1,746.243 2	0.5418		1,759.787 0
Paving	0.3851					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6305**	**12.5685**	**11.8507**	**0.0178**		**0.7301**	**0.7301**		**0.6728**	**0.6728**	**0.0000**	**1,746.243 2**	**1,746.243 2**	**0.5418**		**1,759.787 0**

3.5 Paving - 2019

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
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
Worker	0.0807	0.0525	0.5401	1.5400e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		153.0776	153.0776	4.1500e-003		153.1814
Total	**0.0807**	**0.0525**	**0.5401**	**1.5400e-003**	**0.1677**	**1.0300e-003**	**0.1687**	**0.0445**	**9.5000e-004**	**0.0454**		**153.0776**	**153.0776**	**4.1500e-003**		**153.1814**

3.6 Architectural Coating - 2019

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	7.7034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**7.9698**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

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
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
Worker	0.0215	0.0140	0.1440	4.1000e-004	0.0447	2.8000e-004	0.0450	0.0119	2.5000e-004	0.0121		40.8207	40.8207	1.1100e-003		40.8484
Total	**0.0215**	**0.0140**	**0.1440**	**4.1000e-004**	**0.0447**	**2.8000e-004**	**0.0450**	**0.0119**	**2.5000e-004**	**0.0121**		**40.8207**	**40.8207**	**1.1100e-003**		**40.8484**

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	7.7034					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**7.9698**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.6 Architectural Coating - 2019

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
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
Worker	0.0215	0.0140	0.1440	4.1000e-004	0.0447	2.8000e-004	0.0450	0.0119	2.5000e-004	0.0121		40.8207	40.8207	1.1100e-003		40.8484
Total	**0.0215**	**0.0140**	**0.1440**	**4.1000e-004**	**0.0447**	**2.8000e-004**	**0.0450**	**0.0119**	**2.5000e-004**	**0.0121**		**40.8207**	**40.8207**	**1.1100e-003**		**40.8484**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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	4.8360	33.9709	34.6605	0.1058	6.1013	0.1164	6.2177	1.6328	0.1099	1.7427		10,828.96 97	10,828.96 97	1.2115		10,859.25 83
Unmitigated	4.8490	34.1231	34.9923	0.1072	6.2258	0.1182	6.3439	1.6661	0.1115	1.7777		10,979.89 34	10,979.89 34	1.2161		11,010.295 0

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant w/o Drive Thru	513.73	513.73	513.73	930,382	911,775
Gasoline/Service Station	2,464.32	2,464.32	2464.32	1,593,895	1,562,017
High Turnover (Sit Down Restaurant)	289.42	289.42	289.42	394,436	386,548
Parking Lot	0.00	0.00	0.00		
Total	3,267.47	3,267.47	3,267.47	2,918,713	2,860,339

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant w/o Drive Thru	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Gasoline/Service Station	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
High Turnover (Sit Down Restaurant)	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Parking Lot	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

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	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451
NaturalGas Unmitigated	0.0451	0.4100	0.3444	2.4600e-003		0.0312	0.0312		0.0312	0.0312		492.0213	492.0213	9.4300e-003	9.0200e-003	494.9451

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					
Fast Food Restaurant w/o Drive Thru	1221.12	0.0132	0.1197	0.1006	7.2000e-004		9.1000e-003	9.1000e-003		9.1000e-003	9.1000e-003		143.6607	143.6607	2.7500e-003	2.6300e-003	144.5144
Gasoline/Service Station	1025.26	0.0111	0.1005	0.0844	6.0000e-004		7.6400e-003	7.6400e-003		7.6400e-003	7.6400e-003		120.6188	120.6188	2.3100e-003	2.2100e-003	121.3356
High Turnover (Sit Down Restaurant)	1935.81	0.0209	0.1898	0.1594	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.7418	227.7418	4.3700e-003	4.1800e-003	229.0952
Parking Lot	0	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
Total		**0.0451**	**0.4100**	**0.3444**	**2.4600e-003**		**0.0312**	**0.0312**		**0.0312**	**0.0312**		**492.0213**	**492.0213**	**9.4300e-003**	**9.0200e-003**	**494.9451**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	1.22112	0.0132	0.1197	0.1006	7.2000e-004		9.1000e-003	9.1000e-003		9.1000e-003	9.1000e-003		143.6607	143.6607	2.7500e-003	2.6300e-003	144.5144
Gasoline/Service Station	1.02526	0.0111	0.1005	0.0844	6.0000e-004		7.6400e-003	7.6400e-003		7.6400e-003	7.6400e-003		120.6188	120.6188	2.3100e-003	2.2100e-003	121.3356
High Turnover (Sit Down Restaurant)	1.93581	0.0209	0.1898	0.1594	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.7418	227.7418	4.3700e-003	4.1800e-003	229.0952
Parking Lot	0	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
Total		**0.0451**	**0.4100**	**0.3444**	**2.4600e-003**		**0.0312**	**0.0312**		**0.0312**	**0.0312**		**492.0213**	**492.0213**	**9.4300e-003**	**9.0200e-003**	**494.9451**

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	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Unmitigated	0.3651	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211

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	0.0422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3220					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8000e-004	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Total	**0.3651**	**9.0000e-005**	**9.3000e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0197**	**0.0197**	**5.0000e-005**		**0.0211**

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Winter

6.2 Area by SubCategory

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	0.0422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3220					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.8000e-004	9.0000e-005	9.3000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0197	0.0197	5.0000e-005		0.0211
Total	**0.3651**	**9.0000e-005**	**9.3000e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0197**	**0.0197**	**5.0000e-005**		**0.0211**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

CalEEMod Model Year 2019 Annual Printouts

Moreno Valley Gas Station Opening Year 2019

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	74.00	Space	1.47	29,600.00	0
Fast Food Restaurant w/o Drive Thru	1.63	1000sqft	0.04	1,630.00	0
High Turnover (Sit Down Restaurant)	2.58	1000sqft	0.34	2,584.00	0
Gasoline/Service Station	12.00	Pump	0.34	11,518.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Opening Year 2019

Land Use - Land uses obtained from site plan and TIA.

Construction Phase - 3 days Site Prep, 10 days Grading, 220 days Construction, 10 days Paving, 20 days Painting.

Trips and VMT - 6 vendor trips added to Site Prep and Grading phases to account for water truck emissions.

Grading -

Vehicle Trips - Trip generation rates obtained from TIA.

Energy Use -

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 minimum requirements, water exposure 3x per day selected.

Waste Mitigation - 50% solid waste selected to account for SB 939 and 1374

Mobile Land Use Mitigation - Improve Pedestrian Network onsite and connecting offsite

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	6.00	10.00
tblLandUse	LandUseSquareFeet	2,580.00	2,584.00
tblLandUse	LandUseSquareFeet	1,694.10	11,518.00
tblLandUse	LotAcreage	0.67	1.47
tblLandUse	LotAcreage	0.06	0.34
tblLandUse	LotAcreage	0.04	0.34
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	696.00	315.17
tblVehicleTrips	ST_TR	168.56	205.36
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	SU_TR	500.00	315.17
tblVehicleTrips	SU_TR	168.56	205.36
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	WD_TR	716.00	315.17
tblVehicleTrips	WD_TR	168.56	205.36
tblVehicleTrips	WD_TR	127.15	112.18

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					
2018	0.2251	1.6663	1.2323	2.1600e-003	0.0529	0.0953	0.1482	0.0219	0.0910	0.1129	0.0000	185.6331	185.6331	0.0372	0.0000	186.5620
2019	0.1966	0.8828	0.7340	1.2900e-003	0.0111	0.0494	0.0605	2.9800e-003	0.0473	0.0502	0.0000	110.4592	110.4592	0.0212	0.0000	110.9883
Maximum	**0.2251**	**1.6663**	**1.2323**	**2.1600e-003**	**0.0529**	**0.0953**	**0.1482**	**0.0219**	**0.0910**	**0.1129**	**0.0000**	**185.6331**	**185.6331**	**0.0372**	**0.0000**	**186.5620**

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	tons/yr										MT/yr					
2018	0.2251	1.6663	1.2323	2.1600e-003	0.0315	0.0953	0.1268	0.0115	0.0910	0.1025	0.0000	185.6329	185.6329	0.0372	0.0000	186.5618
2019	0.1966	0.8828	0.7340	1.2900e-003	0.0111	0.0494	0.0605	2.9800e-003	0.0473	0.0502	0.0000	110.4591	110.4591	0.0212	0.0000	110.9881
Maximum	**0.2251**	**1.6663**	**1.2323**	**2.1600e-003**	**0.0315**	**0.0953**	**0.1268**	**0.0115**	**0.0910**	**0.1025**	**0.0000**	**185.6329**	**185.6329**	**0.0372**	**0.0000**	**186.5618**

	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**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**33.52**	**0.00**	**10.28**	**41.91**	**0.00**	**6.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2018	8-31-2018	0.8268	0.8268
2	9-1-2018	11-30-2018	0.8019	0.8019
3	12-1-2018	2-28-2019	0.7462	0.7462
4	3-1-2019	5-31-2019	0.5889	0.5889
5	6-1-2019	8-31-2019	0.0141	0.0141
		Highest	0.8268	0.8268

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					
Area	0.0666	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Energy	8.2300e-003	0.0748	0.0629	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	185.7599	185.7599	5.8700e-003	2.3800e-003	186.6171
Mobile	0.8770	6.3367	6.3559	0.0202	1.1146	0.0211	1.1357	0.2987	0.0199	0.3186	0.0000	1,874.988 0	1,874.988 0	0.1911	0.0000	1,879.765 0
Waste						0.0000	0.0000		0.0000	0.0000	11.3573	0.0000	11.3573	0.6712	0.0000	28.1373
Water						0.0000	0.0000		0.0000	0.0000	0.4560	6.5974	7.0534	0.0471	1.1600e-003	8.5773
Total	**0.9518**	**6.4115**	**6.4199**	**0.0206**	**1.1146**	**0.0268**	**1.1414**	**0.2987**	**0.0256**	**0.3243**	**11.8133**	**2,067.347 5**	**2,079.160 9**	**0.9153**	**3.5400e-003**	**2,103.099 1**

2.2 Overall Operational

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	0.0666	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Energy	8.2300e-003	0.0748	0.0629	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	185.7599	185.7599	5.8700e-003	2.3800e-003	186.6171
Mobile	0.8745	6.3087	6.2922	0.0199	1.0923	0.0208	1.1131	0.2927	0.0196	0.3123	0.0000	1,849.663 0	1,849.663 0	0.1903	0.0000	1,854.421 0
Waste						0.0000	0.0000		0.0000	0.0000	5.6787	0.0000	5.6787	0.3356	0.0000	14.0687
Water						0.0000	0.0000		0.0000	0.0000	0.4560	6.5974	7.0534	0.0471	1.1600e-003	8.5773
Total	**0.9493**	**6.3835**	**6.3562**	**0.0204**	**1.0923**	**0.0265**	**1.1187**	**0.2927**	**0.0253**	**0.3180**	**6.1347**	**2,042.022 5**	**2,048.157 2**	**0.5789**	**3.5400e-003**	**2,063.686 4**

	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	N20	CO2e
Percent Reduction	**0.25**	**0.44**	**0.99**	**1.36**	**2.00**	**1.16**	**1.98**	**2.00**	**1.17**	**1.93**	**48.07**	**1.23**	**1.49**	**36.75**	**0.00**	**1.87**

3.0 Construction Detail

Construction Phase

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2018	6/5/2018	5	3	
2	Grading	Grading	6/6/2018	6/19/2018	5	10	
3	Building Construction	Building Construction	6/20/2018	4/23/2019	5	220	
4	Paving	Paving	4/24/2019	5/7/2019	5	10	
5	Architectural Coating	Architectural Coating	5/8/2019	6/4/2019	5	20	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 5

Acres of Paving: 1.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 23,598; Non-Residential Outdoor: 7,866; Striped Parking Area: 1,776 (Architectural Coating – sqft)

OffRoad Equipment

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ilding Construction	8	18.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
chitectural Coating	1	4.00	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 - 2018

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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8500e-003	0.0354	0.0191	4.0000e-005		1.4300e-003	1.4300e-003		1.3200e-003	1.3200e-003	0.0000	3.3590	3.3590	1.0500e-003	0.0000	3.3851
Total	**2.8500e-003**	**0.0354**	**0.0191**	**4.0000e-005**	**2.3900e-003**	**1.4300e-003**	**3.8200e-003**	**2.6000e-004**	**1.3200e-003**	**1.5800e-003**	**0.0000**	**3.3590**	**3.3590**	**1.0500e-003**	**0.0000**	**3.3851**

3.2 Site Preparation - 2018

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	3.0000e-005	1.1100e-003	2.3000e-004	0.0000	6.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2243	0.2243	2.0000e-005	0.0000	0.2248
Worker	7.0000e-005	5.0000e-005	5.1000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1175	0.1175	0.0000	0.0000	0.1176
Total	**1.0000e-004**	**1.1600e-003**	**7.4000e-004**	**0.0000**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**6.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**0.3419**	**0.3419**	**2.0000e-005**	**0.0000**	**0.3425**

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					9.3000e-004	0.0000	9.3000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8500e-003	0.0354	0.0191	4.0000e-005		1.4300e-003	1.4300e-003		1.3200e-003	1.3200e-003	0.0000	3.3590	3.3590	1.0500e-003	0.0000	3.3851
Total	**2.8500e-003**	**0.0354**	**0.0191**	**4.0000e-005**	**9.3000e-004**	**1.4300e-003**	**2.3600e-003**	**1.0000e-004**	**1.3200e-003**	**1.4200e-003**	**0.0000**	**3.3590**	**3.3590**	**1.0500e-003**	**0.0000**	**3.3851**

3.2 Site Preparation - 2018

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	3.0000e-005	1.1100e-003	2.3000e-004	0.0000	6.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2243	0.2243	2.0000e-005	0.0000	0.2248
Worker	7.0000e-005	5.0000e-005	5.1000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1175	0.1175	0.0000	0.0000	0.1176
Total	**1.0000e-004**	**1.1600e-003**	**7.4000e-004**	**0.0000**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**6.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**0.3419**	**0.3419**	**2.0000e-005**	**0.0000**	**0.3425**

3.3 Grading - 2018

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
Off-Road	0.0108	0.1215	0.0519	1.0000e-004		5.8400e-003	5.8400e-003		5.3700e-003	5.3700e-003	0.0000	9.4232	9.4232	2.9300e-003	0.0000	9.4966
Total	**0.0108**	**0.1215**	**0.0519**	**1.0000e-004**	**0.0328**	**5.8400e-003**	**0.0386**	**0.0168**	**5.3700e-003**	**0.0222**	**0.0000**	**9.4232**	**9.4232**	**2.9300e-003**	**0.0000**	**9.4966**

3.3 Grading - 2018

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	1.1000e-004	3.7000e-003	7.6000e-004	1.0000e-005	1.9000e-004	3.0000e-005	2.2000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.7478	0.7478	7.0000e-005	0.0000	0.7494
Worker	2.7000e-004	2.1000e-004	2.1200e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4898	0.4898	1.0000e-005	0.0000	0.4901
Total	**3.8000e-004**	**3.9100e-003**	**2.8800e-003**	**2.0000e-005**	**7.4000e-004**	**3.0000e-005**	**7.7000e-004**	**2.0000e-004**	**3.0000e-005**	**2.3000e-004**	**0.0000**	**1.2376**	**1.2376**	**8.0000e-005**	**0.0000**	**1.2396**

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
Off-Road	0.0108	0.1215	0.0519	1.0000e-004		5.8400e-003	5.8400e-003		5.3700e-003	5.3700e-003	0.0000	9.4232	9.4232	2.9300e-003	0.0000	9.4966
Total	**0.0108**	**0.1215**	**0.0519**	**1.0000e-004**	**0.0128**	**5.8400e-003**	**0.0186**	**6.5700e-003**	**5.3700e-003**	**0.0119**	**0.0000**	**9.4232**	**9.4232**	**2.9300e-003**	**0.0000**	**9.4966**

3.3 Grading - 2018

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	1.1000e-004	3.7000e-003	7.6000e-004	1.0000e-005	1.9000e-004	3.0000e-005	2.2000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.7478	0.7478	7.0000e-005	0.0000	0.7494
Worker	2.7000e-004	2.1000e-004	2.1200e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4898	0.4898	1.0000e-005	0.0000	0.4901
Total	**3.8000e-004**	**3.9100e-003**	**2.8800e-003**	**2.0000e-005**	**7.4000e-004**	**3.0000e-005**	**7.7000e-004**	**2.0000e-004**	**3.0000e-005**	**2.3000e-004**	**0.0000**	**1.2376**	**1.2376**	**8.0000e-005**	**0.0000**	**1.2396**

3.4 Building Construction - 2018

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	0.2024	1.4392	1.0924	1.7400e-003		0.0874	0.0874		0.0838	0.0838	0.0000	146.8908	146.8908	0.0316	0.0000	147.6819
Total	**0.2024**	**1.4392**	**1.0924**	**1.7400e-003**		**0.0874**	**0.0874**		**0.0838**	**0.0838**	**0.0000**	**146.8908**	**146.8908**	**0.0316**	**0.0000**	**147.6819**

3.4 Building Construction - 2018

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	1.8200e-003	0.0600	0.0123	1.3000e-004	3.0700e-003	5.0000e-004	3.5700e-003	8.9000e-004	4.8000e-004	1.3600e-003	0.0000	12.1266	12.1266	1.0700e-003	0.0000	12.1533
Worker	6.7900e-003	5.1300e-003	0.0530	1.4000e-004	0.0138	9.0000e-005	0.0138	3.6500e-003	8.0000e-005	3.7300e-003	0.0000	12.2540	12.2540	3.7000e-004	0.0000	12.2631
Total	**8.6100e-003**	**0.0651**	**0.0652**	**2.7000e-004**	**0.0168**	**5.9000e-004**	**0.0174**	**4.5400e-003**	**5.6000e-004**	**5.0900e-003**	**0.0000**	**24.3806**	**24.3806**	**1.4400e-003**	**0.0000**	**24.4164**

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	0.2024	1.4392	1.0924	1.7400e-003		0.0874	0.0874		0.0838	0.0838	0.0000	146.8907	146.8907	0.0316	0.0000	147.6818
Total	**0.2024**	**1.4392**	**1.0924**	**1.7400e-003**		**0.0874**	**0.0874**		**0.0838**	**0.0838**	**0.0000**	**146.8907**	**146.8907**	**0.0316**	**0.0000**	**147.6818**

3.4 Building Construction - 2018

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	1.8200e-003	0.0600	0.0123	1.3000e-004	3.0700e-003	5.0000e-004	3.5700e-003	8.9000e-004	4.8000e-004	1.3600e-003	0.0000	12.1266	12.1266	1.0700e-003	0.0000	12.1533
Worker	6.7900e-003	5.1300e-003	0.0530	1.4000e-004	0.0138	9.0000e-005	0.0138	3.6500e-003	8.0000e-005	3.7300e-003	0.0000	12.2540	12.2540	3.7000e-004	0.0000	12.2631
Total	**8.6100e-003**	**0.0651**	**0.0652**	**2.7000e-004**	**0.0168**	**5.9000e-004**	**0.0174**	**4.5400e-003**	**5.6000e-004**	**5.0900e-003**	**0.0000**	**24.3806**	**24.3806**	**1.4400e-003**	**0.0000**	**24.4164**

3.4 Building Construction - 2019

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	0.1036	0.7659	0.6178	1.0100e-003		0.0442	0.0442		0.0423	0.0423	0.0000	84.9505	84.9505	0.0177	0.0000	85.3923
Total	**0.1036**	**0.7659**	**0.6178**	**1.0100e-003**		**0.0442**	**0.0442**		**0.0423**	**0.0423**	**0.0000**	**84.9505**	**84.9505**	**0.0177**	**0.0000**	**85.3923**

3.4 Building Construction - 2019

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	9.6000e-004	0.0327	6.5100e-003	7.0000e-005	1.7900e-003	2.5000e-004	2.0400e-003	5.2000e-004	2.4000e-004	7.5000e-004	0.0000	7.0199	7.0199	6.0000e-004	0.0000	7.0349
Worker	3.6200e-003	2.6400e-003	0.0277	8.0000e-005	8.0100e-003	5.0000e-005	8.0600e-003	2.1300e-003	5.0000e-005	2.1700e-003	0.0000	6.9226	6.9226	1.9000e-004	0.0000	6.9274
Total	**4.5800e-003**	**0.0354**	**0.0342**	**1.5000e-004**	**9.8000e-003**	**3.0000e-004**	**0.0101**	**2.6500e-003**	**2.9000e-004**	**2.9200e-003**	**0.0000**	**13.9426**	**13.9426**	**7.9000e-004**	**0.0000**	**13.9623**

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	0.1036	0.7659	0.6178	1.0100e-003		0.0442	0.0442		0.0423	0.0423	0.0000	84.9504	84.9504	0.0177	0.0000	85.3922
Total	**0.1036**	**0.7659**	**0.6178**	**1.0100e-003**		**0.0442**	**0.0442**		**0.0423**	**0.0423**	**0.0000**	**84.9504**	**84.9504**	**0.0177**	**0.0000**	**85.3922**

3.4 Building Construction - 2019

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	9.6000e-004	0.0327	6.5100e-003	7.0000e-005	1.7900e-003	2.5000e-004	2.0400e-003	5.2000e-004	2.4000e-004	7.5000e-004	0.0000	7.0199	7.0199	6.0000e-004	0.0000	7.0349
Worker	3.6200e-003	2.6400e-003	0.0277	8.0000e-005	8.0100e-003	5.0000e-005	8.0600e-003	2.1300e-003	5.0000e-005	2.1700e-003	0.0000	6.9226	6.9226	1.9000e-004	0.0000	6.9274
Total	**4.5800e-003**	**0.0354**	**0.0342**	**1.5000e-004**	**9.8000e-003**	**3.0000e-004**	**0.0101**	**2.6500e-003**	**2.9000e-004**	**2.9200e-003**	**0.0000**	**13.9426**	**13.9426**	**7.9000e-004**	**0.0000**	**13.9623**

3.5 Paving - 2019

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	6.2300e-003	0.0628	0.0593	9.0000e-005		3.6500e-003	3.6500e-003		3.3600e-003	3.3600e-003	0.0000	7.9208	7.9208	2.4600e-003	0.0000	7.9823
Paving	1.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.1600e-003**	**0.0628**	**0.0593**	**9.0000e-005**		**3.6500e-003**	**3.6500e-003**		**3.3600e-003**	**3.3600e-003**	**0.0000**	**7.9208**	**7.9208**	**2.4600e-003**	**0.0000**	**7.9823**

3.5 Paving - 2019

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	3.7000e-004	2.7000e-004	2.8500e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.7122	0.7122	2.0000e-005	0.0000	0.7127
Total	**3.7000e-004**	**2.7000e-004**	**2.8500e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.7122**	**0.7122**	**2.0000e-005**	**0.0000**	**0.7127**

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	6.2300e-003	0.0628	0.0593	9.0000e-005		3.6500e-003	3.6500e-003		3.3600e-003	3.3600e-003	0.0000	7.9208	7.9208	2.4600e-003	0.0000	7.9823
Paving	1.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.1600e-003**	**0.0628**	**0.0593**	**9.0000e-005**		**3.6500e-003**	**3.6500e-003**		**3.3600e-003**	**3.3600e-003**	**0.0000**	**7.9208**	**7.9208**	**2.4600e-003**	**0.0000**	**7.9823**

3.5 Paving - 2019

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	3.7000e-004	2.7000e-004	2.8500e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.7122	0.7122	2.0000e-005	0.0000	0.7127
Total	**3.7000e-004**	**2.7000e-004**	**2.8500e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.7122**	**0.7122**	**2.0000e-005**	**0.0000**	**0.7127**

3.6 Architectural Coating - 2019

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	0.0770					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0184	0.0184	3.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5587
Total	**0.0797**	**0.0184**	**0.0184**	**3.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5587**

3.6 Architectural Coating - 2019

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	2.0000e-004	1.4000e-004	1.5200e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3798	0.3798	1.0000e-005	0.0000	0.3801
Total	**2.0000e-004**	**1.4000e-004**	**1.5200e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3798**	**0.3798**	**1.0000e-005**	**0.0000**	**0.3801**

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	0.0770					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0184	0.0184	3.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5586
Total	**0.0797**	**0.0184**	**0.0184**	**3.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5586**

3.6 Architectural Coating - 2019

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	2.0000e-004	1.4000e-004	1.5200e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3798	0.3798	1.0000e-005	0.0000	0.3801
Total	**2.0000e-004**	**1.4000e-004**	**1.5200e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3798**	**0.3798**	**1.0000e-005**	**0.0000**	**0.3801**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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	0.8745	6.3087	6.2922	0.0199	1.0923	0.0208	1.1131	0.2927	0.0196	0.3123	0.0000	1,849.663 0	1,849.663 0	0.1903	0.0000	1,854.421 0
Unmitigated	0.8770	6.3367	6.3559	0.0202	1.1146	0.0211	1.1357	0.2987	0.0199	0.3186	0.0000	1,874.988 0	1,874.988 0	0.1911	0.0000	1,879.765 0

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant w/o Drive Thru	513.73	513.73	513.73	930,382	911,775
Gasoline/Service Station	2,464.32	2,464.32	2464.32	1,593,895	1,562,017
High Turnover (Sit Down Restaurant)	289.42	289.42	289.42	394,436	386,548
Parking Lot	0.00	0.00	0.00		
Total	3,267.47	3,267.47	3,267.47	2,918,713	2,860,339

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant w/o Drive Thru	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Gasoline/Service Station	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
High Turnover (Sit Down Restaurant)	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Parking Lot	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

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	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	104.3002	104.3002	4.3100e-003	8.9000e-004	104.6734
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	104.3002	104.3002	4.3100e-003	8.9000e-004	104.6734
NaturalGas Mitigated	8.2300e-003	0.0748	0.0629	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	81.4596	81.4596	1.5600e-003	1.4900e-003	81.9437
NaturalGas Unmitigated	8.2300e-003	0.0748	0.0629	4.5000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	81.4596	81.4596	1.5600e-003	1.4900e-003	81.9437

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					
Fast Food Restaurant w/o Drive Thru	445707	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003	0.0000	23.7846	23.7846	4.6000e-004	4.4000e-004	23.9260
Gasoline/Service Station	374220	2.0200e-003	0.0183	0.0154	1.1000e-004		1.3900e-003	1.3900e-003		1.3900e-003	1.3900e-003	0.0000	19.9698	19.9698	3.8000e-004	3.7000e-004	20.0885
High Turnover (Sit Down Restaurant)	706569	3.8100e-003	0.0346	0.0291	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7052	37.7052	7.2000e-004	6.9000e-004	37.9293
Parking Lot	0	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
Total		**8.2300e-003**	**0.0748**	**0.0629**	**4.5000e-004**		**5.6800e-003**	**5.6800e-003**		**5.6800e-003**	**5.6800e-003**	**0.0000**	**81.4596**	**81.4596**	**1.5600e-003**	**1.5000e-003**	**81.9437**

5.2 Energy by Land Use - NaturalGas

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					
Fast Food Restaurant w/o Drive Thru	445707	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003	0.0000	23.7846	23.7846	4.6000e-004	4.4000e-004	23.9260
Gasoline/Service Station	374220	2.0200e-003	0.0183	0.0154	1.1000e-004		1.3900e-003	1.3900e-003		1.3900e-003	1.3900e-003	0.0000	19.9698	19.9698	3.8000e-004	3.7000e-004	20.0885
High Turnover (Sit Down Restaurant)	706569	3.8100e-003	0.0346	0.0291	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7052	37.7052	7.2000e-004	6.9000e-004	37.9293
Parking Lot	0	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
Total		**8.2300e-003**	**0.0748**	**0.0629**	**4.5000e-004**		**5.6800e-003**	**5.6800e-003**		**5.6800e-003**	**5.6800e-003**	**0.0000**	**81.4596**	**81.4596**	**1.5600e-003**	**1.5000e-003**	**81.9437**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant w/o Drive Thru	77392.4	24.6589	1.0200e-003	2.1000e-004	24.7471
Gasoline/Service Station	116908	37.2493	1.5400e-003	3.2000e-004	37.3826
High Turnover (Sit Down Restaurant)	122688	39.0911	1.6100e-003	3.3000e-004	39.2310
Parking Lot	10360	3.3009	1.4000e-004	3.0000e-005	3.3127
Total		**104.3002**	**4.3100e-003**	**8.9000e-004**	**104.6734**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant w/o Drive Thru	77392.4	24.6589	1.0200e-003	2.1000e-004	24.7471
Gasoline/Service Station	116908	37.2493	1.5400e-003	3.2000e-004	37.3826
High Turnover (Sit Down Restaurant)	122688	39.0911	1.6100e-003	3.3000e-004	39.2310
Parking Lot	10360	3.3009	1.4000e-004	3.0000e-005	3.3127
Total		**104.3002**	**4.3100e-003**	**8.9000e-004**	**104.6734**

6.0 Area Detail

6.1 Mitigation Measures Area

Moreno Valley Gas Station Opening Year 2019 - Riverside-South Coast County, Annual

	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	0.0666	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Unmitigated	0.0666	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003

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	7.7000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0588					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Total	**0.0666**	**1.0000e-005**	**1.1600e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2400e-003**	**2.2400e-003**	**1.0000e-005**	**0.0000**	**2.3900e-003**

6.2 Area by SubCategory

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	7.7000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0588					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Total	**0.0666**	**1.0000e-005**	**1.1600e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2400e-003**	**2.2400e-003**	**1.0000e-005**	**0.0000**	**2.3900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.0534	0.0471	1.1600e-003	8.5773
Unmitigated	7.0534	0.0471	1.1600e-003	8.5773

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant w/o Drive Thru	0.49476 / 0.0315804	2.3214	0.0162	4.0000e-004	2.8456
Gasoline/Service Station	0.159383 / 0.0976861	1.0576	5.2400e-003	1.3000e-004	1.2276
High Turnover (Sit Down Restaurant)	0.783117 / 0.0499862	3.6744	0.0257	6.3000e-004	4.5041
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.0534**	**0.0471**	**1.1600e-003**	**8.5773**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant w/o Drive Thru	0.49476 / 0.0315804	2.3214	0.0162	4.0000e-004	2.8456
Gasoline/Service Station	0.159383 / 0.0976861	1.0576	5.2400e-003	1.3000e-004	1.2276
High Turnover (Sit Down Restaurant)	0.783117 / 0.0499862	3.6744	0.0257	6.3000e-004	4.5041
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.0534**	**0.0471**	**1.1600e-003**	**8.5773**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.6787	0.3356	0.0000	14.0687
Unmitigated	11.3573	0.6712	0.0000	28.1373

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	18.78	3.8122	0.2253	0.0000	9.4445
Gasoline/Service Station	6.47	1.3134	0.0776	0.0000	3.2538
High Turnover (Sit Down Restaurant)	30.7	6.2318	0.3683	0.0000	15.4391
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.3573**	**0.6712**	**0.0000**	**28.1373**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO_2	CH_4	N_2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	9.39	1.9061	0.1127	0.0000	4.7223
Gasoline/Service Station	3.235	0.6567	0.0388	0.0000	1.6269
High Turnover (Sit Down Restaurant)	15.35	3.1159	0.1842	0.0000	7.7195
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.6787**	**0.3356**	**0.0000**	**14.0687**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

oilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

ser Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C

CalEEMod Model Year 2020 Annual Printouts

Moreno Valley Gas Station Year 2020

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	74.00	Space	1.47	29,600.00	0
Fast Food Restaurant w/o Drive Thru	1.63	1000sqft	0.04	1,630.00	0
High Turnover (Sit Down Restaurant)	2.58	1000sqft	0.34	2,584.00	0
Gasoline/Service Station	12.00	Pump	0.34	11,518.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Year 2020

Land Use - Land uses obtained from site plan and TIA.

Construction Phase - 3 days Site Prep, 10 days Grading, 220 days Construction, 10 days Paving, 20 days Painting.

Trips and VMT - 6 vendor trips added to Site Prep and Grading phases to account for water truck emissions.

Grading -

Vehicle Trips - Trip generation rates obtained from TIA.

Energy Use -

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 minimum requirements, water exposure 3x per day selected.

Waste Mitigation - 75% solid waste selected to account for AB 341

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	10.00
tblConstructionPhase	NumDays	10.00	20.00
tblLandUse	LandUseSquareFeet	2,580.00	2,584.00
tblLandUse	LandUseSquareFeet	1,694.10	11,518.00
tblLandUse	LotAcreage	0.67	1.47
tblLandUse	LotAcreage	0.06	0.34
tblLandUse	LotAcreage	0.04	0.34
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	696.00	315.17
tblVehicleTrips	ST_TR	168.56	205.36
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	SU_TR	500.00	315.17
tblVehicleTrips	SU_TR	168.56	205.36
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	WD_TR	716.00	315.17
tblVehicleTrips	WD_TR	168.56	205.36
tblVehicleTrips	WD_TR	127.15	112.18

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					
2018											0.0000	185.6331	185.6331	0.0372	0.0000	186.5620
2019											0.0000	110.4592	110.4592	0.0212	0.0000	110.9883
Maximum											**0.0000**	**185.6331**	**185.6331**	**0.0372**	**0.0000**	**186.5620**

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	tons/yr										MT/yr					
2018											0.0000	185.6329	185.6329	0.0372	0.0000	186.5618
2019											0.0000	110.4591	110.4591	0.0212	0.0000	110.9881
Maximum											**0.0000**	**185.6329**	**185.6329**	**0.0372**	**0.0000**	**186.5618**

	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**	**N20**	**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

Moreno Valley Gas Station Year 2020 - Riverside-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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					
Area											0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Energy											0.0000	185.7599	185.7599	5.8700e-003	2.3800e-003	186.6171
Mobile											0.0000	1,847.1116	1,847.1116	0.1794	0.0000	1,851.5966
Waste											11.3573	0.0000	11.3573	0.6712	0.0000	28.1373
Water											0.4560	6.5974	7.0534	0.0471	1.1600e-003	8.5773
Total											**11.8133**	**2,039.4711**	**2,051.2844**	**0.9036**	**3.5400e-003**	**2,074.9307**

2.2 Overall Operational

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											0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Energy											0.0000	185.7599	185.7599	5.8700e-003	2.3800e-003	186.6171
Mobile											0.0000	1,532.9618	1,532.9618	0.1704	0.0000	1,537.2218
Waste											2.8393	0.0000	2.8393	0.1678	0.0000	7.0343
Water											0.3848	5.6285	6.0133	0.0398	9.8000e-004	7.2998
Total											**3.2242**	**1,724.3524**	**1,727.5766**	**0.3838**	**3.3600e-003**	**1,738.1754**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.71	15.45	15.78	57.52	5.08	16.23

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	6/1/2018	6/5/2018	5	3	
2	Grading	Grading	6/6/2018	6/19/2018	5	10	
3	Building Construction	Building Construction	6/20/2018	4/23/2019	5	220	
4	Paving	Paving	4/24/2019	5/7/2019	5	10	
5	Architectural Coating	Architectural Coating	5/8/2019	6/4/2019	5	20	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 5

Acres of Paving: 1.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 23,598; Non-Residential Outdoor: 7,866; Striped Parking Area: 1,776 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ilding Construction	8	18.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
ving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
chitectural Coating	1	4.00	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 - 2018

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3.3590	3.3590	1.0500e-003	0.0000	3.3851
Total											**0.0000**	**3.3590**	**3.3590**	**1.0500e-003**	**0.0000**	**3.3851**

3.2 Site Preparation - 2018

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
Vendor											0.0000	0.2243	0.2243	2.0000e-005	0.0000	0.2248
Worker											0.0000	0.1175	0.1175	0.0000	0.0000	0.1176
Total											**0.0000**	**0.3419**	**0.3419**	**2.0000e-005**	**0.0000**	**0.3425**

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3.3590	3.3590	1.0500e-003	0.0000	3.3851
Total											**0.0000**	**3.3590**	**3.3590**	**1.0500e-003**	**0.0000**	**3.3851**

3.2 Site Preparation - 2018

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
Vendor											0.0000	0.2243	0.2243	2.0000e-005	0.0000	0.2248
Worker											0.0000	0.1175	0.1175	0.0000	0.0000	0.1176
Total											**0.0000**	**0.3419**	**0.3419**	**2.0000e-005**	**0.0000**	**0.3425**

3.3 Grading - 2018

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	9.4232	9.4232	2.9300e-003	0.0000	9.4966
Total											**0.0000**	**9.4232**	**9.4232**	**2.9300e-003**	**0.0000**	**9.4966**

3.3 Grading - 2018

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
Vendor											0.0000	0.7478	0.7478	7.0000e-005	0.0000	0.7494
Worker											0.0000	0.4898	0.4898	1.0000e-005	0.0000	0.4901
Total											**0.0000**	**1.2376**	**1.2376**	**8.0000e-005**	**0.0000**	**1.2396**

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	9.4232	9.4232	2.9300e-003	0.0000	9.4966
Total											**0.0000**	**9.4232**	**9.4232**	**2.9300e-003**	**0.0000**	**9.4966**

3.3 Grading - 2018

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
Vendor											0.0000	0.7478	0.7478	7.0000e-005	0.0000	0.7494
Worker											0.0000	0.4898	0.4898	1.0000e-005	0.0000	0.4901
Total											**0.0000**	**1.2376**	**1.2376**	**8.0000e-005**	**0.0000**	**1.2396**

3.4 Building Construction - 2018

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											0.0000	146.8908	146.8908	0.0316	0.0000	147.6819
Total											**0.0000**	**146.8908**	**146.8908**	**0.0316**	**0.0000**	**147.6819**

3.4 Building Construction - 2018

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
Vendor											0.0000	12.1266	12.1266	1.0700e-003	0.0000	12.1533
Worker											0.0000	12.2540	12.2540	3.7000e-004	0.0000	12.2631
Total											**0.0000**	**24.3806**	**24.3806**	**1.4400e-003**	**0.0000**	**24.4164**

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											0.0000	146.8907	146.8907	0.0316	0.0000	147.6818
Total											**0.0000**	**146.8907**	**146.8907**	**0.0316**	**0.0000**	**147.6818**

3.4 Building Construction - 2018

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
Vendor											0.0000	12.1266	12.1266	1.0700e-003	0.0000	12.1533
Worker											0.0000	12.2540	12.2540	3.7000e-004	0.0000	12.2631
Total											**0.0000**	**24.3806**	**24.3806**	**1.4400e-003**	**0.0000**	**24.4164**

3.4 Building Construction - 2019

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											0.0000	84.9505	84.9505	0.0177	0.0000	85.3923
Total											**0.0000**	**84.9505**	**84.9505**	**0.0177**	**0.0000**	**85.3923**

3.4 Building Construction - 2019

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
Vendor											0.0000	7.0199	7.0199	6.0000e-004	0.0000	7.0349
Worker											0.0000	6.9226	6.9226	1.9000e-004	0.0000	6.9274
Total											**0.0000**	**13.9426**	**13.9426**	**7.9000e-004**	**0.0000**	**13.9623**

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											0.0000	84.9504	84.9504	0.0177	0.0000	85.3922
Total											**0.0000**	**84.9504**	**84.9504**	**0.0177**	**0.0000**	**85.3922**

3.4 Building Construction - 2019

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
Vendor											0.0000	7.0199	7.0199	6.0000e-004	0.0000	7.0349
Worker											0.0000	6.9226	6.9226	1.9000e-004	0.0000	6.9274
Total											**0.0000**	**13.9426**	**13.9426**	**7.9000e-004**	**0.0000**	**13.9623**

3.5 Paving - 2019

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											0.0000	7.9208	7.9208	2.4600e-003	0.0000	7.9823
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**7.9208**	**7.9208**	**2.4600e-003**	**0.0000**	**7.9823**

3.5 Paving - 2019

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.7122	0.7122	2.0000e-005	0.0000	0.7127
Total											**0.0000**	**0.7122**	**0.7122**	**2.0000e-005**	**0.0000**	**0.7127**

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											0.0000	7.9208	7.9208	2.4600e-003	0.0000	7.9823
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**7.9208**	**7.9208**	**2.4600e-003**	**0.0000**	**7.9823**

3.5 Paving - 2019

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.7122	0.7122	2.0000e-005	0.0000	0.7127
Total											**0.0000**	**0.7122**	**0.7122**	**2.0000e-005**	**0.0000**	**0.7127**

3.6 Architectural Coating - 2019

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5587
Total											**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5587**

3.6 Architectural Coating - 2019

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.3798	0.3798	1.0000e-005	0.0000	0.3801
Total											**0.0000**	**0.3798**	**0.3798**	**1.0000e-005**	**0.0000**	**0.3801**

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5586
Total											**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5586**

3.6 Architectural Coating - 2019

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.3798	0.3798	1.0000e-005	0.0000	0.3801
Total											**0.0000**	**0.3798**	**0.3798**	**1.0000e-005**	**0.0000**	**0.3801**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

Implement Trip Reduction Program

	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											0.0000	1,532.961 8	1,532.961 8	0.1704	0.0000	1,537.221 8
Unmitigated											0.0000	1,847.1116	1,847.1116	0.1794	0.0000	1,851.596 6

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant w/o Drive Thru	513.73	513.73	513.73	930,382	693,687
Gasoline/Service Station	2,464.32	2,464.32	2464.32	1,593,895	1,188,398
High Turnover (Sit Down Restaurant)	289.42	289.42	289.42	394,436	294,089
Parking Lot	0.00	0.00	0.00		
Total	3,267.47	3,267.47	3,267.47	2,918,713	2,176,175

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant w/o Drive Thru	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Gasoline/Service Station	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
High Turnover (Sit Down Restaurant)	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120
Parking Lot	0.538064	0.038449	0.184390	0.122109	0.017402	0.005339	0.017250	0.067711	0.001365	0.001213	0.004629	0.000959	0.001120

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	tons/yr										MT/yr					
Electricity Mitigated											0.0000	104.3002	104.3002	4.3100e-003	8.9000e-004	104.6734
Electricity Unmitigated											0.0000	104.3002	104.3002	4.3100e-003	8.9000e-004	104.6734
NaturalGas Mitigated											0.0000	81.4596	81.4596	1.5600e-003	1.4900e-003	81.9437
NaturalGas Unmitigated											0.0000	81.4596	81.4596	1.5600e-003	1.4900e-003	81.9437

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					
Fast Food Restaurant w/o Drive Thru	445707											0.0000	23.7846	23.7846	4.6000e-004	4.4000e-004	23.9260
Gasoline/Service Station	374220											0.0000	19.9698	19.9698	3.8000e-004	3.7000e-004	20.0885
High Turnover (Sit Down Restaurant)	706569											0.0000	37.7052	37.7052	7.2000e-004	6.9000e-004	37.9293
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**81.4596**	**81.4596**	**1.5600e-003**	**1.5000e-003**	**81.9437**

5.2 Energy by Land Use - NaturalGas

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					
Fast Food Restaurant w/o Drive Thru	445707											0.0000	23.7846	23.7846	4.6000e-004	4.4000e-004	23.9260
Gasoline/Service Station	374220											0.0000	19.9698	19.9698	3.8000e-004	3.7000e-004	20.0885
High Turnover (Sit Down Restaurant)	706569											0.0000	37.7052	37.7052	7.2000e-004	6.9000e-004	37.9293
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**81.4596**	**81.4596**	**1.5600e-003**	**1.5000e-003**	**81.9437**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant w/o Drive Thru	77392.4	24.6589	1.0200e-003	2.1000e-004	24.7471
Gasoline/Service Station	116908	37.2493	1.5400e-003	3.2000e-004	37.3826
High Turnover (Sit Down Restaurant)	122688	39.0911	1.6100e-003	3.3000e-004	39.2310
Parking Lot	10360	3.3009	1.4000e-004	3.0000e-005	3.3127
Total		**104.3002**	**4.3100e-003**	**8.9000e-004**	**104.6734**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant w/o Drive Thru	77392.4	24.6589	1.0200e-003	2.1000e-004	24.7471
Gasoline/Service Station	116908	37.2493	1.5400e-003	3.2000e-004	37.3826
High Turnover (Sit Down Restaurant)	122688	39.0911	1.6100e-003	3.3000e-004	39.2310
Parking Lot	10360	3.3009	1.4000e-004	3.0000e-005	3.3127
Total		**104.3002**	**4.3100e-003**	**8.9000e-004**	**104.6734**

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	tons/yr										MT/yr					
Mitigated											0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Unmitigated											0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Total											**0.0000**	**2.2400e-003**	**2.2400e-003**	**1.0000e-005**	**0.0000**	**2.3900e-003**

6.2 Area by SubCategory

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3900e-003
Total											**0.0000**	**2.2400e-003**	**2.2400e-003**	**1.0000e-005**	**0.0000**	**2.3900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.0133	0.0398	9.8000e-004	7.2998
Unmitigated	7.0534	0.0471	1.1600e-003	8.5773

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant w/o Drive Thru	0.49476 / 0.0315804	2.3214	0.0162	4.0000e-004	2.8456
Gasoline/Service Station	0.159383 / 0.0976861	1.0576	5.2400e-003	1.3000e-004	1.2276
High Turnover (Sit Down Restaurant)	0.783117 / 0.0499862	3.6744	0.0257	6.3000e-004	4.5041
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.0534**	**0.0471**	**1.1600e-003**	**8.5773**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant w/o Drive Thru	0.417577 / 0.029654	1.9699	0.0137	3.4000e-004	2.4124
Gasoline/Service Station	0.134519 / 0.0917273	0.9255	4.4200e-003	1.1000e-004	1.0691
High Turnover (Sit Down Restaurant)	0.660951 / 0.046937	3.1180	0.0217	5.3000e-004	3.8184
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.0133**	**0.0398**	**9.8000e-004**	**7.2998**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.8393	0.1678	0.0000	7.0343
Unmitigated	11.3573	0.6712	0.0000	28.1373

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	18.78	3.8122	0.2253	0.0000	9.4445
Gasoline/Service Station	6.47	1.3134	0.0776	0.0000	3.2538
High Turnover (Sit Down Restaurant)	30.7	6.2318	0.3683	0.0000	15.4391
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.3573**	**0.6712**	**0.0000**	**28.1373**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	4.695	0.9530	0.0563	0.0000	2.3611
Gasoline/Service Station	1.6175	0.3283	0.0194	0.0000	0.8134
High Turnover (Sit Down Restaurant)	7.675	1.5580	0.0921	0.0000	3.8598
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.8393**	**0.1678**	**0.0000**	**7.0343**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

oilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

ser Defined Equipment

Equipment Type	Number

11.0 Vegetation

December 7, 2017

Chris B. Ormsby, AICP, Senior Planner
City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92552

Subject: **Letter Report of Findings for a MSHCP Burrowing Owl Habitat Assessment for the Moreno Beach Commercial Center, City of Moreno Valley, Riverside County, California**

Dear Mr. Ormsby,

This letter report summarizes the findings of a MSHCP Burrowing Owl Habitat Assessment conducted by Kelly Rios, Senior Biologist, for Moreno Beach Commercial Center Project located in the City of Moreno Valley, Riverside County, California. The habitat assessment survey, and subsequent burrowing owl focused surveys, if needed, are part of the survey requirements for Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), and consistency and compliance with the Migratory Bird Treaty Act (MBTA) and California Fish and Wildlife Code (CFW Code) Section 3503. The habitat assessment was conducted according to standard protocols set forth by the Burrowing Owl Consortium, California Department of Fish and Wildlife (CDFW), and the MSHCP to determine the presence of potential burrows, and burrowing owls use of the project site. The burrowing owl habitat assessment was required according to the Riverside County Integrated Project (RCIP) report for the proposed project.

PROJECT SITE DESCRIPTION AND LOCATION

The project consists of a convenience store, restaurant, and carwash, as well as the associated infrastructure. The project site is generally located north of Perris Reservoir, south of John F Kennedy Drive, east of Oliver Street, and west of Moreno Beach Driver, in the City of Moreno Valley, Riverside County, California (Figure 1). Specifically, the project site is located at the southwest corner of John F Kennedy Drive and Moreno Beach Drive, north of Via Sonata and east of Via Entrada (Figure 2). The project site is approximately 2.5 acres and consists of Assessor's Parcel Number (APN) 304-240-004.

REGULATORY BACKGROUND

The MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan focusing on conservation of species and their associated habitats in western Riverside County. According to the MSHCP, surveys for the burrowing owl are to be conducted as part of the environmental review process. The MSHCP Additional Surveys Needs and Procedures (Section 6.3.2) identify a specific burrowing owl survey area within the MSHCP Plan Area (Burrowing Owl Survey Area Map, Figure 6-4 of the MSHCP, Volume I).

METHODOLOGY

Qualified biologist Kelly Rios conducted the habitat assessment for burrowing owl on the project site within all areas containing suitable habitat on December 5, 2017. Weather conditions included a morning temperature of 55 degrees Fahrenheit, gusty winds of 5 to 12 miles per hour, and clear skies.

Since the project site is surrounded by residential development to the north, south, and east, and a storage yard was located to the west, a 500-foot buffer was not included as part of the survey area. The habitat assessment was conducted in accordance with survey protocols developed by the California Burrowing Owl Consortium (CBOC 1993) and the "Burrowing Owl Survey Instructions for the Western Riverside Multiple

Species Habitat Conservation Plan Area" (Riverside County 2006) per the Riverside County survey requirements. The area was surveyed to determine the suitable habitat areas consisting of low-growing vegetation, open areas for foraging, and availability of small mammal burrows.

SUMMARY OF FINDINGS

Existing Conditions

The project site is an approximate 2.5-acre square parcel that is relatively flat. The site has been mowed and was void of most vegetation. A few non-native grasses and ruderal plant species such as Russian thistle (*Salsola tragus*) and ripgut brome (*Bromus diandrus*) occur along the fence. Ornamental trees species such as liquidamber (*Liquidambar styraciflua*) occur along the sidewalks adjacent to Via Entrada to the west and Via Sonata to the south. A shallow depression occurs in the northeast corner of the site. Large tree branches had been dumped in the southeast corner of the project site.

Due to the gusty winds in the area, wildlife species were few and limited to avian species commonly occurring in urban developments. These species include house finch (*Haemorhous mexicanus*), Anna's hummingbird (*Calypte anna*), common raven (*Corvus corax*), and northern mockingbird (*Mimus polyglottos*).

Habitat Assessment Results

The project site contains a few ground squirrel burrows along the chain link fence and scattered throughout the project site. The presence of burrows provides potential habitat for burrowing owl. Although no signs of burrowing owl were observed such as whitewash or pellets, focused burrowing owl surveys to be completed during the breeding season (March 1 – August 31) are recommended. Focused surveys consist of four surveys conducted on four different days during the breeding season in accordance to Riverside Conservation Authority (RCA) Report Regarding Burrowing Owl Surveys, 2005. A pre-construction survey is also recommended within 30 days of ground disturbing activities.

If you have any questions regarding this report, please contact me at 714.508.4100.

Sincerely,

Kelly Rios

Kelly Rios, Senior Project Manager
kellymrios@outlook.com
714-742-380

Attachments:
Figure 1: Project Site, topo base
Figure 2: Project Site, aerial base

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

CULTURAL AND PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT FOR THE MORENO BEACH COMMERCIAL CENTER PROJECT, CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

Prepared for:
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Principal Investigators:
Molly Valasik, M.A., RPA - Archaeology
Kim Scott, M.S. - Paleontology

January 2018

Cogstone Project Number: 4318
Type of Study: Cultural and Paleontological Resources Assessment
Sites: None
Localities: None
Assessor's Parcel No: 304-240-004
USGS Quadrangle: Sunnymead USGS 7.5' Quad
Area: 2.5 acres
Key Words: Negative survey

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Federal Certifications 8(a), SDB, 8(m) WOSB
State Certifications DBE, WBE, SBE, UDBE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SUMMARY OF FINDINGS

This study assesses the potential impacts on cultural and paleontological resources for the Moreno Beach Commercial Center Project (Project). Royal Excel Enterprises proposes to construct a 3,400 square foot convenience store, a 1,632 square foot quick serve restaurant, a 2,564 square foot restaurant, a 3,518 square foot carwash building, and a 4,600 square foot canopy for gas station fuel pumps. The Project area is located at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive, within Accessor's Parcel Number (APN) 304-240-004 in the City of Moreno Valley, Riverside County, California. This study is subject to California Environmental Quality Act (CEQA) and fulfills the City of Moreno Valley's obligation as the lead agency for the Project.

The Project surface is mapped entirely as Quaternary very old alluvial fans which range from middle to early Pleistocene in age. Results of the paleontological record search indicate that no previous fossil localities have been recorded within the Project area boundaries. Within three miles of the Project, a location in Moreno Valley produced fossils of extinct ground sloth, llama, and horse between 11 and 13 feet below the original ground surface. Between 5 and 7 miles from the Project in Moreno Valley, Nuevo, and Perris, fossils have been recovered from Pleistocene alluvial fans between 8 and 50 feet below the original ground surface. Extinct sabre-toothed cat, bison, western horse, mammoth, and mastodon fossils have been recovered from these locations.

A search for archaeological and historical records was completed at the Eastern Information Center (EIC). The records search determined that there are no previously recorded cultural resources located within the Project boundaries. A total of 18 cultural resources have been previously documented outside of the Project area but within the one-mile search radius. These consist of two prehistoric camp sites with milling features and rock paintings, 12 prehistoric archaeological milling slick sites, one prehistoric archaeological milling slick site with possible storage rock ring, two historic archaeological irrigation remnant sites, and one historic spring house.

Cogstone conducted an intensive pedestrian survey of the 2.5 acre Project area. The survey was negative for cultural and paleontological resources. Ground visibility was good (75 percent) as thick, invasive weeds throughout the Project area had recently been mowed. The visibility in the western and northern boundaries of the site was poor (10 percent) due to landscaped grasses. The Project area has been heavily disturbed and has been previously graded at an unknown date. Concrete chunks and decomposed asphalt were piled at the center of the southern boundary of the Project area near Via Sonata and water utilities were located in the northeast corner. There were also other indications of dumping of decomposed concrete and asphalt within the site.

The maximum depth of excavations will be approximately five feet for most of the grading and 14 feet for the fuel tanks. Based on other finds from California valleys, Pleistocene fossils typically begin appearing between 8 to 10 feet deep. On this basis, it is possible that fossils meeting significance criteria will be encountered during this Project; therefore, a Paleontological Resource Impact Mitigation Program and full-time monitoring for all excavations greater than eight feet deep is recommended. If unanticipated fossils are unearthed during construction, work should be halted in that area until a qualified paleontologist can assess the significance of the find. Work may resume immediately a minimum of 50 feet away from the find. This procedure should be included in the Worker Environmental Awareness Program (WEAP) training provided to construction personnel.

Based on negative cultural survey results and the lack of archaeological sites other than bedrock milling slicks in the Project vicinity, as well as the previous grading of the Project area, the potential for discovery of intact archaeological deposits, including unknown buried archaeological deposits, materials, or features, by the implementation of this Project is low. No further cultural resources work is necessary.

In the event of an unanticipated discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it. In the unlikely event that human remains are encountered during project development, all work must cease near the find immediately.

In accordance with California Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. Work may not resume in the vicinity of the find until all requirements of the health and safety code have been met.

INTRODUCTION

PURPOSE OF STUDY

This study assesses the potential adverse impacts on cultural and paleontological resources of the proposed construction of the Moreno Commercial Center Project (Project), located within the City of Moreno Valley in Riverside County, California (Figure 1). This study is subject to California Environmental Quality Act (CEQA) and fulfills the City of Moreno Valley's obligation as the lead agency for the Project.

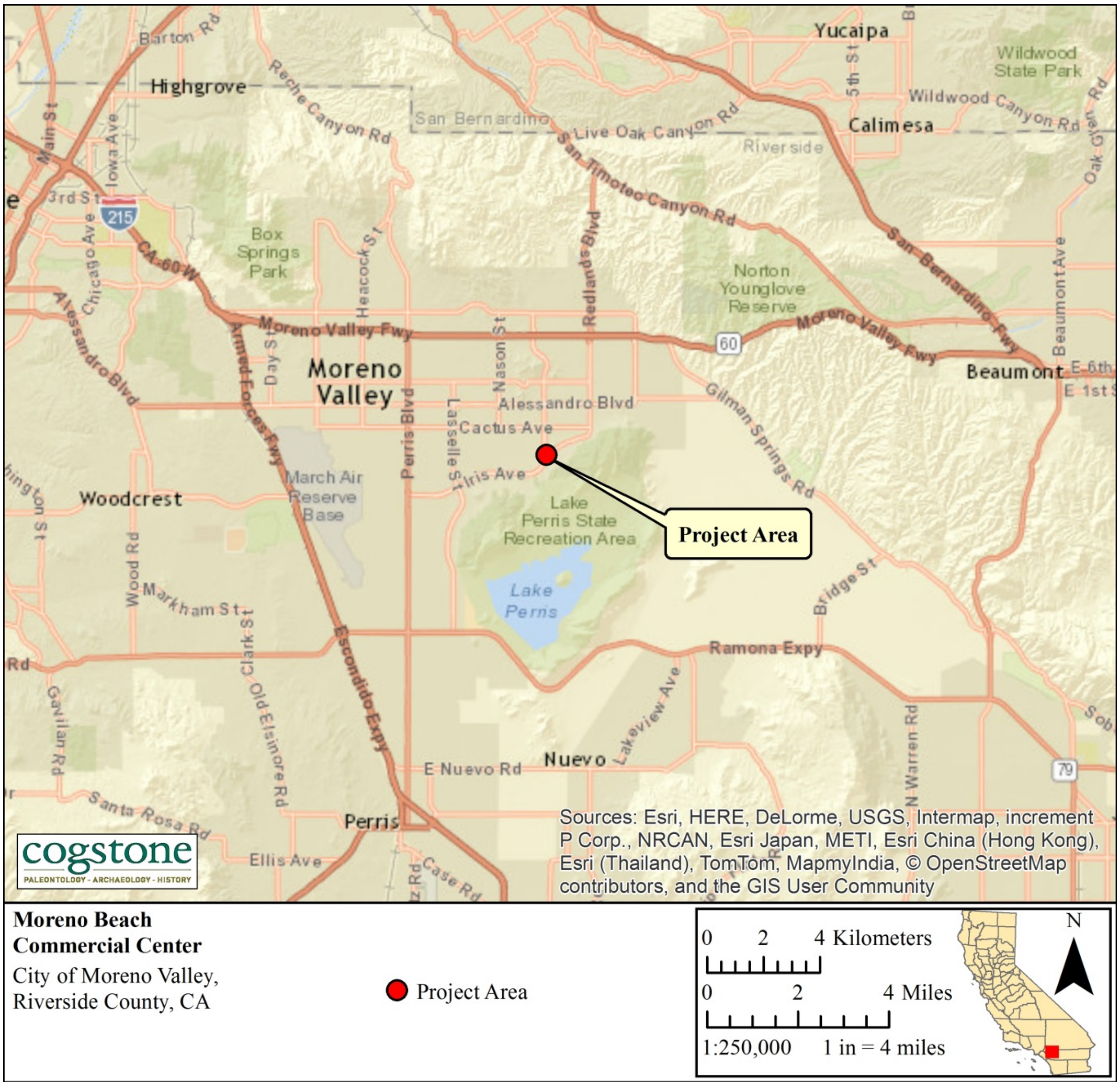

Figure 1. Project Vicinity Map

PROJECT LOCATION

The Project is located at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive, within Accessor's Parcel Number (APN) 304-240-004 in the City of Moreno Valley, Riverside County, California on 2.5 acres of undeveloped property. The Project area is mapped on the Sunnymead 7.5' United States Geological Survey (USGS) topographic map, in Sections 22 of Township 3 South, Range 4 West, in the San Bernardino Base Meridian (Figure 2).

PROJECT DESCRIPTION

Royal Excel Enterprises proposes to construct a 3,400 square foot convenience store, a 1,632 square foot quick serve restaurant, a 2,564 square foot restaurant, a 3,518 square foot carwash building, and a 4,600 square foot canopy for gas station fuel pumps (Figure 3 & Figure 4). The maximum depth of excavations will be approximately five feet for most of the grading and 14 feet for the fuel tanks.

PROJECT PERSONNEL

Cogstone Resource Management Inc. (Cogstone) conducted a Phase I cultural resource study as well as a paleontological assessment for this Project. Brief resumes are appended (Appendix A). Additional qualifications of key Cogstone staff are available at http://www.cogstone.com/key-staff/

- Holly Duke served as the Task Manager for the project and drafted the report. Ms. Duke holds a B.A. in Archaeology and History from Simon Fraser University, British Columbia, Canada and has over five years of experience in southern California archaeology.

- Sherri Gust wrote the prehistory section and portions of the ethnography section. She has an M.S. in Anatomy and a B.S. in Anthropology, and is a Registered Professional Archaeologist (RPA) as well as a Riverside County qualified archaeologist and paleontologist with more than 30 years of experience in California archaeology and paleontology.

- Desiree Martinez wrote portions of the ethnography section and reviewed the report. Ms. Martinez holds a M.A. in Anthropology from Harvard University and is a Riverside County qualified archaeologist with 21 years of experience in southern California archaeology.

- Megan Wilson conducted the record search and survey. Ms. Wilson holds an M.A. in Anthropology from California State University, Fullerton and is a RPA with over six years of experience in southern California archaeology.

- Molly Valasik served as Principal Investigator for Archaeology. Ms. Valasik holds a M.A. in Anthropology from Kent State University, Ohio and is a RPA with more than eight years of experience in California archaeology.

- Kim Scott served as the Principal Investigator for Paleontology for the project and wrote the geological and paleontological portions of this report. Scott has a M. S. in Biology with an emphasis in paleontology from California State University, San Bernardino, a B.S. in Geology with an emphasis in paleontology from the University of California, Los Angeles, and is a Riverside County qualified paleontologist with over 20 years of experience in California paleontology and geology.

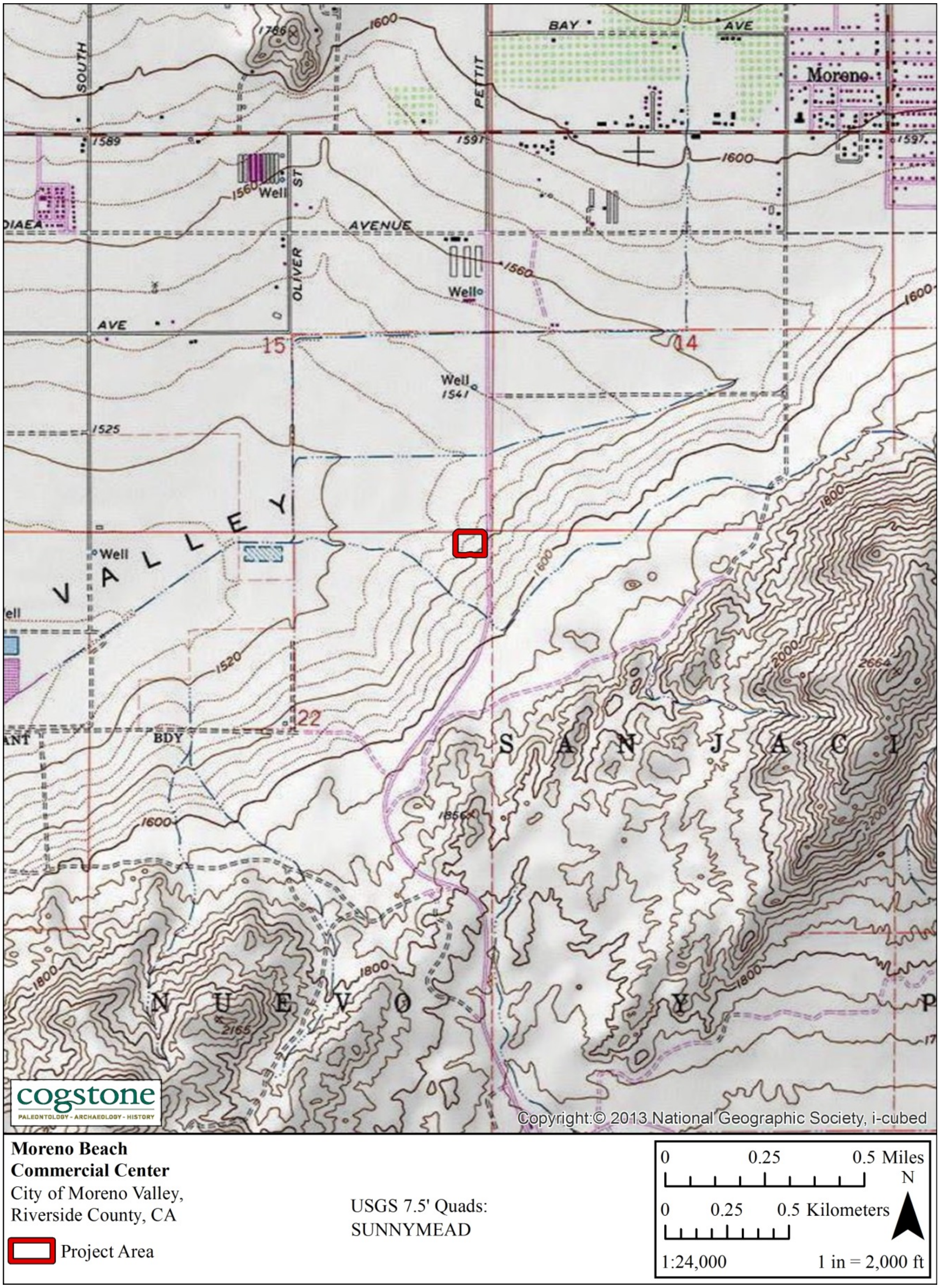

Figure 2. Project Location

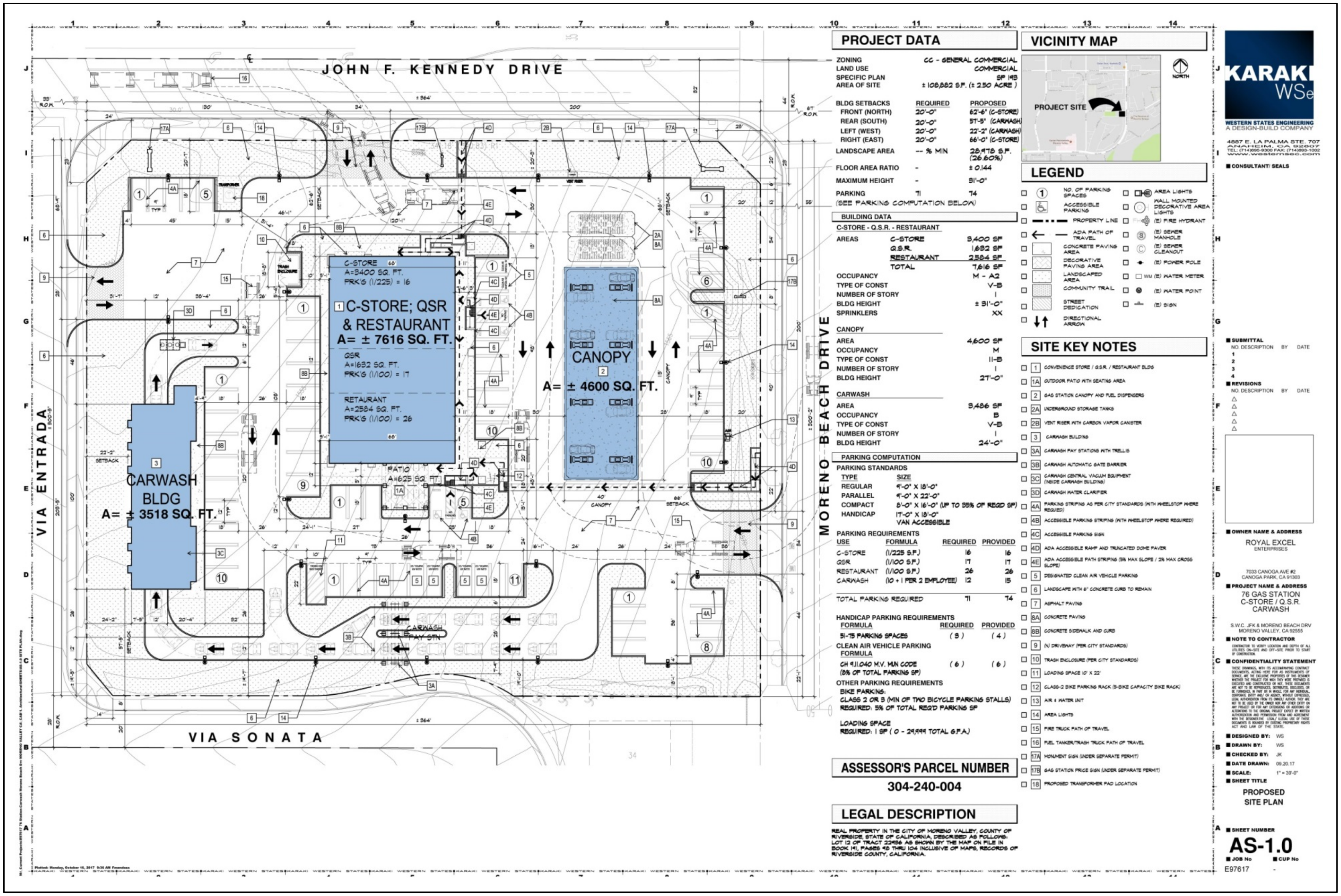

Figure 3. Project Plan

Figure 4. Aerial Map

REGULATORY SETTING

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA states that: It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered. If paleontological resources are identified as being within the proposed project study area, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource.

As of 2015, CEQA established that “[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (Pub. Resources Code, § 21084.2). In order to be considered a “tribal cultural resource,” a resource must be either:

(1) listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or

(2) a resource that the lead agency chooses, in its discretion, to treat as a tribal cultural resource.

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

CALIFORNIA ADMINISTRATIVE CODE, TITLE 14, SECTION 4307

This section states that "No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value."

PUBLIC RESOURCES CODE

Section 5097.5: No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register of Historical Resources (CRHR) is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing on the National Register, including properties evaluated under Section 106, and State Historical Landmarks number No. 770 and above. The California Register statute specifically provides that historical resources listed, determined eligible for listing on the California Register by the State Historical Resources Commission, or resources that meet the California Register criteria are resources which must be given consideration under CEQA (see above). Other resources, such as resources listed on local registers of historic registers or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register, is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state or national level under one or more of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2) It is associated with the lives of persons important to local, California, or national history;
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

HUMAN REMAINS

Human remains may be encountered by excavations and treatment is required consistent with state law (i.e., Health and Safety Code §7050.5 and Public Resources Code §5097.98), as reviewed below:

> In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human

remains and associated grave goods.

CITY OF MORENO VALLEY

The Project must also comply with the Cultural Resources Chapter of the City of Moreno Valley General Plan approved on July 11, 2006 (Moreno Valley 2006). The mitigation measures for cultural resources outlined in the City's General Plan are described below.

C1. Prior to the approval of a project, the City will assess potential impacts to significant historic, prehistoric archaeological, and paleontological resources, including impacts to human remains, pursuant to Section 15064.5 of the California Environmental Quality Act Guidelines. If significant impacts are identified, the City will require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may involve monitoring, resources recovery, documentation or other measures.

BACKGROUND

GEOLOGIC SETTING

This Project is located within the Peninsular Range Geomorphic Province which extends from Mount San Jacinto in the north to Baja, California in the south and includes the Inland Empire, Los Angeles, Orange County, and San Diego areas of California. The Peninsular Ranges Geomorphic Province is located in the southwestern corner of California and is bounded by the Transverse Ranges Geomorphic Province to the north and the Colorado Desert Geomorphic Province to the east. This geomorphic province is characterized by elongated northwest-trending mountain ridges separated by sediment-floored valleys. Many faults to the west of the Salton Trough section of the San Andreas Fault Zone, parallel this northwest-south east trending fault zone and have taken up some of the strain of the San Andreas. The San Jacinto Fault Zone at the base of the San Timoteo Badlands to the east of the Project is one such fault zone.

To the north of the Project, the San Andreas Fault Zone travels up Cajon Pass where it is the boundary between the Pacific Plate and the North American Plate. The Transverse Ranges include the San Bernardino and San Gabriel mountains along with the paralleling ranges and result from these two plates grinding past each other and "catching" along the bend in the San Andreas. The project is located on the Pacific Plate which is composed of numerous blocks that can move independently (Wagner 2002).

STRATIGRAPHY

The Project surface is mapped entirely as Quaternary very old alluvial fans ($Qvof_a$) which range from middle to early Pleistocene in age based on the presence of the 780,000 year old Brunhes-Matuyama paleomagnetic boundary at 9.8 feet (3 meters) below ground surface (Morton et al. 1997). These sediments are described as moderately well consolidated, well dissected, orangish-brown sands and silts with some gravels and conglomerates (Morton and Miller 2006).

ENVIRONMENTAL SETTING

The Project is within the City of Moreno Valley in Riverside County. The Project area is situated just north of the Perris Reservoir and Lake Perris State Recreation area, approximately equidistant between the Santa Ana, San Jacinto, and San Bernardino mountains. The Perris Valley is subparallel to the northwest-southeast trending San Jacinto and Elsinore Fault Zones. It has an elevation of 1,300 to 1,500 feet above sea level. The Project is within the San Jacinto Watershed which drains into the San Jacinto River, 6.0 miles to the southeast (JRP 2011).

The climate is mild and semi-arid with Riverside County summer temperatures averaging in the high 70° F range, and in the low 50s in winter, but with many days a year being more that 90° F. Annual rainfall averages 10.9 inches for the county, most of it falling between November and April. Alluvial deposits that comprise the Perris Plain consist of alternating strata of sand, clay, silt, and mixed composition gravel, which can vary greatly in thickness within the Project, from 24 inches to up to 300 feet (JRP 2011).

The Perris Valley supported a desert scrub plant community in prehistory and probably additional riparian vegetation associated with the San Jacinto River. A typical desert animal community would have been present from late prehistoric times forward and included jackrabbit, brush rabbit, and many types of rodents, birds and reptiles. The granite and tonalite of the hills may have been utilized for stone tools. In the late nineteenth century settlers noted the complete lack of trees on the valley floor (Ellis 1912).

The current vegetation in the Project is a mixture of invasive weeds and landscaped grasses. The Project itself is extremely disturbed and has been previously graded at an unknown time. Grading has removed the majority of native plant life and replaced it with non-native species that consist of invasive weeds and landscaped grasses.

PREHISTORIC SETTING

Approaches to prehistoric frameworks have changed over the years from being based on material attributes to radiocarbon chronologies to association with cultural traditions. Archaeologists defined a material complex consisting of an abundance of milling stones (for grinding food items) with few projectile points or vertebrate faunal remains dating from about 7-3 thousand years before the present as the "Millingstone Horizon" (Wallace 1955). Later, the "Millingstone Horizon" was redefined as a cultural tradition named the Encinitas Tradition (Warren 1968) with various regional expressions including Topanga and La Jolla. Use by archaeologists varied as some adopted a generalized Encinitas Tradition without regional variations, some continued to use "Millingstone Horizon" and some used Middle Holocene (the time period) to indicate this observed pattern (Sutton and Gardner 2010:1-2).

Recently the fact that generalized terminology is suppressing the identification of cultural, spatial and temporal variation and the movement of peoples throughout space and time was noted. These factors are critical to understanding adaptation and change (Sutton and Gardner 2010:1-2).

The Encinitas Tradition characteristics are abundant metates and manos, crudely made core and flake tools, bone tools, shell ornaments, very few projectile points with subsistence focusing on collecting (plants, shellfish, etc.). Faunal remains vary by location but include shellfish, land animals, marine mammals and fish (Sutton and Gardner 2010:7).

The Encinitas Tradition has been redefined to consist of four patterns (Sutton and Gardner 2010: 8-25). These are (1) Topanga in coastal Los Angeles and Orange counties, (2) La Jolla in coastal San Diego County, (3) Greven Knoll in inland San Bernardino, Riverside, Orange and Los Angeles counties, and (4) Pauma in inland San Diego County.

About 1,300 years before present, the Encinitas Tradition was replaced by a new archaeological entity, the Palomar Tradition. The Palomar Tradition is marked by a series of changes in the archaeological record, including bow and arrow, new rock art styles, settlement and subsistence systems, and perhaps ideology. Two patterns, San Luis Rey and Peninsular, have been defined with the Palomar Tradition (Sutton 2011). The San Luis Rey component was originally defined by Meighan (1954).

PROJECT AREA PREHISTORIC CULTURES

The latest cultural revisions for the Project area define traits for time phases of the Greven Knoll Pattern of the Encinitas Tradition (Sutton and Gardner 2010).

Greven Knoll sites tend to be located in the inland valley areas such as the Project area. These inland people apparently did not switch from the use of manos and metates to the use of pestles and mortars that is seen in coastal sites dating to approximately 5,000 years ago, possibly reflecting their closer relationship with desert cultural peoples who did not exploit acorns. The

Greven Knoll toolkit is dominated by manos and metates throughout its 7,500 year extent. In Phase I, other typical characteristics were pinto dart points for atlatls or spears, charmstones, cogged stones, absence of shell artifacts, and flexed position burials.

In Phase II, Elko dart points for atlatls or spears and core tools are observed along with increased indications of gathering. In Phase III, stone tools including scraper planes, choppers and hammerstones are added to the tool kit, and yucca and plant seeds are staple foods, animals bones are heavily processed (broken and crushed to extract marrow), and burials tend to be marked by stone cairns (Table 1; Sutton and Gardner 2010).

San Luis Rey pattern groups demonstrate formation of major village sites along with small satellite villages. The San Luis Rey toolkit has mortars and pestles along with bow and arrow technology (Sutton 2011).

San Luis Rey I phase reflects a number of changes including a decrease in the use of scrapers, occasional mortars with associated manos and pestles, the appearance of Cottonwood Triangular arrow points, bone awls, and stone ornaments, and the possible appearance of bedrock slicks. Conspicuous black midden appears also. Primary inhumation was common with primary pit cremation used more through time (Sutton 2011).

The San Luis Rey II phase reflects important changes including appearance of Tizon Brown pottery, deep concave base Cottonwood points, small numbers of steatite shaft straighteners, and introduction of Euroamerican materials such as glass beads and metal knives. Other characteristics include an increase in bedrock milling features with mortars and slicks, and the appearance of cupule boulders and rock rings. Primary cremation in pits appears to have been the principal mortuary practice. Locations of cremations were not marked and there were no formal cemeteries (Sutton 2011).

Table 1. Cultural Patterns and Phases

Phase	Dates B.P.	Material Culture	Other Traits
Greven Knoll I	8,500 to 4,000	Abundant manos and metates; Pinto dart points for atlatls or spears; charmstones, cogged stones, and discoidals rare; no mortars or pestles; and general absence of shell artifacts.	No shellfish; hunting important; flexed inhumations; and cremations rare.
Greven Knoll II	4,000 to 3,000	Abundant manos and mutates; Elko dart points for atlatls or spears; core tools; late discoidals; few mortars and pestles; and general absence of shell artifacts.	No shellfish; hunting and gathering important; flexed inhumations; and cremations rare.

Phase	Dates B.P.	Material Culture	Other Traits
Greven Knoll III (formerly Sayles complex)	3,000 to 900	Abundant manos and mutates; Elko dart points for atlatls or spears; scraper planes, choppers, and hammerstones; late discoidals; few mortars and pestles; and general absence of shell artifacts.	No shellfish; yucca and seeds as staples; hunting important but animal bones also processed; flexed inhumations beneath rock cairns; and cremations rare.
San Luis Rey I	1,300 to 500	Decrease in the use of scrapers and increase in the use of mortars and pestles. Appearance of bow and arrow technology, bone awls, stone/shell ornaments, and perhaps ceramic pipes, Obsidian Butte glass, and "recognizable" middens.	Small game hunting and the gathering of seeds and nuts, especially acorns important. Some small major villages, some focus on coastal resources, inhumation in early San Luis Rey I with primary pit cremation increasing late San Luis Rey I

Note: Adapted from Sutton and Gardner 2010 and Sutton 2011

ETHNOGRAPHY

The Project area and the surrounding lands have been reviewed by number cultural reports for various projects over the last 30 years (O'Connell et al 1973; Bean and Vane 1979; Bean and Vane 1980; Bean 2005; Lerch and Cannon 2008; Horne and McDougall 2008; Eddy et al. 2014). Although Heizer 1978 places the Project area within Cahuilla territory (Figure 5), a review of the ethnographic literature identifies the Project area as being within the traditional territory of a number of different tribes; the Cahuilla, the Serrano, the Luiseño, and the Gabrielino through time (see extensive discussion in Lerch and Cannon 2008).

CAHUILLA

The Cahuilla occupied the San Gorgonio Pass (referred to as the Pass Cahuilla), San Jacinto and Santa Rosa Mountains (Mountain Cahuilla), and the Coachella Valley and the northern end of Imperial Valley (Desert Cahuilla). The Cahuilla are linked to other Takic language family groups such as the Serrano and Luiseño, and share many aspects of culture and religion with those tribes.

Although various bands spoke the Cahuilla language, each person's primary identity was linked to clan lineage and moiety, rather than tribal affiliation. The two moieties of the Cahuilla were *Istam* (coyote) and *Tuktum* (wild cat). Affiliation was inherited from the father's moiety and members of one moiety had to marry into the other group. Each clan was an independent, politically autonomous land-holding unit (Bean and Saubel 1972, Bean 1978; Strong 1929).

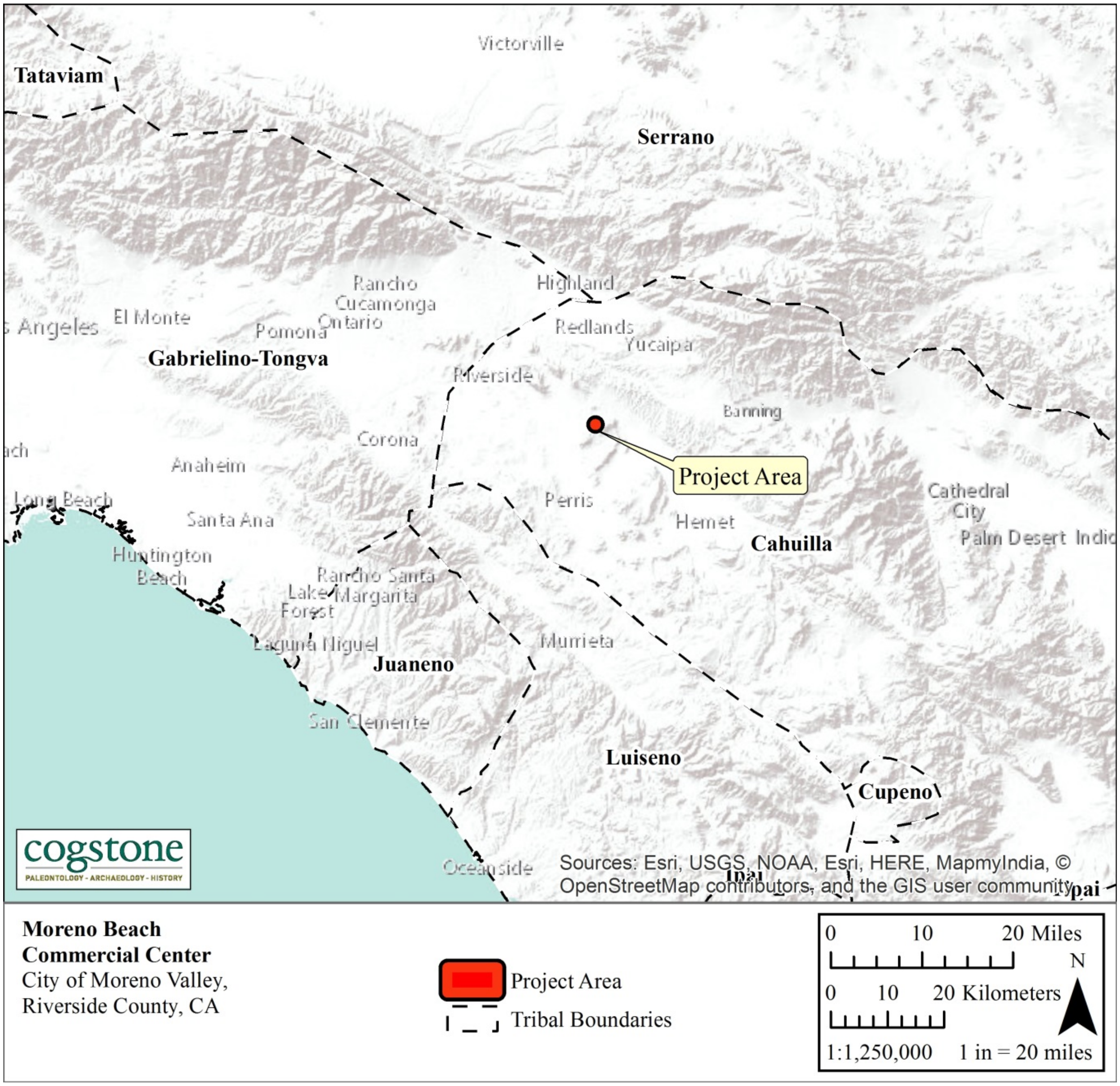

Figure 4. Traditional Tribal Boundaries

In addition to lineage residence areas and clan territory owned in common with other clan members, each lineage had ownership rights to various food collecting and hunting areas. Individuals also "owned" specific areas rich in plant resources, as well as hunting grounds, rock quarry locations, and sacred spots used only by shamans, healers, and ritual practitioners.

Cahuilla clans varied in size from several family groups to those composed of several thousand people. Clans were generally situated so that each lineage or community was located near a reliable water source and in proximity to significant food resources. Within each community, house structures were spatially placed at some distance from each other. Often a community would spread over a mile or two in distance with each nuclear and extended family having homes and associated structures for food storage and shaded work places (ramadas) for tool manufacture and food processing. Each community also contained a house clan leader.

In more recent times, a ceremonial house (*kishumnawat*) was placed within each community, and most major religious ceremonies of the clan were held there. In addition, house and ceremonial structures, storage granaries, sweat houses, and song houses (for recreational music) were present. Usually an area within one to three miles contained the bulk of materials needed for daily subsistence, although territories of a given clan might be larger, and longer distances were traveled to get precious exotic resources, usually found in the higher elevations of the surrounding mountains.

While most daily secular and religious activities took place within the community, there were locations at some distance from the community where people camped for extended periods to harvest acorns or piñon nuts. Throughout the area, there were sacred places used primarily for rituals, intergroup or inter-clan meetings, caches for sacred materials, and locations for use by shamans or medicine men. Generally, hilly, rocky areas, cave sites, or walled cave sites were used for temporary camping, storage of foods, fasting by shamans, and as hunting blinds. Between the mid-1500s and the 1800s, the Cahuilla were variously contacted by Spanish explorers, then Mexican ranchers, and later American settlers. By the mid-1800s, the Cahuilla were fully exposed to new peoples with new cultural ways, opportunities, and constraints. In the 1860s, several epidemics devastated the Cahuilla population and the increasing contact with Europeans continued to have a major impact on their traditional lifeway. Survivors of decimated Cahuilla clans joined villages that were able to maintain their ceremonial, cultural, and economic institutions (Bean 1978). Today there are 2,996 (alone) people who identify as Cahuilla (4,238 in any combination) according to the 2010 United States Census (United States Census Bureau 2010).

LUISENO

Luiseño also speak a language of the Cupan group of the Takic subfamily of Uto-Aztecan. Luiseño social structure included complex ranks of shamans and secular leaders who guided the rancheria in community social and political tasks and for successful resource exploitation (White 1963:121). More specific details of Luiseño social structure are difficult to reconstruct due to the effects of missionization. It is clear, however, that Luiseño society was patrilineal and exogamous (White 1963). Certain parcels of land containing oak trees and other food resources traditionally used were generally recognized as belong to a specific lineage (Dubois 1908). It is unclear whether Luiseño lineages formed larger kinship units prior to historic contact.

The integral geographic and sociopolitical unit of the ethnohistoric Luiseño was the rancheria, which included one or more village locations. Abundant natural resources along the valley floor sustained semi-permanent villages whose residents claimed additional lands on Palomar Mountain (Gifford 1918). The traditional settlement pattern consisted of secondary and autonomous village groups, each with specific hunting, collecting, and fishing areas located in diverse ecological zones. Typically these were in valley bottoms, along streams or along coastal strands near mountain ranges (Bean and Shipek 1978:551).

Two or more permanent base camps were used along with number of special purpose camps such as quarry sites, hunting blinds and milling stations (True et al. 1974:78, True and Waugh 1983:109-114). One base camp was the winter village, which was occupied continuously for four to six months annually; this was where most ceremonies took place. Winter villages were generally located in sheltered valleys and often featured pictographs associated with rituals. The other base settlement was the late summer/fall, acorn-gathering and hunting camp, located near oak trees owned by the village group. The entire village lived and worked together in such base camps.

In spring, the winter village group was divided into smaller family groups. These would occupy different areas where fresh vegetables resources were available, or they would go to the coast for shellfish gathering. The spring disaggregation is a normal occurrence in gathering societies. It occurs after winter supplies have been depleted and compensates for the paucity of spring resources. The late summer/fall camps were also subdivisions of the main villages group and were occupied by kin-groups. The major coalescence occurred in the winter villages, after the varied resources were gathered and the subsistence of the village was assured for a period of time.

With respect to precontact Luiseño population estimates, Kroeber (1925:649) opined that 3,000 was a low figure and 4,000 a liberally-allowed maximum. In 1856 the Luiseño numbered; over 2,500; in 1885, 1,142; and 983 in 1914 (Bean and Shipek 1978:558). Today there are 5,067 (alone) people who identify as Luiseño (7,150 in any combination) according to the 2010 United States census (United States Census Bureau 2010).

SERRANO

The name Serrano comes from a Spanish word meaning “mountaineer” or “highlander.” The Serrano were nomadic and migratory, and according to lore passed down, they migrated to the cool, pine forests of the San Bernardino Mountains to the west during the summer and returned to the desert regions during the winter. The Serrano language is considered part of the Takic subfamily of the larger Uto-Aztecan language. The Serrano culture area extends from the San Bernardino Mountains south to Yucaipa Valley, east to the Mojave River watershed, and north to the Twenty-nine Palms region (Bean and Smith 1978a:570). Most Serrano village sites were located in the foothills of the upper Sonoran zone with a few outliers located near permanent water sources on the desert floor, or in the forest transition zone.

The Serrano traded with the Mojave to the east and the Gabrielino to the west. They also traded with their close neighbors, the Cahuilla in the San Jacinto and Santa Rosa Mountains, the Banning Pass area, and the greater Coachella Valley. In addition, the Serrano traded with the Chemehuevi who occupied the lower Colorado River region, some of whom migrated westward towards the Project study area.

Prior to European contact, the Serrano were primarily hunters and gatherers. Women were responsible for most of the gathering and acorns, piñon nuts, and mesquite beans were collected as staple foods. Spring cactus fruits and berries were consumed fresh for both food and water. Flower blossoms were roasted and eaten. Yucca blossoms and stalks were blanched before being eaten. Roots were used for food and medicine, and leaves and stems were used for making tea. Digging sticks were frequently used to dig for plants and roots for subsistence and medicinal purposes (Johnston 1965:8). One main seed resource was chia, and stands of chia were periodically burned in order to increase yield. Other major plant foods included mesquite beans and the nuts from piñon pine and acorn. Acorns were leached by placing baskets of pounded and shelled acorn meal into a sandy hole with just enough water to allow the dissolved tannic acid to seep out. Other plant seeds were parched and made into a mush by boiling or cooking and dropping a heated stone into a water-tight basket filled with seeds and water. Some seeds were dried and stored in baskets. Baskets were made from willow and mesquite branches and woven with bone awls.

Because of their migratory nature, the Serrano and neighboring tribes “cached” many of their possessions and provisions instead of transporting theses often heavy items long distances. These “caches” were guarded by “spirit sticks” that were left upright adjacent to the cache. Today there are 324 (alone) people who identify as Serrano (514 in any combination) according to the 2010 United States Census (United States Census Bureau 2006-2010).

GABRIELINO (TONGVA)

The name Gabrielino is Spanish in origin and was used in reference to the Native Americans associated with the Mission San Gabriel. It is unknown what these people called themselves before the Spanish arrived, but today they call themselves Tongva, meaning “people of the earth”.

“Much of the southern California archaeological literature argues that the Gabrielino moved into southern California from the Great Basin around 4,000 Before Present (B.P.), “wedging” themselves between the Hokan-speaking Chumash, located to the north, and the Yuman-speaking Kumeyaay, located to the south (see Sutton 2009 for the latest discussion). This Shoshonean Wedge, or Shoshonean “intrusion” theory, is counter to the Gabrielino community’s knowledge about their history and origins. Oral tradition states that the Gabrielino have always lived in their traditional territory, with their emergence into this world occurring at Puvungna, located in Long Beach" (Martinez and Teeter 2015:26).

The Tongva speak a language that is part of the Takic language family and at the time of Spanish contact, their territory encompassed a vast area stretching from Topanga Canyon in the northwest, to the base of Mount Wilson in the north, to San Bernardino in the east, Aliso Creek in the southeast and the Southern Channel Islands, in all an area of more than 2,500 square miles (Bean and Smith 1978b, McCawley 1996). At European contact, the tribe consisted of more than 5,000 people living in various settlements throughout the area. Some of the villages could be quite large, housing up to 150 people.

The Tongva are considered to have been one of the wealthiest tribes and to have greatly influenced tribes they traded with (Kroeber 1925:621). Houses were domed and circular structures thatched with tule or similar materials (Bean and Smith 1978:542). The best known artifacts were made of steatite and were highly prized. Many common everyday items were decorated with inlaid shell or carvings reflecting an elaborately developed artisanship (Bean and Smith 1978b:542).

The main food zones utilized were marine, woodland, and grassland (Bean and Smith 1978). Plant foods were, by far, the greatest part of the traditional diet at contact. Acorns were the most important single food source. Villages were located near water sources necessary for the leaching of acorns, which was a daily occurrence. Grass seeds were the next most abundant plant food used along with chia. Seeds were parched, ground, and cooked as mush in various combinations according to taste and availability. Greens and fruits were eaten raw or cooked or sometimes dried for storage. Bulbs, roots, and tubers were dug in the spring and summer and usually eaten fresh. Mushrooms and tree fungus were prized as delicacies. Various teas were made from flowers, fruits, stems and roots for medicinal cures as well as beverages (Bean and Smith 1978b:538-540).

The principal game animals were deer, rabbit, jackrabbit, woodrat, mice, ground squirrels, antelope, quail, dove, ducks and other birds. Most predators were avoided as food, as were tree squirrels and most reptiles. Trout and other fish were caught in the streams, while salmon were available when they ran in the larger creeks. Marine foods were extensively utilized. Sea mammals, fish and crustaceans were hunted and gathered from both the shoreline and the open ocean, using reed and dugout canoes. Shellfish were the most common resource, including abalone, turbans, mussels, clams, scallops, bubble shells, and others (Bean and Smith 1978b:538-540).

HISTORIC SETTING

The Project area is located west the former Mexican Rancho El San Jacinto Nuevo y Potrero (Figure 6). During the Spanish period in California, Mission San Luis Ray controlled all the lands of El San Jacinto Nuevo y Potrero. When secularization began during the Mexican period, the Mexican government began granting large amounts of lands to government officials, veterans, and their families in efforts to encourage settlement of the territories. In 1846 Governor Pio Pico granted El San Jacinto Nuevo y Potrero to Miguel Pedrorena.

After the Mexican-American War, the 1848 treaty of Guadalupe Hidalgo held that the United States government would honor all Mexican era land grants. As required by the Land Act of 1851, a claim for Rancho San Jacinto Nuevo y Potrero was filled with the Public Lands Commission and the grant was patented to T.W. Sutherland, guardian for the heirs (Miguel, Helena, Isabel, and Maria Antonia Estudi) of Miguel Pedrorena in 1883 (Shumay 2007).

In 1883 Frank E. Brown created the Bear Valley Land and Water Company, which built a dam at Bear Valley in the San Bernardino Mountains and was contracted to provide water to the communities of Moreno and Alessandro. The Perris and Alessandro Irrigation District was formed in 1891 and increased the demands on Bear Valley Water Company, which resulted in the city of Redlands suing for priority rights. Redlands won their suit in 1899 and, in conjunction with a period of drought, caused the failure of numerous deciduous and citrus fruit tree farmers in the area and many residents of Moreno Valley were forced to leave the area (City of Moreno Valley, N.D.)

In 1918, March Field, located approximately five miles to the west of the Project area, was constructed when the United States was anticipating entry into World War I and was building up its military forces. At first, March Field was used to train fighter pilots until 1922 when the field closed. The field reopened in 1927 as a flight training school and at the height of its activity the base supported 85,000 troops. The base contributed to the growth in the area, which continued in later decades when developers purchased large parcels of land and constructed below-market priced homes. On December 3, 1984 the City of Moreno Valley was officially incorporated as a California general law municipality (City of Moreno Valley, N.D.).

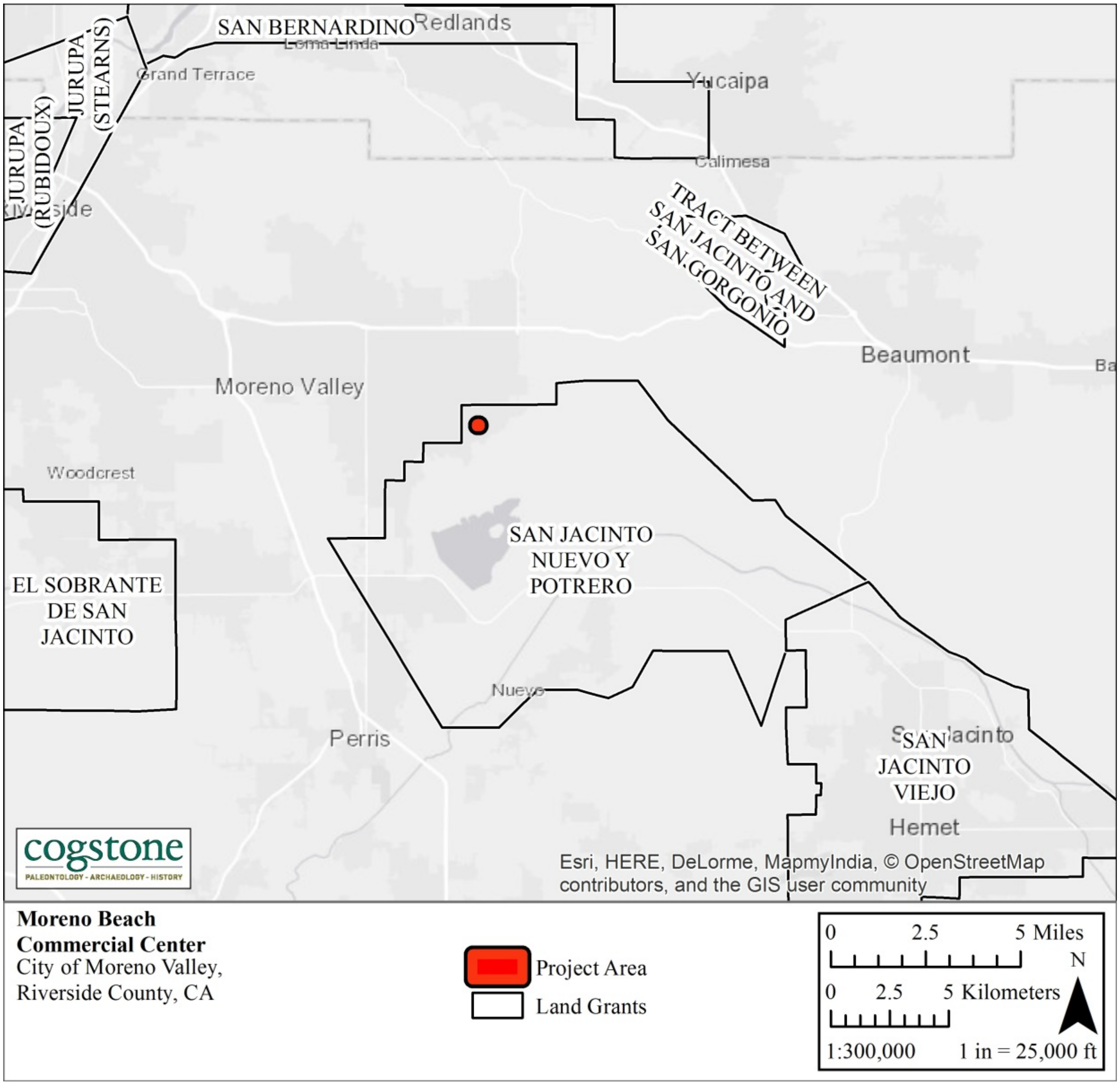

Figure 5. Spanish/Mexican Land Grant map

PROJECT AREA HISTORY

The historic aerials and topographic maps do not indicate that there has been any development within the Project area. The area surrounding the Project area has been used historically for agriculture in the late 19th to early 20th century. However, there is no indication that the Project area was affected by this use based on a review of the historic aerials. The Project was previously graded at an unknown date; however there is no indication of when this work was conducted or for what reason. The main roads (Moreno Beach Drive and John F. Kennedy Drive) were constructed adjacent to the Project area sometime between 1965 and 1968 and the housing tract was constructed between 2002 and 2005. It is likely that the Project area may have been graded during either or both of these events.

RECORDS SEARCHES

PALEONTOLOGICAL RECORDS SEARCHES

Cogstone requested a records search from the Western Science Center that covered the Project area as well as a one mile radius (Radford 2017; Appendix B). Online databases including the Natural History Museum of Los Angeles County, Department of Invertebrate Paleontology (LACMIP 2017), the Paleobiology Database (PBDB 2017), and the University of California Museum of Paleontology Database (UCMP 2017) were also searched for localities near to the project. Print resources including published material (Jefferson 1991a, 1991b) and unpublished project reports (Scott and Gust 2014, Scott and Harris 2016) were searched for fossil localities.

Results of the record search indicate that no previous fossil localities have been recorded within the project boundaries. Within three miles from the Project area, a monitoring project in Moreno Valley produced fossils of extinct ground sloth (*Megalonyx* or *Nothrotheriops*), llama (*Hemiaucheia*), and horse (*Equus*) between 11 and 13 feet below the original ground surface from Holocene to late Pleistocene young alluvial fans (Reieboldt 2014). The sediments that these fossils were recovered from are younger than those within the Project area, however the depositional environment is similar. Between 5 and 7 miles from the Project area in Moreno Valley, Nuevo, and Perris, fossils have been recovered from Pleistocene alluvial fans between 8 and 50 feet below the original ground surface. Extinct sabre-toothed cat (*Smilodon*), bison (*Bison*), western horse (*Equus* sp. cf. *E. occidentalis*), mammoth (*Mammuthus*), and mastodon (*Mammut*) fossils have been recovered from these locations (Table 2). The Lakeview Hot Springs locality also produced fossils of still living animals.

Table 2. Pleistocene Fossils Near the Project Area

Common Name	Taxon	Depth	Formation	Age/ dates	Locality Number	Location	Reference
Botta's pocket gopher	*Thomomys bottae*	~15 feet	Qyf	~15' deep; early Holocene 9,900 + 50 years before present	SBCM 5.3.151	Lakeview Hot Springs	Reynolds and Reynolds 1991
rattlesnake	*Crotalus* sp.						
fresh water clam	*Anodonta* sp.						
California juniper	*Juniperus californicus*						
mammoth	†*Mammuthus* sp.	~25-45 feet	Qvof?	45' deep; late Pleistocene > 40,310 years before present			
western horse	†*Equus* sp. cf. *E. occidentalis*						
deer	*Odocoilius* sp.						
sabre-toothed cat	†*Smilodon* sp.						
vole	*Microtus* sp.						
Botta's pocket gopher	*Thomomys bottae*						
kangaroo rat	*Dipodomys sp.*						
squirrel	Scuridae						
bird	Aves						
pond turtle	*Actinemys sp.*						
frog or toad	Anura (small)						
fresh water snail	*Lymnaea* sp.						
land snail	*Vallonia* sp.						
California juniper	*Juniperus californicus*						
pond turtle	*Actinemys sp.*	~50 feet		late Pleistocene			
horse	†*Equus* sp.	unknown	Qyf?	Pleistocene	LACM 4540	northwestern corner of San Jacinto Valley, just west of Jackrabbit Trail, Moreno Valley	McLeod 2017
ground sloth	†*Megalonyx* sp. or †*Northrotheriops sp.*	13 feet	Qyf_1 or Qvof	late Pleistocene	WSC XXXX	between Eucalyptus and I-60 W of Redlands Blvd, Moreno Valley	Reieboldt 2014
llama	†*Hemiauchenia* sp.	13 feet			WSC XXXX		
horse	†*Equus* sp.	11-12 feet			WSC XXXX		
mastodon	†*Mammut* sp.	8-14 feet	Qvof	Pleistocene	SBCM XXXX	bottom of a flood control channel, Perris	Scott personal communication 2014
bison	†*Bison* sp.						
horse	†*Equus* sp.						

CULTURAL RECORDS SEARCH

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

The purpose of the records search is to identify all previously recorded cultural resources (prehistoric and historic archaeological sites, historic buildings, structures, objects, or districts) within the Project area. All cultural resources as well as cultural resource surveys performed within a one-mile radius of the Project area were reviewed.

Megan Wilson, a Cogstone staff archaeologist, performed a search for archaeological and historical records on December 7, 2017 at the Eastern Information Center (EIC) of the California Historical Resources Inventory System (CHRIS) located on the campus of the California State University, Riverside. The record search covered a one-mile radius around the Project area. The Project is entirely located within the Sunnymead 7.5' topographic quadrangle map. The results of the records search indicated that no prior studies were located within the Project area. A total of eleven cultural resources investigations have been previously completed within a one-mile radius of the Project area (Table 3). The previous studies within the one-mile radius included: two are adjacent to the Project area, two completed between a 0-0.25 mile radius of the Project area, three completed between a 0.25-0.5 mile radius of the Project area, and four between a 0.5-1 mile radius of the Project area.

The records search determined that there are no previously recorded cultural resources within the Project area boundaries but there are 18 cultural resources located within a one-mile radius of the Project area (Table 4). Of these, two cultural resources are located within a 0-0.25 mile radius from the Project area and 13 cultural resources are located within a 0.5 to 1 mile radius from the Project area. The cultural resources recorded within the one mile radius consist of two prehistoric camp sites with milling features and rock paintings, 12 prehistoric archaeological milling slick sites, one prehistoric archaeological milling slick site with possible storage rock ring, two historic archaeological irrigation remnant sites, and one historic spring house. Based on the results of the records search, the flat topography, and the previous grading of the Project area there is a low potential to encounter intact cultural resources within the Project area.

Table 3. Cultural Resource Studies with a One-Mile Radius of the Project Area

Report No.*	Author(s)	Title	Year	Distance from Project (miles)
RI-00414	Holcomb, Thomas	Environmental Impact Evaluation: Archaeological Assessment of Two Portions of Land in Moreno Valley, Riverside County, California	1978	0.5-1
RI-01843	Scientific Resource Surveys, Inc.	Cultural Resource Survey Report on Wolfskill Ranch	1984	0.25-0.5
RI-01979	Mack, Joanne M. and G.A. Clopine	Archaeological Assessment of Assessor's Parcel #483-340-005 and 009, Vicinity of Oliver Street and Alessandro Blvd., Moreno Valley, Riverside County, California	1986	0.5-1
RI-02105	Drover, C.E.	An Archaeological Assessment of the A.L.T.A Specific Plan, Moreno Valley, California	1987	Adjacent to Project
RI-02160	Drover, C.E.	Letter Report: Archaeological Evaluation of Potential Hospital Site in Moreno Valley	1987	0.5-1
RI-5288	White, Laurie	Letter Report: Records Search Results for Sprint PCS Facility RV35XC093A (Golf Course Maintenance), City of Moreno Valley, Riverside County, CA	2000	0.25-0.5
RI-05296	White, Laurie	Letter Report: Records Search Results for Sprint PCS Facility RV35XC093A (Upper EMWD Water Tank), City of Moreno Valley, Riverside County, CA	2000	0.5-1
RI-06644	Billat, Scott	Collocation ("CO") Submission Packet FCC Form 621, Ashley Project	2006	0.25-0.5
RI-08358	Encamacion, Deidre and Daniel Ballester	Identification and Evaluation of Historic Properties: Moreno Valley Medical Village Project, Assessor's Parcel Nos. 486-290-001 and -002, City of Moreno Valley, Riverside County, California	2010	0.5-1
RI-8802	Tang, Bai "Tom", Michael Hogan, Deidre Encamacion, and Daniel Ballester	Phase I archaeological Assessment: Moreno Master Drainage Plan Revision	2012	0.25-0.5
RI-09653	Pucket, Heather R.	Cultural Resources Summary for the Proposed Verizon Wireless, Inc., Property Site, 27905 John F Kennedy Drive, Moreno Valley, Riverside County, California 92555	2014	Adjacent to Project

* All sites from Sunnymead 7.5' USGS Quadrangle.

Table 4. Previously Recorded Cultural Resources within One-Mile of the Project Area

Primary No.*	Trinomial	Resource Type	Description	Year Recorded	Distance from Project (miles)
P-33-000419	CA-RIV-000419	Prehistoric	Camp site with milling features and rock paintings.	1963, 1968, 1983, 1988, 1995	0.5-1
P-33-000420	CA-RIV-000420	Prehistoric	Grinding slicks and bedrock mortar on granitic rock outcrop.	1968, 1983	0.5-1
P-33-000421	CA-RIV-000421	Prehistoric	Numerous milling features scattered on boulders and three rocks with paintings or cupules.	1963, 1968, 1983, 1988, 1995	0.5-1
P-33-000482	CA-RIV-000482	Prehistoric	Six milling slicks on four separate rock outcrops.	1971, 1972, 1989	0.5-1
P-33-000483	CA-RIV-000483	Prehistoric	Two milling stations located on two granitic outcrops.	1971, 1972, 1989	0.5-1
P-33-002867	CA-RIV-002867	Prehistoric	Three milling slicks on a flat, ovoid granitic outcrop	1983, 1989	0.5-1
P-33-002962	CA-RIV-002962	Prehistoric	One milling slick on a bedrock outcrop.	1984	0.5-1
P-33-002963	CA-RIV-002963	Prehistoric	One milling slick on a bedrock outcrop.	1983	0-0.25
P-33-002964	CA-RIV-002964	Prehistoric	One milling slick on a bedrock outcrop.	1984	0-0.25
P-33-002965	CA-RIV-002965	Prehistoric	Four milling slicks located on two large expanses of granitic rock.	1983, 1989	0.5-1
P-33-002968	CA-RIV-002968	Prehistoric	One milling slick located on a granitic outcrop.	1983, 1989	0.5-1
P-33-003323	CA-RIV-003323	Prehistoric	Three milling slicks on three separate outcrops.	1987	0.5-1
P-33-004218	CA-RIV-004218	Prehistoric	Five bedrock milling slicks on two granitic boulders.	1991	0.5-1
P-33-011606	CA-RIV-006914	Prehistoric	Two milling slicks on one isolated boulder.	2002	0.5-1
P-33-013109		Historic	Spring house made of lime and decomposed granite mixture covered with plaster forming a tank. A house once at this location has been demolished.	1983	0.5-1
P-33-013110	CA-RIV-007307	Prehistoric	One milling slick and rough rock circle on top of a flat granite boulder. Rock circle is a possible storage area.	1983	0.5-1
P-33-019919		Historic	Remnants of an irrigation pumping feature and a capped well in a former agricultural field.	2010	0.5-1
P-33-027260		Historic	Fragment of a pre-WWII steel irrigation pipe, probably associated with a water tank or cistern.	2017	0.5-1

* All sites from Sunnymead 7.5’ USGS Quadrangle.

Attachment: Cultural and Paleontological Resources Assessment (3058 : Moreno Beach Commercial Center)

OTHER SOURCES

In addition to the records search a variety of sources were consulted in December 2017 to obtain information regarding the cultural context of the Project area. Sources included the National Register of Historic Places (NRHP), the California Register of Historic Resources (CRHR), California Historical Resources Inventory (CHRI), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). Specific information about the Project area, obtained from historic-era maps and aerial photographs, is presented in the results section below.

Table 5. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP; 1979-2002 & supplements)	Negative
Historic USGS Topographic Maps	Negative
Historic US Department of Agriculture Aerial Photographs	Negative
California Register of Historical Resources (CRHR; 1992-2014)	Negative
California Historical Resources Inventory (CHRI; 1976-2014)	Negative
California Historical Landmarks (CHL; 1995 & supplements to 2014)	Negative
California Points of Historical Interest (CPHI; 1992 to 2014)	Negative
Caltrans Historic Bridge Inventory (Caltrans 2016)	Negative
Bureau of Land Management (BLM) General Land Office Records	Positive, William B Bourn, 1820, Sale-Cash Entry

NATIVE AMERICAN CONSULTATION

The City of Moreno Valley is conducting consultation to meet the requirements of Assembly Bill 52.

SURVEY

METHODS

The survey stage is important in a project's environmental assessment phase to verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to areas of cultural resources sensitivity. All undeveloped ground surface areas within Project area were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), historic-era debris (e.g., metal, glass, ceramics), fossils, and to confirm that field observations conform to the geological maps of the project area. Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) were visually inspected. Photographs of the Project area, including ground surface visibility and items of interest, were taken with a digital camera.

RESULTS

An intensive pedestrian survey was conducted by Megan Wilson of the entire 2.5 acre Project area on December 7, 2017. Ground visibility was good (75 percent) as thick, invasive weeds throughout the Project area had recently been mowed (Figure 7). The visibility in the western and northern boundaries of the site was poor (10 percent) due to landscaped grasses (Figure 8). Sediments consisted of yellowish brown silty sand with sub-rounded pebbles (Figure 9). The Project area has been heavily disturbed and has been previously graded at an unknown date. Concrete chunks and decomposed asphalt were piled at the center of the southern boundary of the Project area near Via Sonata and water utilities were located in the northeast corner. There were also other indications of dumping within the site. No cultural or paleontological resources were observed during the survey.

Although the Project area has never been developed based on review of historic aerials and topographic maps, the site appears to have been graded at an unknown date. For this reason, it is unlikely that there will be any impact to cultural resources within the Project area as the area is highly disturbed. Impacts to paleontological resources will depend on subsurface conditions and the depths of excavations.

Figure 6. Overview from southwest corner, view northeast.

Figure 7. Landscaped grass in northwest corner, view southwest.

Figure 8. Sediment in the southwest corner of the Project.

PALEONTOLOGICAL SENSITIVITY

A multilevel ranking system was developed by professional resource managers within the Bureau of Land Management (BLM) as a practical tool to assess the sensitivity of sediments for fossils. The Potential Fossil Yield Classification (PFYC) system (BLM 2008; Appendix C) has a multi-level scale based on demonstrated yield of fossils. The PFYC system provides additional guidance regarding assessment and management for different fossil yield rankings.

Fossil resources occur in geologic units (e.g., formations or members). The probability for finding significant fossils in a Project area can be broadly predicted from previous records of fossils recovered from the geologic units present in and/or adjacent to the study area. The geological setting and the number of known fossil localities help determine the paleontological sensitivity according to PFYC criteria

Sediments that are close to their basement rock source are typically coarse; those farther from the basement rock source are finer. The chance of fossils being preserved greatly increases once the average size of the sediment particles is reduced to 5 mm in diameter or less. Moreover, fossil preservation also greatly increases after natural burial in rivers, lakes, or oceans. Remains left on the ground surface become weathered by the sun or consumed by scavengers and bacterial activity, usually within 20 years or less. So the sands, silts, and clays of rivers, lakes, and oceans are the most likely sediments to contain fossils.

Using the PFYC system, geologic units are classified according to the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts within the known extent of the geological unit. Although significant localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher PFYC value; instead, the relative abundance of localities is intended to be the major determinant for the value assignment.

Based on other recorded localities, Pleistocene fossils typically begin appearing about 8 to 10 feet deep in California valleys. Shallower sediments in the valleys usually do not contain the remains of extinct animals, although Holocene (less than 11,700 years old) remains may be present. The very old alluvial fan deposits are assigned different sensitivities depending on how deep the impacts are. Impacts less than 8 feet below the original ground surface are given a low sensitivity (PFYC 2) while deeper sediments have a moderate and patchy sensitivity (PFYC 3a).

PALEONTOLOGICAL RESOURCES SIGNIFICANCE CRITERIA

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful for determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life;
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important (Scott and Springer 2003, Scott et al. 2004).

CONCLUSIONS AND RECOMMENDATIONS

PALEONTOLOGICAL RESOURCES

The maximum depth of excavations will be approximately five feet for most of the grading and 14 feet for the fuel tanks. Only middle to early Pleistocene Quaternary very old alluvial fans deposits may be impacted by the proposed project construction activities. No paleontological resources have been previously recovered for the Project area or within 2.5 miles of the Project area, although 4 locations between 2.5 miles and 7 miles of the Project area have produced fossils of extinct ground sloth, sabre-toothed cat, llama, bison, western horse, mammoth, and mastodon from between 8 and 50 feet below the original ground surface.

It is possible that fossils meeting significance criteria will be encountered on this project at depths of 8 feet and below; therefore, full-time monitoring for all excavations greater than eight feet deep is recommended. If unanticipated fossils are unearthed during construction, work should be halted in that area until a qualified paleontologist can assess the significance of the find. Work may resume immediately a minimum of 50 feet away from the find. This procedure should be included in the Worker Environmental Awareness Program (WEAP) training provided to construction personnel.

CULTURAL RESOURCES

Identification efforts by Cogstone for this cultural resources assessment included a review of existing literature and historic maps, a record search conducted at the EIC, and an intensive pedestrian survey. No cultural resources have been previously recorded or were observed within the Project area during the pedestrian survey. The majority of archaeological sites within the area are bedrock milling slicks, which were not observed within the Project area during the intensive pedestrian survey. The disturbance of the Project area due to previous grading indicates that the potential for discovery of intact archaeological deposits, including unknown buried archaeological deposits, materials, or features, by the implementation of this Project is low. No further cultural resources work is necessary.

In the event of an unanticipated archaeological discovery, all work must be suspended within 50 feet of the find until a qualified archaeologist evaluates it. In the unlikely event that human remains are encountered during Project development, all work must cease near the find immediately.

In accordance with California Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. Work may not resume in the vicinity of the find until all requirements of the Health and Safety Code have been met.

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APPENDIX A. PERSONNEL QUALIFICATIONS

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

HOLLY DUKE
Task Manager/Archaeologist

EDUCATION

2009 B.A., Archaeology & History, Simon Fraser University, Canada

EXPERIENCE

Ms. Duke is a qualified archaeologist with five years of experience in California. She is experienced in survey, monitoring, excavation, and the identification of human and faunal skeletal remains. Her laboratory responsibilities include: identification and analysis of human skeletal remains; cleaning and identification of faunal bones for inclusion in faunal collections; measuring and cataloging prehistoric and historic artifacts; washing, sorting, and identifying seeds; as well as fossil preparation and stabilization. As Data Manager, she is responsible for the organization of field data, lab supervision and organization, and maintaining the iPads used for data collection in the field.

SELECTED PROJECTS

Crowder Canyon, Caltrans District 8, San Bernardino County, CA. The project consisted of the realignment of SR-138. Participated in the archaeological testing and data recovery of two archaeological sites near Hesperia. Conducted excavation and data recovery of more than six prehistoric features. Sub to Applied Earthworks. Archaeologist. 2016

Longboat Solar Photovoltaic, EDF Renewable Energy, Cities of Barstow and Lenwood, San Bernardino County, CA. The project involved construction of a solar energy facility within an approximately 234 acre property. Cogstone conducted cultural resources Phase I and Extended Phase I studies. Tasks included archaeological and paleontological resources records search, Sacred Lands search, Native American consultation. Identified and cataloged all artifacts recovered, delivered artifacts to tribes for repatriation. Sub to Environmental Intelligence. Archaeologist/Lab and Data Manager. 2015-2017

Fisher House and Golf Course Parking Lot Project, Veterans Affairs Long Beach Healthcare System, City of Long Beach, Los Angeles County, CA. In compliance with the Historic Properties Treatment Plan, supported an archaeological testing program to identify cultural resources by utilizing ground penetrating radar and magnetometry, shovel test pits, and mechanical excavation. Recovered numerous historic artifacts from a trash dump during ground disturbing activities within the Golf Course Parking Lot project area. Cleaned, identified, and cataloged all recovered artifacts. Monitored excavation for utilities at Golf Course Parking Lot project. Prime. Archaeologist/Lab and Data Manager. 2015-2016

Del Sur Solar EIR, City of Lancaster, Lancaster, CA. The project consisted of the construction of a 100 MW solar facility on ~725 acres and a 2-4 mile gen-tie line to SCE's Antelope Substation. Tasks included a cultural resources assessment on behalf of the City of Lancaster. Participated in the field survey, recorded sites on DPR series 523 forms, drafted sections of technical report for inclusion in the cultural resources section of the EIR document. Sub to Aspen. Archaeologist/ Lab and Data Manager. 2015

Bodie Hills FY14-15 Cultural Resources Survey, Desert Restoration Project, Bureau of Land Management, Bishop Field Office, Mono County, CA. The project consisted of a Class III Cultural Resources Inventory survey of 2,721 acres of BLM land identified for vegetation management. Conducted intensive pedestrian survey, organized and maintained data collected in the field, and prepared site records for final report. Prime. Archaeologist/Lab and Data Manager. 2014-2015

Metropole Vault Replacements, Southern California Edison, Avalon, Catalina Island, Los Angeles County, CA. Participated in archaeological monitoring and data recovery excavations. Responsible for collections management of all artifacts and remains during excavation. Created spreadsheet databases to manage artifacts and features. Identified, cleaned, and recorded human remains per the MLD's instructions. Assisted with repatriation of human remains prior to construction completion. Managed and organized field photos and feature data after construction was complete. Prime. Archaeologist/Osteologist /Lab and Data Manager. 2014

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

MEGAN PATRICIA WILSON
Archaeologist/GIS Specialist

EDUCATION

2014 M.A. Anthropology, California State University, Fullerton *cum laude*
2013 GIS Certificate, California State University, Fullerton
2006 B.A., Anthropology, University of California, Los Angeles *cum laude*

SUMMARY QUALIFICATIONS

Ms. Wilson is a Registered Professional Archaeologist and cross-trained paleontologist with 9 years of experience in survey, excavation, and laboratory preparation/curation analysis. Her key research areas include prehistoric subsistence and settlement patterns of coastal southern California, protohistoric and historic archaeology of southern California and the Great Basin, and paleo environmental reconstructions based on archaeological flora and faunal analysis. She is GIS proficient and assists with the digitizing and mapping of spatial data for archaeology projects. Ms. Wilson has five years of experience in southern California archaeology and is an expert in prehistoric and historic Orange County archaeology and artifact identification.

SELECTED PROJECTS

Whittier Boulevard / I-605 Arterial Hot Spot Improvements, Environmental Clearance and Preliminary Engineering for Three Intersection Improvements, Whittier, Los Angeles County, CA. Conducted an intensive-level cultural resources survey to support cultural and paleontological resources technical studies for improvements proposed for three intersections in a disturbed urban environment. Conducted mapping, records search, Sacred Lands search, and NAHC consultation for intersections at Colima Road, Santa Fe Springs Road and Painter Avenue. Sub to Michael Baker. Archaeologist. 2016

Hidden Oaks Country Club Specific Plan and TT 18869, Chino Hills, San Bernardino County, CA. Conducted cultural and paleontological resources assessments and assisted the City with SB 18 compliance. Services included records search, Sacred Lands search, NAHC consultation, field survey, and mitigation recommendations. Cogstone responded to the cultural section of the project EIR comment for this proposed 537-acre residential project with minimum 5-acre per lot constraints. Prime. Archaeologist. 2015-2016

I-15 Limonite Interchange Improvement, County of Riverside/Caltrans District 8, Jurupa Valley/Eastvale, Riverside County, CA. Prepared GIS maps for inclusion in a Paleontological Mitigation Plan (PMP). Sub to Dokken Engineering. GIS Specialist. 2015

Dune Palms Bridge, Project Design and Environmental Documents, La Quinta, Riverside County, CA. The project involved replacing a low water crossing spanning the Coachella Valley Storm Water Channel at Dune Palms Road. Conducted record search, sacred lands search, and NAHC consultation. Cogstone also conducted an intensive field survey, APE mapping, and prepared a Historic Properties Survey Report (HPSR) with appended Archaeological Survey Report (ASR) to support the Project&ED/PSR/PS&E documents. In addition, the project is located within known boundaries of prehistoric Lake Cahuilla, which has previously produced significant fossils. Cogstone conducted a paleontological sensitivity analysis and prepared a Paleontological Identification Report (PIR). Sub to Parsons Brinckerhoff. Archaeologist. 2014

Accelerated Charter Elementary School, Los Angeles Unified School District, Los Angeles, Los Angeles County, CA. The project involves documentation of five historic-age buildings prior to demolition, background research, mitigation monitoring plans, archaeological and paleontological monitoring and preparation of a monitoring compliance report. LAUSD is constructing a new facility on a 2.3-acre site in South Central Los Angeles consisting of classrooms, open areas and parking. Conducted background research and contributed to preparation of DPR forms. Sub to Gafon. Archaeologist. 2015

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

SHERRI GUST, RPA
Principal Investigator for Archaeology and Paleontology

EDUCATION

1994 M. S., Anatomy (Evolutionary Morphology), University of Southern California, Los Angeles

1979 B. S., Anthropology (Physical), University of California, Davis

SUMMARY QUALIFICATIONS

Ms. Gust is a Registered Professional Archaeologist and Qualified Principal Paleontologist with more than 35 years of experience in cultural resources management and consulting in California. She has conducted technical studies and prepared cultural resources chapters for CEQA/EIR compliance documents for project-level and program-level Specific Plans, General Plans, Master Plans, and Zoning Amendments for mixed-use, residential, commercial and industrial developments. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. Ms. Gust holds current BLM permits for cultural and paleontology in California and is certified by all counties and cities in California that maintain lists. She is accepted as a principal investigator for both prehistoric and historical archaeology by the State Office of Historic Preservation's Information Centers. Her expertise also includes historical archaeology of California (statewide) and prehistoric archaeology in the central and southern California coastal and inland areas. She has expertise in the paleontology of the western United States including research, survey, assessment of impacts/effects, significance criteria and determinations, management plans, mitigation implementation, fossil identification and analysis. Tasks personally performed include research, record searches, survey, assessment of impacts/effects, application of NRHP/CRHR significance criteria and archaeological site evaluation, management plans, mitigation implementation, research designs, treatment plans, human osteological identification and analysis, faunal identification and analysis and archaeological site damage assessments.

SELECTED PROJECTS

Batiquitos Lagoon Double Track, San Diego Association of Governments, San Diego County, CA. Project Manager. The project proposes to construct a 2.7-mile-long segment of double-track, grade crossing modifications, site improvements (drainage, culverts, utilities), signal modifications and a bridge crossing at Batiquitos Lagoon. Managed cultural and paleontological records search, research, field survey and assessment reports. Co-author of reports. 2013-present

Purple Line Extension (Westside Subway), Metro/FTA, Los Angeles. Project Manager & Principal Archaeologist/Paleontologist. The project involves extension of the subway from Wilshire/Western to the VA Facility in Westwood for 9 miles. Cogstone prepared the supplemental Archaeology and Architectural History Reports and the cultural and paleontological sections of the FEIS/FEIR. Cogstone sunsequently prepared the cultural and paleontological mitigation and monitoring plans for the entire project. Currently providing monitoring and all other cultural and paleontological services for Section One of the project. 2011-present

Lane Field South Hotel, Lane Field LLC, Hensel Phelps, San Diego, San Diego County, CA. Cogstone conducted archaeological and paleontological awareness training, mitigation monitoring during ground disturbing activities in compliance with the Subsurface Mitigation Plan (Cogstone), and prepared a mitigation compliance report on behalf of the developer. The project involves construction of a new multi-story high-rise hotel with ground level retail space and underground parking. It is located on the site of the former Lane Field baseball stadium (c. 1936-1957). The site is currently a paved parking lot at Pacific Coast Highway and Broadway in downtown San Diego. 2016

Metropole Vaults Replacement Project, **Southern California Edison, Avalon, Catalina Island.** Project Manager and Principal Archaeologist. Managed monitoring, recovery of multiple prehistoric burials with artifacts, negotiation with Most Likely Descendent regarding analysis permitted, processing of all materials and report. Helped arrange reburial ceremony attended by Gabrielino/Tongva elders. 2014-15

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

MOLLY VALASIK
Principal Archaeologist II

EDUCATION

2009 M.A., Anthropology, Kent State University, Kent, Ohio
2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

EXPERIENCE

Ms. Valasik is a Registered Professional Archaeologist with eight years of professional experience. She is a skilled professional who is well-versed in the compliance procedures of CEQA and Section 106 of the NHPA and regularly prepares cultural resources assessment reports for a variety of federal, state, and local agencies throughout California. She has managed local assistance projects involving sidewalk, road, interchange, and bridge improvements with Caltrans/FHWA as the lead agency. In addition, she has prepared cultural resources reports for CEQA/EIR compliance documents for project-level and program-level Specific Plans, General Plans, Master Plans, and Zoning Amendments for mixed-use, residential, commercial and industrial developments. She meets the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*
.

SELECTED PROJECTS

Old Town Streetscape, Phase 2, Caltrans District 3, City of Elk Grove, Sacramento County, CA. The City proposed construction of bump outs, sidewalk widening, bus lanes, etc. within a National Register-listed historic district. Managed cultural studies including record search, Sacred Lands File search, Native American consultation, intensive-level pedestrian archaeological and architectural surveys, as well as coordination and approval by District 3 of an APE map. The District record was updated. Author of Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker/PMC. Project Manager/Principal Investigator. 2016

SR-138 Palmdale Boulevard Project/ED (Sierra Highway), Caltrans District 7, City of Palmdale, Los Angeles County, CA. The project involved widening State Route 138 and Sierra Highway. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey, as well as coordinated approval by District 7 of an APE map. Co-author of the Archaeological Survey Report and Historic Properties Survey Report. Sub to Parsons Transportation. Project Manager/Principal Investigator. 2016

Paradise Valley Specific Plan, County of San Bernardino, near Indio, CA. The proposed project, encompassing 5,411 acres, consists of the construction of a planned community. Directed archaeological survey and extended Phase I activities. Lead author of assessment report. Managed subsequent supplemental survey and updated report. Sub to Envicom. Field Director and GIS Manager. 2011-2013; 2014; 2016

Arlington Avenue Widening, Caltrans District 8, City of Riverside Public Works, Riverside County, CA. The City proposed widening Arlington Avenue one linear mile in order to construct safety improvements. Managed cultural studies including record search, Sacred Lands File search, Native American consultations, and intensive-level pedestrian archaeological survey of the 5-acre site with negative results, as well as coordinated approval by District 8 of an APE map. Co-author of the Archaeological Survey Report and Historic Properties Survey Report. Sub to Michael Baker. Project Manager/Co-Principal Investigator. 2015

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

DESIREÉ RENEÉ MARTINEZ
Principal Archaeologist

EDUCATION

1999 M.A., Anthropology (Archaeology), Harvard University, Cambridge

1995 B.A., Anthropology, University of Pennsylvania, Philadelphia

SUMMARY QUALIFICATIONS

Ms. Martinez is a qualified archaeologist with 20 years of experience in archaeological fieldwork, research, and curation. She has expertise in the planning, implementation, and completion of all phases of archaeological work and has participated in archaeological investigations as a crew member, tribal monitor, and principal researcher. She meets national standards in archaeology set by the Secretary of Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and the standards outlined in Attachment 1 to Caltrans Section 106 Programmatic Agreement with the FHWA. Her experience also includes compliance with CEQA, NEPA, NAGPRA, SB 18 and other cultural resource laws. In addition, Ms. Martinez has vast experience in lab analysis and museum collections management. Ms. Martinez also has extensive experience consulting with Native American leaders and community members in a variety of contexts.

SELECTED PROJECTS

High Desert Corridor/ SR-138 Widening Project, Caltrans District 7 On-Call (07A3145)/LA Metro, Los Angeles and San Bernardino Counties, CA. This project proposed by Caltrans and Metro involves construction of a new, approximately 63-mile long, east-west freeway/expressway and rail line between SR-14 in Los Angeles County and SR-18 in San Bernardino County. Phase II/III testing and data recovery at the three sites that will be directly impacted by the project. Analyzed lithic material. Compliance with Section 106 of the NHPA and CEQA are required. Sub to Parsons Transportation Group. Principal Archaeologist. 2015-2016

SR 138 Crowder Canyon Realignment Data Recovery, Caltrans District 8, Hesperia, San Bernardino County, CA. The project involves realignment of a ~2-mile segment of SR 138 including construction of three bridges, one lane in each direction, drainage construction and demolition of the existing segment. Cogstone participated in data recovery at two archaeological sites. All work was performed in compliance with the Caltrans SER and NEPA, CEQA, and Section 106 of NHPA. Tasks included Native American coordination, manual and mechanical excavation, backfilling, and controlled destruction. Sub to Applied Earthworks. Project Manager. 2016-2017

Whittier Boulevard / Three Intersection Improvements, Whittier, Los Angeles County, CA. Cogstone conducted intensive-level cultural resources surveys and prepared technical studies for improvements proposed for three intersections at Colima Road, Santa Fe Springs Road and Painter Avenue in a disturbed urban environment. Managed records search, Sacred Lands search, NAHC consultation, and APE mapping. Sub to Michael Baker. Project Manager. 2016-ongoing

Longboat Solar Photovoltaic, EDF Renewable Energy, Barstow and Lenwood, San Bernardino County, CA. The project was construction of a new solar facility. Managed the cultural resources assessment including Phase I and Extended Phase I studies to support MND for this ~235-acre site. Managed archaeological monitoring, Native American coordination, Phase II testing, and was co-author of the treatment plan and compliance report. Sub to Environmental Intelligence. Project Manager/Principal Investigator. 2015-2017

Fisher House and Golf Course, Mechanized Archaeology Survey, Veterans Affairs Long Beach Healthcare System, Long Beach, Los Angeles County, CA. The project was preconstruction testing and monitoring for two new constructions projects. In compliance with the Historic Property Treatment Plan preconstruction work included ground penetrating radar and magnetometry, truck mounted auger testing and mechanical excavation units. One historic refuse area was defined and recorded. Monitoring recovered additional cultural materials. Co-author of compliance reports. Principal Investigator. 2015-present

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

KIM SCOTT
Principal Investigator for Paleontology

EDUCATION

2000 B.S., Geology with paleontology emphasis, University of California, Los Angeles
2013 M.S., Biology with a paleontology emphasis, California State University, San Bernardino

SUMMARY QUALIFICATIONS

Scott has more than 20 years of experience in California paleontology and geology. She is a qualified geologist and field paleontologist with extensive survey, monitoring and fossil salvage experience. In addition, she has special skills in fossil preparation (cleaning and stabilization) and preparation of stratigraphic sections and other documentation for fossil localities. Scott serves as company safety officer and is the author of the company safety and paleontology manuals.

SELECTED PROJECTS

Dola Ditch Bridge Replacement, County of San Bernardino, near Amboy, CA. The project is replacement of a bridge. Prepared Paleontological Resources Mitigation and Monitoring Plan. Currently managing monitoring. Prime. Principal Paleontologist. 2016-present

Enterprise Canal Trail and State Route 168 Pedestrian Bridge, City of Clovis, CA. The project proposes to construct a new bridge over the highway connecting to the trail. A Caltrans-formatted Paleontological Identification Report was prepared to assess potential impacts on fossils. Prime. Principal Paleontologist and lead author. 2016-2017

Ganahl Lumber Facility, City of Costa Mesa, CA. The project was expansion of a lumber yard and facilities. Prepared Paleontological Resources Mitigation and Monitoring Plan, managed monitoring and prepared a Compliance Memo. Sub to ECORP. Principal Paleontologist. 2016-2017

Barren Ridge Transmission Line, Los Angeles Department of Water and Power (LADWP), Saugus to Mojave, CA. The project was installation of over 75 miles of LADWP electrical lines across Angeles National Forest, BLM and private lands. Directing paleontological monitoring. Sub to Aspen Environmental Group. Principal Paleontologist. 2015-present

Temecula Gateway EIR, Riverside County, CA. A Planned Development Overlay/Zone Change and General Plan Amendment. Prepared an assessment report for a 9-acre parcel for the EIR. Sub to PMC. Co-Principal Investigator/Report Co-author. 2015

Interstate 15 (I-15) / Limonite Avenue Interchange Improvement Project, Caltrans District 8, Eastvale, Riverside County, CA. The proposed project would replace the existing Limonite Avenue OC and would widen the roadway from four lanes to six lanes. Prepared a Paleontological Mitigation Plan. Sub to Dokken Engineering. Co-Principal Investigator/Report Co-author. 2015.

Perris Valley Line Project, Metrolink - Riverside County Transportation Commission, Riverside County, CA. The project was a 24-mile extension of the Metrolink 91 Line. Managed paleontological monitoring for construction of four new stations, upgrading associated track and utility relocations to extend the Metrolink connection from Riverside through Moreno Valley to Perris. Prepared an abbreviated Paleontological Assessment, supervised all field activities and prepared the Paleontological Resources Monitoring Compliance Report. Sub to HDR Engineering. Project Manager and Principal Paleontologist. 2013-2016.

APPENDIX B. PALEONTOLOGICAL RECORDS SEARCH

WESTERN SCIENCE CENTER

December 8, 2017

Cogstone
Megan Wilson, MA, RPA
1518 W. Taft Avenue
Orange, CA 92865

Dear Ms. Wilson,

This letter presents the results of a record search conducted for the Moreno Beach Commercial Center Project (Cogstone # 4318) in the city of Moreno Valley in Riverside County, California. The project site is located at the southwest corner of the intersection of John F. Kennedy Drive, and Moreno Beach Drive, in section 22, Township 3 South, Range 4 West on the Sunnymead, CA USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as very old alluvial fan deposits dating from the early Pleistocene period (Morton and Matti, 1996-1997). Pleistocene alluvial fan units are considered to be of high paleontological sensitivity. The Western Science Center does not have localities within the project area or within a 1 mile radius, but does have fossil localities within 5 miles that presented paleontological finds within similar alluvial mapped units associated with the Aldi Distribution Center Project in Moreno Valley, California.

Any fossils recovered from the project area would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive Pleistocene units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information about the Aldi Distribution Center Project, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager

2345 Searl Parkway ♦ Hemet, CA 92543 ♦ phone 951.791.0033 ♦ fax 951.791.0032 ♦ WesternScienceCenter.org

APPENDIX C. PALEONTOLOGICAL SENSITIVITY RANKING CRITERIA

PFYC Rank	PFYC Description (BLM 2008)
1	**Very Low.** The occurrence of significant fossils is non-existent or extremely rare. Includes igneous or metamorphic and Precambrian or older rocks. Assessment or mitigation of paleontological resources is usually unnecessary.
2	**Low.** Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils. Includes rock units too young to produce fossils, sediments with significant physical and chemical changes (e.g., diagenetic alteration) and having few to no fossils known. Assessment or mitigation of paleontological resources is not likely to be necessary.
3b	**Potentially Moderate but Undemonstrated Potential.** Units exhibit geologic features and preservational conditions that suggest fossils could be present, but no vertebrate fossils or only common types of plant and invertebrate fossils are known. Surface-disturbing activities may require field assessment to determine appropriate course of action.
3a	**Moderate Potential.** Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered and of low abundance. Common invertebrate or plant fossils may be found. Surface-disturbing activities may require field assessment to determine appropriate course of action.
4	**High.** Geologic units containing a high occurrence of significant fossils. Fossils must be abundant per locality. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.
5	**Very High.** Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils. Vertebrate fossils or scientifically significant invertebrate fossils are known or can reasonably be expected to occur in the impacted area. On-the-ground surveys prior to authorizing any surface disturbing activities will usually be necessary. On-site monitoring may be necessary during construction activities.

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE

Moreno Valley, California

Prepared for:
ROYAL EXCEL ENTERPRISES

Prepared by:
GEOBODEN INC.
Irvine, CA 92620

December 8, 2017

Project No. Moreno Beach-1-01

GEOBODEN INC.

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED 76 GAS STATION

SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE

MORENO VALLEY, CALIFORNIA

ROYAL EXCEL ENTERPRISES

Prepared by:

GEOBODEN INC.
5 Hodgenville
Irvine, California 92620

December 8, 2017

JOB NO. Moreno Beach-1-01

GEOBODEN, INC.
Geotechnical Consultants

December 8, 2017 Project No. Moreno Beach-1-01

Royal Excel Enterprises
7033 Canoga Avenue #2
Canoga Park, California 91303

Subject: Geotechnical Investigation Report
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

GeoBoden, Inc. (GeoBoden) is pleased to submit herewith our geotechnical investigation report for the Proposed 76 Gas Station to be constructed at southwest corner John F. Kennedy in the city of Moreno Valley, California.

This report presents the results of our field investigation, laboratory testing and our engineering judgment, opinions, conclusions and recommendations pertaining to geotechnical design aspects of the proposed development.

It has been a pleasure to be of service to you on 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,
GEOBODEN, INC.

REGISTERED PROFESSIONAL ENGINEER
SHAHROKH E. RADVAR
2742
GEOTECHNICAL
STATE OF CALIFORNIA

Cyrus Radvar,
Principal Engineer, G.E. 2742

Copies: 4/Addressee

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

TABLE OF CONTENTS

FIGURES

APPENDIXES

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
Moreno Valley, California

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation performed by GeoBoden, Inc. (GeoBoden) for the Proposed 76 Gas Station to be located at southwest corner of John F. Keneedy and Moreno Beach Drive in Moreno Valley, California. The general location of the project is shown on Figure 1.

The purposes of this investigation were to determine the geotechnical properties of subsurface soil conditions, to evaluate their in-place characteristics, evaluate site seismicity, and to provide geotechnical recommendations with respect to site grading and for design and construction of proposed foundations and other site improvements.

The scope of the authorized investigation included performing a site reconnaissance, conducting field exploration and laboratory testing programs, performing engineering analyses, and preparing this Geotechnical Investigation Report. Evaluation of environmental issues or the potential presence of hazardous materials was not within the scope of services provided.

This report has been prepared for Royal Excel Enterprises and their other project team members, to be used solely in the development of facilities described herein. This report may not contain sufficient information for other uses or the purposes of other parties.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

The site is located at southwest corner of John F. Kennedy and Moreno Beach Drive in Moreno Valley, California. The proposed project will consist of a 76 Gas Station with associated improvements.

The maximum column load for the new building will be about 75 kips, and the line load will be about 3 kips per lineal feet. Currently, it is our understanding that the proposed building will consist of masonry construction with slab on-grade.

3.0 GEOTECHNICAL INVESTIGATION

Our geotechnical investigation included a field exploration program and a laboratory testing programs. These programs were performed in accordance with our scope of services. The field exploration and laboratory testing programs are briefly described below. A more detailed description of the field exploration and laboratory testing programs is provided in Appendix A and Appendix B, respectively.

3.1 FIELD EXPLORATION PROGRAM

The field exploration program was initiated under the supervision of an engineer. Eight (8) exploratory borings were drilled using a truck-mounted drilling rig equipped with 6-inch diameter hollow stem augers. The borings were advanced to depths of ranging from 11.5 to 21.5 feet (below ground surface). The approximate locations of exploratory borings are shown on Figure 2.

Logs of subsurface conditions encountered in the borings were prepared in the field by a representative of our firm. Soil samples consisting of relatively undisturbed brass ring samples and Standard Penetration Tests (SPT) samples were collected at approximately 5-foot depth intervals and were returned to the laboratory for testing. The SPTs were performed in accordance with ASTM D 1586. Final boring logs were prepared from the field logs and are presented in Appendix A.

3.2 LABORATORY TESTING

Selected samples collected during drilling activities were tested in the laboratory to assist in evaluating controlling engineering properties of subsurface materials at the site. Physical tests performed included moisture and density determination, consolidation, No. 200 Sieve, direct shear, and corrosion. The results of laboratory are presented in Appendix B.

4.0 DISCUSSION OF FINDINGS

The following discussion of findings for the site is based on the results of the field exploration and laboratory testing programs.

4.1 SITE AND SUBSURFACE CONDITIONS

The site is underlain by sand and silt with gravel and silty sand. The native soils underlying the site encountered within our borings were medium dense to dense.

4.2 GROUNDWATER CONDITIONS

Groundwater was not encountered within our exploratory borings to the maximum explored depth of 21.5 feet (below ground surface). Based on information from the Department of Water Resources, Water Data Library, ground water level in the site vicinity is at a depth of greater than 50 feet beneath the existing ground surface.

Fluctuations of the groundwater table, localized zones of perched water, and rise in soil moisture content should be anticipated during the rainy season. Irrigation of landscaped areas can also lead to an increase in soil moisture content and fluctuations of intermittent shallow perched groundwater levels.

4.3 SOIL ENGINEERING PROPERTIES

Physical tests were performed on the relatively undisturbed samples to characterize the engineering properties of the native soils. Moisture content determination was performed on the samples to evaluate the in-situ moisture content. Moisture content and dry unit weight results are included in Appendix B.

4.4 CONSOLIDATION CHARACTERISTICS

Consolidation tests were performed on samples of the existing overburden soils recovered from the boring. Results of the consolidation tests indicate that the overburden material will have low compressibility under the anticipated loads. These characteristics are compatible with the allowable bearing capacity values and corresponding settlement estimates presented in Foundations Section of our report.

4.5 COLLAPSE POTENTIALS

Results of consolidation tests on samples of native soil indicate that the native soils will have low collapse potential. Removal and recompaction of the surficial soils is expected to reduce the anticipated amount of total differential settlement within the site.

4.6 EXPANSIVE SOILS

The near surface soils are granular which exhibit VERY LOW expansion potential. We anticipate that the design and performance of the proposed new building will not be affected by expansion of onsite soils.

4.7 STRENGTH CHARACTERISTICS

Strength tests were performed on select samples of the existing native overburden soils recovered from the boring. Results of these strength tests generally indicate high friction angle with little cohesion. These characteristics are compatible with the allowable bearing capacity recommendations presented in section 7.7 (Foundations).

5.0 STRONG GROUND MOTION POTENTIAL

The project site is located in a seismically active area typical of Southern California and likely to be subjected to a strong ground shaking due to earthquakes on nearby faults.

The site is not mapped within an Alquist-Priolo (AP) Special Study Zone. Pinto Mountain fault zone (Moreno Valley fault) is the closest known active fault, located about 0.77-km of the site with an anticipated maximum moment magnitude (M_w) of 7.2.

5.1 CBC DESIGN PARAMETERS

To accommodate effects of ground shaking produced by regional seismic events, seismic design can, at the discretion of the designing Structural Engineer, be performed in accordance with the 2016 edition of the California Building Code (CBC). Table below, 2016 CBC Seismic Parameters, lists (next) seismic design parameters based on the 2016 CBC methodology, which is based on ASCE/SEI 7-10:

2016 CBC Seismic Design Parameters	Value
Site Latitude (decimal degrees)	33.9163
Site Longitude (decimal degrees)	-117.1749
Site Class Definition (ASCE 7 Table 20.3-1)	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s (Figure 1613.3.1(1))	1.936
Mapped Spectral Response Acceleration at 1s Period, S_1 (Figure 1613.3.1(2))	0.861
Short Period Site Coefficient at 0.2s Period, F_a (Table 1613.3.3(1))	1.000
Long Period Site Coefficient at 1s Period, F_v (Table 1613.3.3(2))	1.500
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS} (Eq. 16-37)	1.936
Adjusted Spectral Response Acceleration at 1s Period, S_{M1} (Eq. 16-38)	1.292
Design Spectral Response Acceleration at 0.2s Period, S_{DS} (Eq. 16-39)	1.290
Design Spectral Response Acceleration at 1s Period, S_{D1} (Eq. 16-40)	0.861

6.0 LIQUEFACTION POTENTIAL

For liquefaction to occur, all of three key ingredients are required: liquefaction-susceptible soils, groundwater within a depth of 50 feet or less, and strong earthquake shaking. Soils susceptible to liquefaction are generally saturated loose to medium dense sands and non-plastic silt deposits below the water table.

Groundwater is not present at the site at shallow depths and soils consist predominately of medium dense to dense sandy soil materials. It is our opinion the potential for liquefaction at the site is minimal. Due to the absence of loose sandy soil layers, potential for dry sand seismic settlement is also minimal.

It is our opinion that potential for subsidence and liquefaction is minimal at the site and will not adversely impact the foundation of the proposed building and the associated site improvements.

7.0 DESIGN RECOMMENDATIONS

Based upon the results of our investigation, the proposed development is considered geotechnically feasible provided the recommendations presented herein are incorporated into the design and construction. If changes in the design of the structure are made or variations or

changed conditions are encountered during construction, GeoBoden should be contacted to evaluate their effects on these recommendations. The following geotechnical engineering recommendations for the proposed buildings are based on observations from the field investigation program and the physical test results.

7.1 EARTHWORK

All earthworks, including excavation, backfill and preparation of subgrade, should be performed in accordance with the geotechnical recommendations presented in this report and applicable portions of the grading code of local regulatory agencies. All earthwork should be performed under the observation and testing of a qualified geotechnical engineer.

7.2 SITE AND FOUNDATION PREPARATION

All site preparation should be observed by experienced personnel reporting to the project Geotechnical Engineer. Our field monitoring services are an essential continuation of our prior studies to confirm and correlate the findings and our prior recommendations with the actual subsurface conditions exposed during construction, and to confirm that suitable fill soils are placed and properly compacted.

Earthwork is expected to consist of subgrade preparation for construction of the building pad and surface parking. Minimal site preparation will provide satisfactory support for the new footings, floor slab and the new pavement. We recommend that the upper 3 feet of existing soils within the building footprints be removed and recompacted. If loose, disturbed, or otherwise unsuitable materials are encountered at the bottom of excavation, removal of unsuitable soils will be required until firm soils are encountered.

Excavations below the final grade level should be properly backfilled using lean concrete or approved fill material compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM Test Method D1557. The backfill and any additional fill should be placed in loose lifts less than 8 inches thick, moisture conditioned to near optimum moisture content, and compacted to 90 percent. Fill materials should be free of construction debris, roots, organic matter, rubble, contaminated soils, and any other unsuitable or deleterious material as determined by the Geotechnical Engineer. The on-site soils are suitable for use as compacted

fill, provided the soil is free of any deleterious substance. All import fill material should be approved by the Geotechnical Engineer prior to importing to the site for use as compacted fill.

7.3 FILL PLACEMENT AND COMPACTION REQUIREMENTS

Material for engineered fill should be select free of organic material, debris, and other deleterious substances, and should not contain fragments greater than 3 inches in maximum dimension. On-site excavated soils that meet these requirements may be used to backfill the excavated building pad area.

All fill should be placed in 6-inch-thick maximum lifts, watered or air dried as necessary to near optimum moisture content, and then compacted in place to a maximum relative compaction of 90 percent. The laboratory maximum dry density and optimum moisture content for each change in soil type should be determined in accordance with Test Method ASTM D 1557. A representative of the project consultant should be present on-site during grading operations to verify proper placement and compaction of all fill, as well as to verify compliance with the other geotechnical recommendations presented herein.

Imported soils, if any, should consist of clean materials exhibiting a VERY LOW expansion potential (Expansion Index less than 20). Soils to be imported should be approved by the project geotechnical consultant prior to importation.

7.4 VOLUMETRIC CHANGES

Volumetric changes in earth quantities will occur when excavated onsite soil materials are replaced as properly compacted fill. It is anticipated that shrinkage due to recompaction of existing soils will range from 3 to 5 percent. The actual shrinkage or bulking that will occur during grading will depend on the average degree of relative compaction achieved.

A subsidence estimate at 0.10 to 0.15 feet may be anticipated as a result of the scarification and recompaction of the exposed ground surfaces within the removal areas.

The above estimates of shrinkage and subsidence are intended for use by the project planners in determining earthwork quantities and should not be considered absolute values. Contingencies

should be made for balancing earthwork quantities based on actual shrinkage and subsidence that will occur during grading.

7.5 GEOTECHNICAL OBSERVATIONS

Exposed bottom surfaces in each removal area should be observed and approved by the project geotechnical consultant prior to placing fill. No fill should be placed without prior approval from the geotechnical consultant.

The project geotechnical consultant should be present on site during grading operations to verify proper placement and compaction of fill, as well as to verify compliance with the recommendations presented herein.

7.6 UTILITY TRENCH BACKFIL

All utility trench backfill should be compacted to a minimum relative compaction of 90 percent. Trench backfill materials should be placed in lifts no greater than approximately 6 inches in thickness, watered or air-dried as necessary to near optimum moisture content, and then mechanically compacted in place to a minimum relative compaction of 90 percent. A representative of the project geotechnical consultant should probe and test the backfills to verify adequate compaction.

As an alternative for shallow trenches where pipe or utility lines may be damaged by mechanical compaction equipment, such as under floor slabs, imported clean sand exhibiting a sand equivalent (SE) value of 30 or greater may be utilized. The sand backfill materials should be watered to achieve near optimum moisture conditions and then tamped into place. No specific relative compaction will be required; however, observation, probing, and if deemed necessary, testing should be performed by a representative of the project geotechnical consultant to verify an adequate degree of compaction and that the backfill will not be subject to settlement.

Where utility trenches enter the footprint of the floor slabs, they should be backfilled through their entire depths with on-site fill materials, sand-cement slurry, or concrete rather than with any sand or gravel shading. This "Plug" of less- or non-permeable materials will mitigate the

potential for water to migrate through the backfilled trenches from outside to the areas beneath the foundations and floor slabs.

7.7 SHALLOW FOUNDATIONS

Following the site and foundation preparation recommended above, foundation for load bearing walls and interior columns may be designed as discussed below.

7.7.1 Bearing Capacity and Settlement

Load bearing walls and interior columns may be supported on continuous spread footings and isolated spread footings, respectively, and should bear entirely upon undisturbed native or properly engineered fill. Continuous and isolated footings should have a minimum width of 18 inches and 24 inches, respectively. All footings should be embedded a minimum depth of 18 inches measured from the lowest adjacent finish grade. Continuous and isolated footings placed on such materials may be designed using an allowable (net) bearing capacity of 2,000 pounds per square foot (psf) respectively. Allowable increases of 250 psf for each additional 1 foot in width and 250 psf for each additional 6 inches in depth may be utilized, if desired. The maximum allowable bearing pressure should be 3,000 psf. The maximum bearing value applies to combined dead and sustained live loads. The allowable bearing pressure may be increased by one-third when considering transient live loads, including seismic and wind forces.

Based on the allowable bearing value recommended above, total settlement of the shallow footings are anticipated to be less than one inch, provided foundation preparations conform to the recommendations described in this report. Differential settlement is anticipated to be approximately half the total settlement for similarly loaded footings spaced up to approximately 30 feet apart.

7.7.2 Lateral Load Resistance

Lateral load resistance for the spread footings will be developed by passive soil pressure against sides of footings below grade and by friction acting at the base of the concrete footings bearing on compacted fill. An allowable passive pressure of 250 psf per foot of depth may be used for design purposes. An allowable coefficient of friction 0.35 may be used for dead and

sustained live load forces to compute the frictional resistance of the footings constructed directly on compacted fill. Safety factors of 2.0 and 1.5 have been incorporated in development of allowable passive and frictional resistance values, respectively. Under seismic and wind loading conditions, the passive pressure and frictional resistance may be increased by one-third.

7.7.3 Footing Reinforcement

Reinforcement for footings should be designed by the structural engineer based on the anticipated loading conditions. Footings for structures that are supported in very low to low expansive soils should have No. 4 bars, two top and two bottom.

7.8 CONCRETE SLAB ON-GRADE

Concrete slabs will be placed on undisturbed natural soils or properly compacted fill as outlined in Section 7.2. Moisture content of subgrade soils should be maintained near the optimum moisture content.

At the time of the concrete pour, subgrade soils should be firm and relatively unyielding. Any disturbed soils should be excavated and then replaced and compacted to a minimum of 90 percent relative compaction. Slabs should be designed to accommodate very low to low expansive fill soils. The structural engineer should determine the minimum slab thickness and reinforcing depending upon the expansive soil condition intended use. Slabs placed on very low to low expansive soils should be at least 4 inches thick and have minimum reinforcement of No. 3 bars placed at mid-height of the slabs and spaced 18 inches on centers, in both directions. The structural engineer may require thicker slabs with more reinforcement depending on the anticipated slab loading conditions.

If moisture-sensitive floor covering is planned, a layer of open-graded gravel, at least 4 inches thick, should be placed below the concrete slab to form a capillary break. Alternately, moisture-proof membrane (such as 10-mil) may be utilized. The vapor barrier should be placed between sand layers (2 inches above and below) to protect the membrane from damage during construction. Gravel for use under a concrete floor slab should be clean, crushed rock that meets the gradation requirements presented next.

Sieve Size	Percentage
1 inch	100
¾ inch	90-100
No. 4	0-10

7.9 PRELIMINARY PAVEMENT DESIGN

Pavement design should be confirmed at the completion of site grading when the subgrade soils are in-place. This should include sampling and R-Value testing of the actual subgrade soils and an analysis based upon the anticipated traffic loading.

For a preliminary pavement design, recommendations for pavement design section of asphalt parking areas are provided below. These values are based on an assumed R-value of 45.

For pavement design, Traffic indexes (TI) of 4.0 and 5.5 were used for the parking areas and auto driveways, respectively. The preliminary flexible pavement layer thickness is as follows:

RECOMMMENDED ASPHALT PAVEMENT SECTION LAYER THICKNESS

Pavement Material	Recommended Thickness	
	TI = 4.0	TI = 5.5
Asphalt Concrete Surface Course	3 inches	4 inches
Class II Aggregate Base Course	5 inches	6 inches
Compacted Subgrade Soils	12 inches	12 inches

Asphalt concrete should conform to Sections 203 and 302 of the latest edition of the Standard Specifications for Public Works Construction ("Greenbook").

Class II aggregate base should conform to Section 26 of the Caltrans Standard Specifications, latest edition. The aggregate base course should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Method D 1557.

Portland cement concrete paving sections were determined in accordance with procedures developed by the Portland Cement Association. Concrete paving sections for three Traffic Indices are presented below. We have assumed that the portland cement concrete will have a compressive strength of at least 3,000 pounds per square inch.

Assumed Traffic Index	PCC Paving (Inches)	Base Course (Inches)
4½ (Automobile Parking)	6	4
5½ (Driveways and Light Track Traffic)	6½	4
6½ (Roadways and Heavy Truck Traffic)	7	4

7.10 SOLUBLE SULFATES AND SOIL CORROSIVITY

The soluble sulfate, pH, and chloride concentration tests were performed on a sample of the on-site soils. Corrosion test results are presented in Appendix B. Results of the minimum resistivity tests indicate that on-site soils have mildly corrosive potential when in contact with ferrous materials. Typical recommendations for mitigation of the corrosive potential of the soil in contact with building materials are the following:

- Below grade ferrous metals should be given a high quality protective coating, such as an 18 mil plastic tape, extruded polyethylene, coal tar enamel, or Portland cement mortar.

- Below grade ferrous metals should be electrically insulated (isolated) from above grade ferrous metals and other dissimilar metals, by means of dielectric fittings in utilities and exposed metal structures breaking grade.

- Steel and wire reinforcement within concrete in contact with the site soils should have at least two inches of concrete cover.

If ferrous building materials are expected to be placed in contact with site soils, it may be desirable to consult a corrosion specialist regarding chosen construction materials, and/or protection design for the proposed facility.

Corrosion test results also indicate that the surficial soils at the site have negligible sulfate attack potential on concrete. No sulfate-resistant cement will be necessary for concrete placed in contact with the on-site soils.

8.0 CONSTRUCTION CONSIDERATIONS

Based on our field exploration program, earthwork can be performed with conventional construction equipment.

8.1 TEMPORARY DEWATERING

Groundwater was not encountered in borings to the maximum explored depth of 21.5 feet below ground surface. Based on the anticipated excavation depths, the need for temporary dewatering is considered very low.

8.2 CONSTRUCTION SLOPES

Excavations during construction should be conducted so that slope failure and excessive ground movement will not occur. The short-term stability of excavation depends on many factors, including slope angle, engineering characteristics of the subsoils, height of the excavation and length of time the excavation remains unsupported and exposed to equipment vibrations, rainfall and desiccation.

Where space permits, and providing that adjacent facilities are adequately supported, open excavations may be considered. In general, unsupported slopes for temporary construction excavations should not be expected to stand at an inclination steeper than 1:1 (horizontal:vertical). The temporary excavation side walls may be cut vertically to a height of 3 feet and then laid back at a 1:1 slope ratio above a height of 3 feet.

Surcharge loads should be kept away from the top of temporary excavations a horizontal distance equal to at least one-half the depth of excavation. Surface drainage should be controlled along the top of temporary excavations to preclude wetting of the soils and erosion

of the excavation faces. Even with the implementation of the above recommendations, sloughing of the surface of the temporary excavations may still occur, and workmen should be adequately protected from such sloughing.

If site conditions do not provide sufficient space for sloped excavations at the project site, slot cutting techniques in a repeating “ABC” sequence may be required. First, all the slots designated as “A” should be excavated, backfilled and recompacted. The procedure should continue with the “B” slots and end with the “C” slots. The width of each slot should not exceed 6 feet. If any evidence of potential instability is observed, revised recommendations such as narrower slot cuts may be necessary. All slot excavation and backfilling procedures should be performed under the observation and testing of a qualified geotechnical engineer.

9.0 POST INVESTIGATION SERVICES

Final project plans and specifications should be reviewed prior to construction to confirm that the full intent of the recommendations presented herein have been applied to design and construction. Following review of plans and specifications, observation should be performed by the geotechnical engineer during construction to document that foundation elements are founded on/or penetrate onto the recommended soils, and that suitable backfill soils are placed upon competent materials and properly compacted at the recommended moisture content.

10.0 CLOSURE

The conclusions, recommendations, and opinions presented herein are: (1) based upon our evaluation and interpretation of the limited data obtained from our field and laboratory programs; (2) based upon an interpolation of soil conditions between and beyond the borings; (3) are subject to confirmation of the actual conditions encountered during construction; and, (4) are based upon the assumption that sufficient observation and testing will be provided during construction.

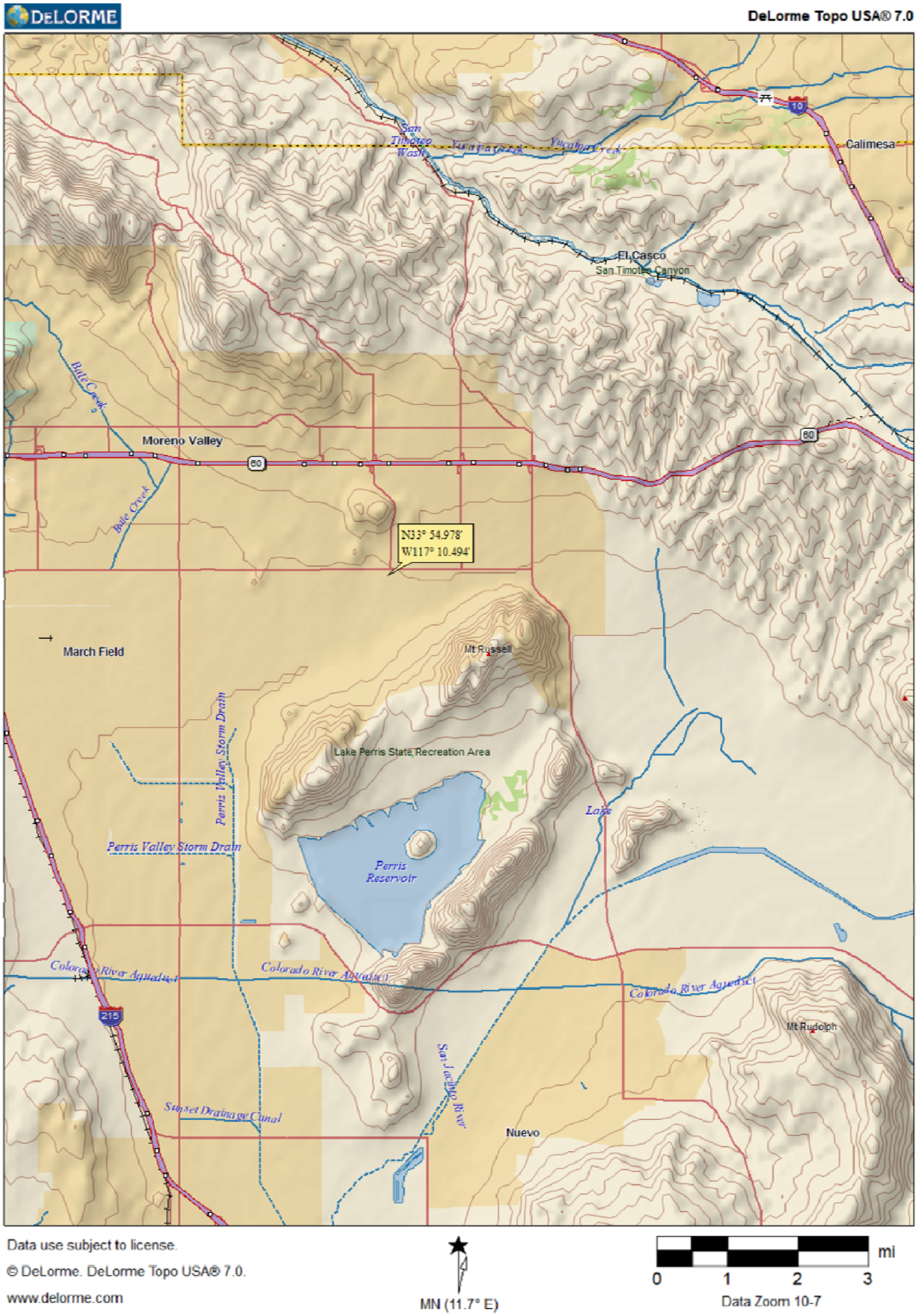
If parties other than GeoBoden are engaged to provide construction geotechnical services, they must be notified that they will be required to assume complete responsibility for the geotechnical phase of the project by concurring with the findings and recommendations in this report or providing alternate recommendations.

If pertinent changes are made in the project plans or conditions are encountered during construction that appear to be different than indicated by this report, please contact this office. Significant variations may necessitate a re-evaluation of the recommendations presented in this report.

11.0 REFERENCES

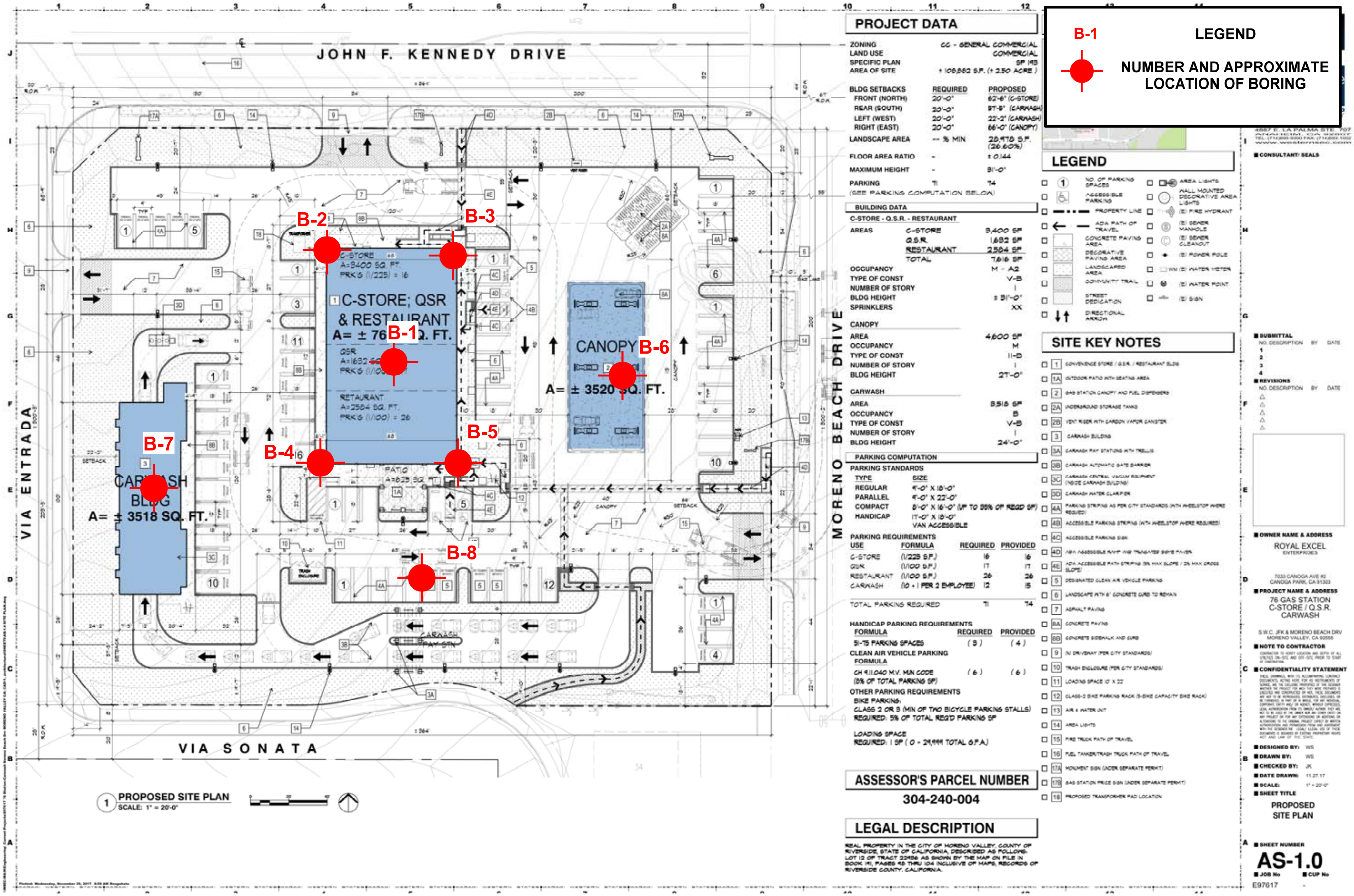
California Building Code, 2016 Volume 2.

FIGURES



GEOBODEN INC. Geotechnical Consultants	SITE VICINITY MAP Proposed 76 Gas Station Southwest John F. Kennedy/Moreno Beach Drive Moreno Valley, California	Figure By S.R.	Project No Moreno Beach-1-
		Map No. XX	Figure No. 1
		Date 12-08-1	

Attachment: Geotechnical Investigation (3058 : Moreno Beach Commercial Center)



GEOBODEN INC. Geotechnical Consultants	BORING LOCATION PLAN Proposed 76 Gas Station Southwest John F. Kennedy/Moreno Beach Drive Moreno Valley, California	Figure By S.R.	Project I Moreno Bea
		Map No. XX	Figure No.
		Date	

APPENDIX A
BORING LOGS

APPENDIX A
SUBSURFACE EXPLORATION PROGRAM

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

Prior to drilling, the proposed borings were located in the field by measuring from existing site features.

A total of 8 exploratory borings (B-1 through B-8) were drilled using a hollow-stem auger drill rig equipped with 6-inch outside diameter (O.D.) augers. GeoBoden of Irvine, California performed the drilling on November 25, 2017. The boring locations are shown on Figure 2.

Depth-discrete soil samples were collected at selected intervals from the exploratory borings using a 2 ½ -inch inside diameter (I.D.) modified California Split-barrel sampler fitted with 12 brass ring of 2 ½ inches in O.D. and 1-inch in height and one brass liner (2 ½ -inch O.D. by 6 inches long) above the brass rings. The sampler was lowered to the bottom of the boreholes and driven 18 inches into the soil with a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler the lower 12 inches is shown on the blow count column of the boring logs.

After removing the sampler from the boreholes, the sampler was opened and the brass rings and liner containing the soil were removed and observed for soil classification. Brass rings containing the soil were sealed in plastic canisters to preserve the natural moisture content of the soil. Soil samples collected from exploratory borings were labeled, and were transported for physical testing.

Standard Penetration Tests (SPTs) were also performed within the borings. The SPT consists of driving a standard sampler, as described in the ASTM 1586 Standard Method, using a 140-pound hammer falling 30 inches. The number of blows required to drive the SPT sampler the lower 12 inches of the sampling interval is recorded on the blow count column of the boring logs.

The soil classifications and descriptions on field logs were performed using the Unified Soil Classification System as described by the American Society for Testing and Materials (ASTM) D 2488-90, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)." The final boring logs were prepared from the field logs and are presented in this Appendix.

At the completion of the sampling and logging, the exploratory borings were backfilled with the drilled cuttings.

GEOBODEN, INC.

BORING NUMBER B-1

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light brownish gray, dry, ~85% sand, ~10% fines, ~5% gravel										
5			MC R-1		30		103	3				
10		light olive gray	SS S-2		12							
15			MC R-3		31							
20			SS S-4		31							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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Attachment: Geotechnical Investigation (3058 : Moreno Beach Commercial Center)

GEOBODEN, INC.

BORING NUMBER B-2

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		POORLY-GRADED SAND w. SILT (SP-SM): pale olive, dry, ~5% fine gravel, ~10% fines, ~85% medium sand										
5			MC R-1		28		108	4				1
		POORLY-GRADED SAND w. SILT & GRAVEL (SP): pale olive, dry, ~15% subangular gravel up to 2 inch, ~10% fines, ~75% fine sand										
10			SS S-2		14			3				
15			MC R-3		34		114	2				
20			SS S-4		36							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-3

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		POORLY-GRADED SAND w. SILT (SP-SM): olive gray, dry, ~5% gravel, ~10% fines, ~85% sand										
5			MC R-1		24		105	3				1
10		grayish brown	SS S-2		11			2				
15			MC R-3		32		108	3				
20			SS S-4		36							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

GEOBODEN, INC.

BORING NUMBER B-4

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): olive, dry, ~75% sand, ~20% fines, ~5% gravel										
5			MC R-1		32		109	6				
10		light olive brown	MC R-2		31		112	5				
15			MC R-3		36							
		POORLY-GRADED SAND w. SILT & GRAVEL (SP-SM): brown, dry, ~15% fine gravel, ~75% medium sand, ~10% fines										
20			SS S-4		39							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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Attachment: Geotechnical Investigation (3058 : Moreno Beach Commercial Center)

GEOBODEN, INC.

BORING NUMBER B-5

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light yellowish brown, dry, ~10% fines, ~90% sand										
5			MC R-1		19		104	2				
10		SAND w. GRAVEL (SP): pale olive, dry , ~15% fine to coarse gravel, ~80% fine sand, ~5% fines	MC R-2		32							
15			MC R-3		38							
20			SS S-4		40							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

GEOBODEN, INC.

BORING NUMBER B-6

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light brown, dry, ~5% gravel										
5			MC R-1		30		111	2				
10			MC R-2		36							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

GEOBODEN, INC.

BORING NUMBER B-7

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): brown, dry, ~70% sand, ~30% fines										
5		POORLY-GRADED SAND w. SILT (SP-SM): light olive gray, dry, ~5% gravel, ~10% fines, ~85% sand	MC R-1		41		109	4				
10			MC R-2		39							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 12/8/17 09:13 - C:\PASSPORT\GBI\76 GAS STATION-JFK & MORENO BEACH DRIVE\LOGS.GPJ

Attachment: Geotechnical Investigation (3058 : Moreno Beach Commercial Center)

GEOBODEN, INC.

BORING NUMBER B-8

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): brown, dry, ~20% fines, ~75% sand, ~5% gravel										
5			MC R-1		41		114	2				
10			MC R-2		45							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 12/8/17 09:13 - C:\PASSPORT\GBI\76 GAS STATION-JFK & MORENO BEACH DRIVE\LOGS.GPJ

Attachment: Geotechnical Investigation (3058 : Moreno Beach Commercial Center)

APPENDIX B
LABORATORY TESTING

APPENDIX B
LABORATORY TESTING

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

Laboratory tests were performed on selected samples to assess the engineering properties and physical characteristics of soils at the site. The following tests were performed:

- moisture content and dry density
- No. 200 Wash sieve
- consolidation
- direct shear
- corrosion

Test results are summarized on laboratory data sheets or presented in tabular form in this appendix.

Moisture Density Tests

The field moisture contents, as a percentage of the dry weight of the soils, were determined by weighing samples before and after oven drying. The dry density, in pounds per cubic foot, was also determined fir all relatively undisturbed ring samples collected. These analyses were performed in accordance with ASTM D 2937. The results of these determinations are shown on the boring logs in Appendix A.

No. 200 Wash Sieve

Quantitative determination of the percentage of soil finer than 0.075 mm was performed on selected soil samples by washing the soil through the No. 200 sieve. Test procedures were performed in accordance with ASTM Method D1140. The results of the tests are shown on the boring logs.

Consolidation

The test was performed in accordance with ASTM Test method D 2345. The compression curve from the consolidation tests is presented in this Appendix.

Direct Shear

Direct shear tests were performed on undisturbed samples of on-site soils. A different normal stress was applied vertically to each soil sample ring which was then sheared in a horizontal direction. The resulting shear strength for the corresponding normal stress was measured at a maximum constant rate of strain of 0.005 inches per minute. The direct shear results are shown graphically on a laboratory data sheet included in this appendix.

Corrosion Potential

A selected soil sample was tested to determine the corrosivity of the site soil to steel and concrete. The soil sample was tested for soluble sulfate (Caltrans 417), soluble chloride (Caltrans 422), and pH and minimum resistivity (Caltrans 643). The results of corrosion tests are summarized in Table B-1.

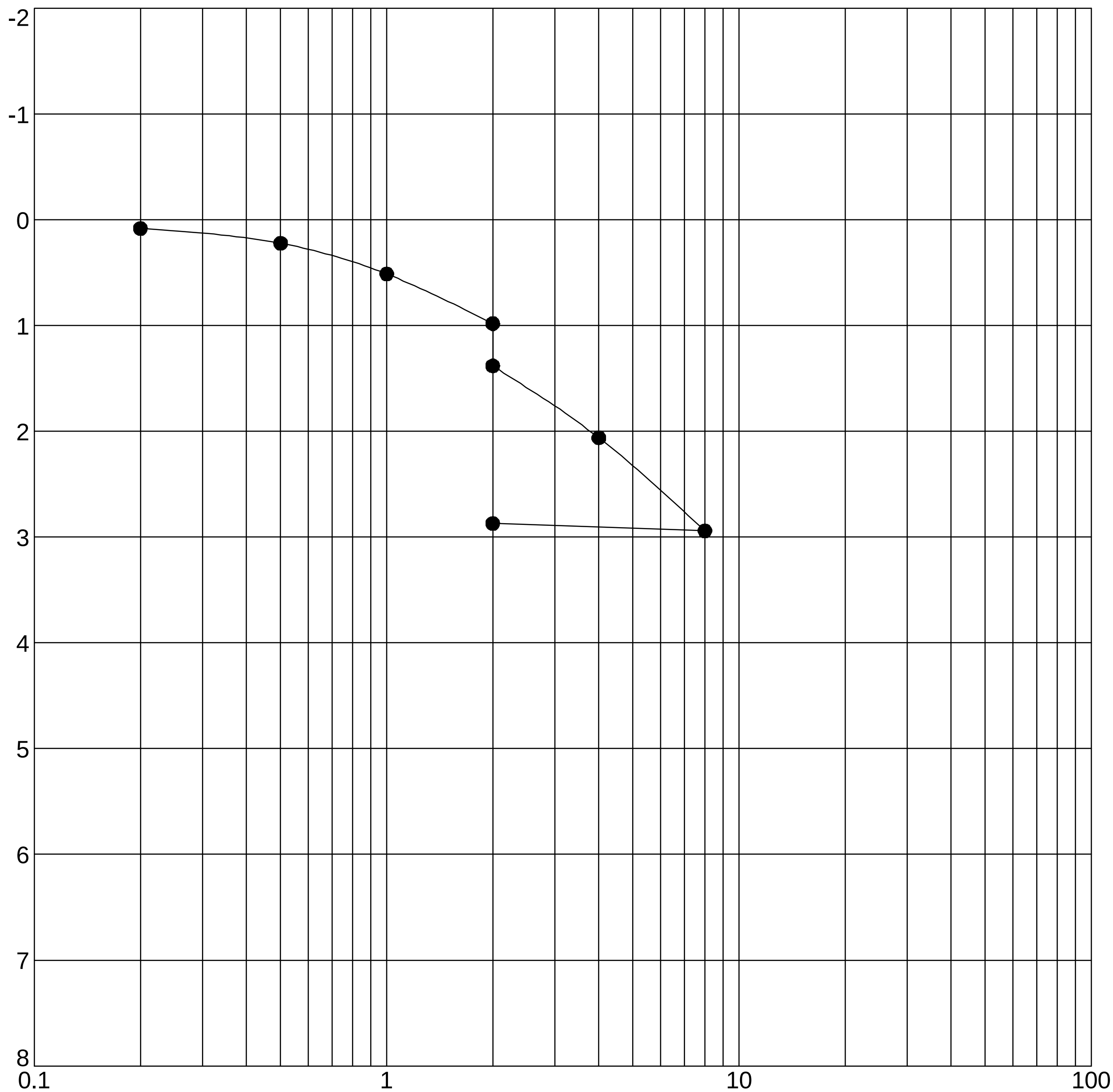
TABLE B-1 (Corrosion Test Results)

Boring No.	Depth (ft)	Chloride Content (Calif. 422) ppm	Sulfate Content (Calif. 417) % by Weight	pH (Calif. 643)	Resistivity (Calif. 643) Ohm*cm
B-1	0-5	78	0.0129	7.3	1,925

GEOBODEN, INC.

CONSOLIDATION TEST

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive



	Specimen Identification		Classification	γ_d	MC%
●	**B-1**	**5.0**	**POORLY-GRADED SAND w. SILT**	**103**	**3**

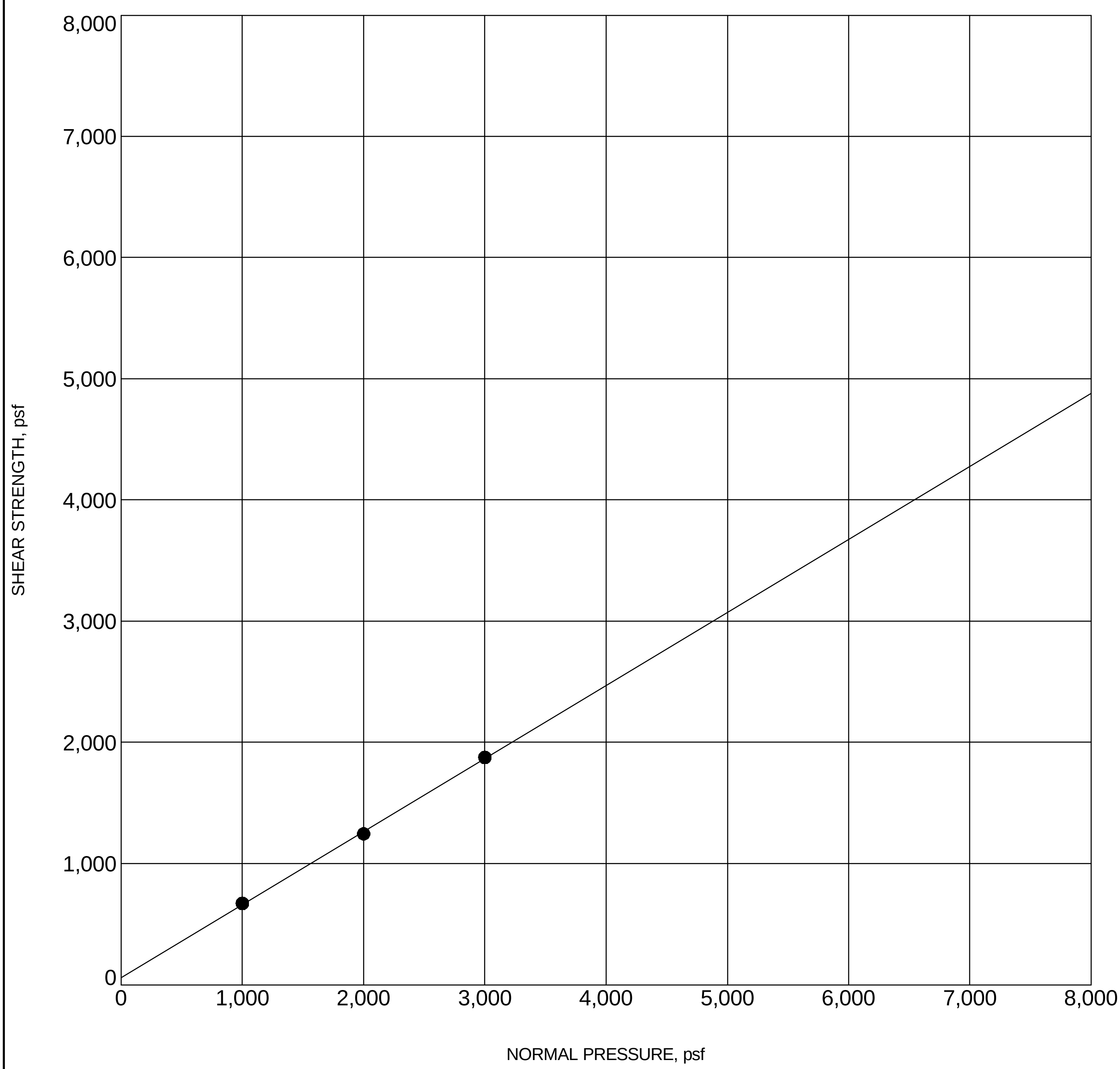
CONSOL STRAIN - GINT STD US LAB.GDT - 12/8/17 09:14 - C:\PASSPORT\GBI\76 GAS STATION-JFK & MORENO BEACH DRIVE\LOGS.GPJ

Attachment: Geotechnical Investigation (3058 : Moreno Beach Commercial Center)

GEOBODEN, INC.

DIRECT SHEAR TEST

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive



	Specimen Identification		Classification	γ_d	MC%	c	ϕ
●	**B-3**	**5.0**	**POORLY-GRADED SAND w. SILT (SP-SM)**	**105**	**3**	**59.0**	**31**

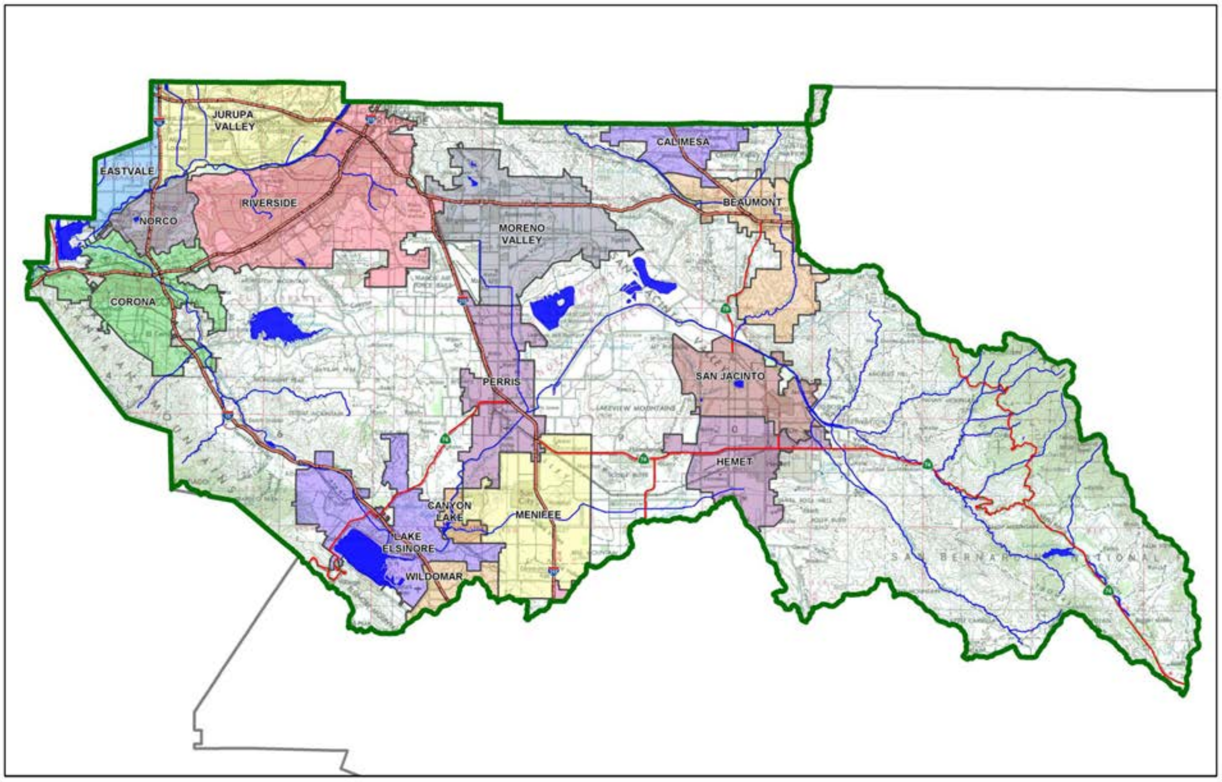
Project Specific Water Quality Management Plan

A Template for Projects located within the ***Santa Ana Watershed*** *Region of Riverside County*

Project Title: 76 Station-JFK Drive/Moreno Beach Drive

Development No: N/A

Design Review/Case No: PEN17-0044 / LWQ17-0017



Contact Information:

Prepared for:
Royal Excel Enterprises
7033 Canoga Ave#2, Canoga Park,
CA91303

☒ **Preliminary**
☐ **Final**

Prepared by:
Western States Engineering
4887 E. La Palma Ste. 707,
Anaheim, CA92807
Phone: (714) 696-9300

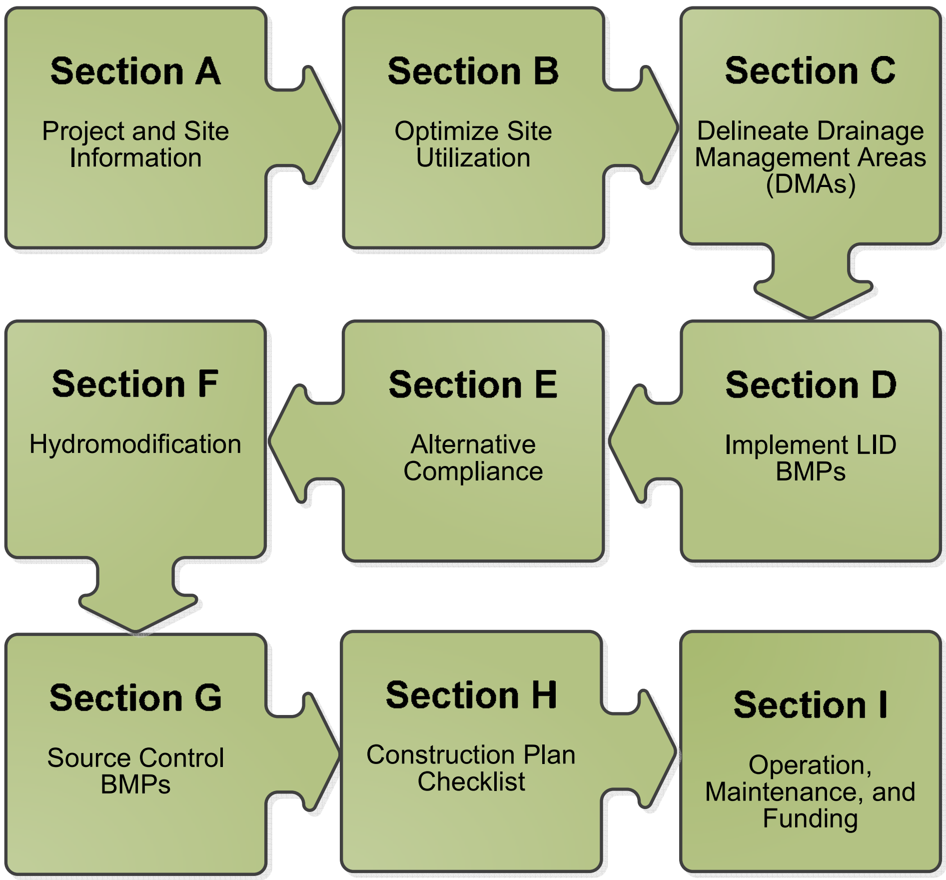
Original Date Prepared: 10/31/2017

Revision Date(s): 01/03/2018

Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**

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.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Royal Excel Enterprises by Kamal B. Mchantaf for the 76 Gas Station with C-store & Carwash project.

This WQMP is intended to comply with the requirements of City of Moreno Valley for Ordinance No. 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 City of Moreno Valley Water Quality Ordinance (Municipal Code Section810).

"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	Date
Owner's Printed Name	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	Date
Kamal B. Mchantaf	Owner
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

Table of Contents

List of Tables

List of Appendices

Section A: Project and Site Information

Project Information			
Type of Project:	Commercial		
Planning Area:	Lot 12 of TRACT Map 22936		
Community Name:	SP 193 C		
Development Name:	76 Station JFK Drive and Moreno Beach Drive		
Project Location			
Latitude & Longitude (DMS): Latitude:33.902611^0, Longitude-117.175411^0			
Project Watershed and Sub-Watershed: Santa Ana River Watershed, San Jacinto River Sub-Watershed			
Gross Area: 2.48 ac, Net area-2.48 ac			
APN(s): 304-240-004			
Map Book and Page No.: 718 D-7, 2006 Edition			
Project Characteristics			
Proposed or Potential Land Use(s)		Retail/Commercial	
Proposed or Potential SIC Code(s)		5541	
Area of Impervious Project Footprint (SF)		75260	
Total Area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement		75260	
Does the project consist of offsite road improvements?		☐ Y	☒ N
Does the project propose to construct unpaved roads?		☐ Y	☒ N
Is the project part of a larger common plan of development (phased project)?		☐ Y	☒ N
Existing Site Characteristics			
Total area of existing Impervious Surfaces within the project limits (SF)		0	
Is the project located within any MSHCP Criteria Cell?		☐ Y	☒ N
If so, identify the Cell number:		Insert text here.	
Are there any natural hydrologic features on the project site?		☐ Y	☒ N
Is a Geotechnical Report attached?		☒ Y	☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)		Soil Type B	
What is the Water Quality Design Storm Depth for the project?		0.68 Inch	

Project Description

The project site , located at south-west corner of John F Kennedy Drive and Moreno Beach Drive, within the City of Moreno Valley is a near rectangular vacant lot. The site topography descended towards North West with an average uniform rate of 4%. Thereby surface runoff in the form of sheet flow towards North West. The project proposed development will be consist of Gasoline Station, Retail store, automatic Car Wash facility, gasoline dispensers with canopy along with asphalt concrete parking, surrounded by ornamental landscaping.

The existing site storm water runoff discharges on John F. Kennedy Drive and is conveyed through surface flow to an existing catch basin located east of the intersection of Oliver street and John F. Kennedy Drive. The catch basin intercepts and discharges the run-off into existing Line-F of Moreno MDP. The post development condition, the drainage pattern will remain same.

The projects consists of LID infiltration basins and self-treating areas will be incorporated.

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
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- 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
San Jacinto River (Reach 3)	None	AGR,GWR,REC1,REC2,WARM,WILD	Not a water body classified as RARE
Canyon Lake (Aka: San Jacinto River Reach 2)	Nutrients , Pathogens	MUN,AGR,GWR, REC1 , REC2 , WARM , WILD	Not a water body classified as RARE
San Jacinto Reach 1	None	MUN,AGR,GWR,REC1,REC2,WARM,WILD	Not a water body classified as RARE
Lake Elsinore	Nutrients, Organic Enrichments, Low Dissolved Oxygen , PCB's , Sediment Toxicity , Unknown Toxicity	REC1,REC2,WARM,WILD	Not a water body classified as RARE
Temescal Creek (Reach 6)	None	GWR,REC1,REC2,WARM,WILD	Not a water body classified as RARE
Temescal Creek (Reach 5)	None	AGR, GWR , REC1, WARM , WILD , REC2, RARE	22 miles
Temescal Creek (Reach 4)	None	AGR, GWR , REC1 , REC2, WARM, WILD, RARE	28 miles
Temescal Creek (Reach 3) – Lee Lake	None	AGR,IND,GWR, REC1, REC2 , WARM , WILD	Not a water body classified as RARE
Temescal Creek (Reach 2)	None	AGR,IND,GWR,REC1,REC2,WARM,WILD	Not a water body classified as RARE
Temescal Creek(Reach 1)	None	REC1,REC2,WARM,WILD	Not a water body classified as RARE
Santa Ana River (Reach 3)	Copper , Lead , Pathogens	AGR,GWR,REC1,REC2,WARM,WILD,RARE,SPWN	47 Miles
Prado Basin Management Zone	None	REC1,REC2,WARM,WILD,RARE	49 miles

Santa Ana River (Reach 2)	Indicator Bacteria	AGR,GWR,REC1,REC2,WARM,WILD,RARE,SPWN	68 miles
Santa Ana River (Reach 1)	None	REC1,REC2,WARM,WILD	Not a water body classified as RARE
Total Prism of Santa Ana River (to within 1000' of Victoria Street) and Newport Slough	None	REC1,REC2,COMM,WILD,RARE,MAR	77 MILES
Pacific Ocean Near Shore Zone	None	IND,NAV,REC1,REC2,COMM,WILD,RARE,SPWN,MAR,SHEL	78 MILES
Pacific Ocean Offshore Zone	None	IND,NAV,REC1,REC2,COMM,WILD,RARE,SPWN,MAR	77Miles

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	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* City of Moreno Valley Grading Permit	☒ Y	☐ 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.

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?

The post development drainage pattern will remain the same as existing drainage pattern.

Did you identify and protect existing vegetation? If so, how? If not, why?

There is no existing vegetation exist on the site.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Yes, Heavy loaded vehicles will not be allowed to pass through where proposed landscaped areas will be located. Soil disturbance will be kept to a minimum to avoid soil crusting after construction to maintain the soils natural infiltration capacity.

Did you identify and minimize impervious area? If so, how? If not, why?

Surrounding the proposed impervious areas landscape area has been proposed.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Portion of the site drain will be directed to landscape area.

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 (Sq. Ft.)	DMA Type
A1	Asphalt Concrete	16882	Type D
A2	Roof	4532	Type D
A3	Landscaping	4857	Type D
A4	Landscaping	653	Type B
A5	Landscaping	833	Type B
B1	Asphalt Concrete	26756	Type D
B2	Roof	3084	Type D
B3	Roof	3526	Type D
B4	Landscaping	6858	Type D
B5	Landscaping	942	Type B
B6	Landscaping	256	Type B
B7	Asphalt Concrete	1287	Type D
B8	Landscaping	112	Type B
B9	Landscaping	94	Type B
B10	Landscaping	70	Type B
B11	Landscaping	363	Type B
B12	Landscaping	391	Type B
B13	Landscaping	117	Type B
C1	Asphalt Concrete	6690	Type D
C2	Asphalt Concrete	1885	Type D
C3	Landscaping	2350	Type D
C4	Landscaping	3095	Type D
C5	Landscaping	1777	Type B
D1	Asphalt Concrete	11521	Type D
D2	Roof	3520	Type D
D3	Landscaping	5441	Type D

[1]Reference 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)

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) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
A4	Landscaping	653	0.68	N/A		
A5	Landscaping	833	0.68	N/A		
B5	Landscaping	942	0.68	N/A		
B6	Landscaping	256	0.68	N/A		
B8	Landscaping	112	0.68	N/A		
B9	Landscaping	94	0.68	N/A		
B10	Landscaping	70	0.68	N/A		
B11	Landscaping	363	0.68	N/A		
B12	Landscaping	391	0.68	N/A		
B13	Landscaping	117	0.68	N/A		

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Runoff factor [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [C]/[D]

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
A1	Infiltration Basin 1
A2	Infiltration Basin 1
A3	Infiltration Basin 1
B1	Infiltration Basin 3
B2	Infiltration Basin 3
B3	Infiltration Basin 3
B4	Infiltration Basin 3
B7	Infiltration Basin 3
C1	Infiltration Basin 4
C2	Infiltration Basin 4
C3	Infiltration Basin 4
C4	Infiltration Basin 4
D1	Infiltration Basin 2
D2	Infiltration Basin 2
D3	Infiltration Basin 2

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 Copermittee 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?		x
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		x
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		x
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?		x
If Yes, list affected DMAs:		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

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: *N/A*

Type of Landscaping (Conservation Design or Active Turf): N/A

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

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:

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:

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)

Full DCV Infiltrated Harvest and Reuse not required.

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:N/A

Project Type: Commercial

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:N/A

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:N/A

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: N/A

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)

Full DCV Infiltrated Harvest and Reuse not required.

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.

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: N/A

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:N/A

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: N/A

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: N/A

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)**
N/A	*N/A*

Full DCV Infiltrated Harvest and Reuse not required.

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.

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	
A1	☒	☐	☐	☐	☐
A2	☒	☐	☐	☐	☐
A3	☒	☐	☐	☐	☐
B1	☒	☐	☐	☐	☐
B2	☒	☐	☐	☐	☐
B3	☒	☐	☐	☐	☐
B4	☒	☐	☐	☐	☐
B7	☒	☐	☐	☐	☐
C1	☒	☐	☐	☐	☐
C2	☒	☐	☐	☐	☐
C3	☒	☐	☐	☐	☐
C4	☒	☐	☐	☐	☐
D1	☒	☐	☐	☐	☐
D2	☒	☐	☐	☐	☐
D3	☒	☐	☐	☐	☐

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.

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) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A1	*16882*	*Conc./Asphalt*	*1.00*	*0.89*	*15058.7*			
A2	*4532*	*Roofs*	*1.00*	*0.89*	*4042.5*			
A3	*4857*	*Landscaping*	*0.1*	*0.11*	*536.5*			
	A_T = Σ[A]	***26271***			Σ= [D]19637.7	[E]0.68	[F]1112.8	[G]1720

[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) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
B1	*26756*	*Conc./Asphalt*	*1*	*0.89*	*23866.4*			
B2	*3084*	*Roofs*	*1*	*0.89*	*2750.9*			
B3	*3526*	*Roofs*	*1*	*0.89*	*3145.2*			
B4	*6858*	*Landscaping*	*0.1*	*0.11*	*757.5*			
B7	*1287*	*Conc./Asphalt*	*1*	*0.89*	*1148*			
	A_T = Σ[A]	***41511***			[D]31668	[E]0.68	[F]1794.5	[G]2503

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
C1	*6690*	*Conc./Asphalt*	*1*	*0.89*	*5967.5*			
C2	*1885*	*Conc./Asphalt*	*1*	*0.89*	*1681.4*			
C3	*2350*	*Landscaping*	*0.1*	*0.11*	*259.6*			
C4	*3095*	*Landscaping*	*0.1*	*0.11*	*341.9*			
	A_T = Σ[A]	***13835***			[D]8250.4	[E]0.68	[F]467.5	[G] 527

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
D1	*11521*	*Conc./Asphalt*	*1*	*0.89*	*9670.2*	*Design Storm Depth (in)*	*Design Capture Volume,* **V_{BMP}** *(cubic feet)*	*Proposed Volume on Plans (cubic feet)*
D2	*3520*	*Roof*	*1*	*0.89*	*3139.8*			
D3	*5441*	*Landscaping*	*0.1*	*0.11*	*676.1*			
	$A_T = \Sigma[A]$	***20482***			[D]14017.5	[E]0.68	[F]794.3	[G]1300

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:

☒ 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.

List DMAs here.

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
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☒ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☒ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☐	☐	☐	☐	☐	☐	☐	☐

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

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]	

[1]Cannot Exceed 50%
[2]Obtain 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) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Area x Runoff Factor [A] x [C]		*Enter BMP Name / Identifier Here*		
N/A						*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)*
	$A_T = \Sigma[A]$				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[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

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]
N/A		

[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 Copermittee 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 concentration[1] 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

	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: Canyon Lake.

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.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

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
To be included in Final WQMP.		

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)
To be included in Final WQMP		

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: Operation and Maintenance will be funded by Royal Excel Enterprises

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

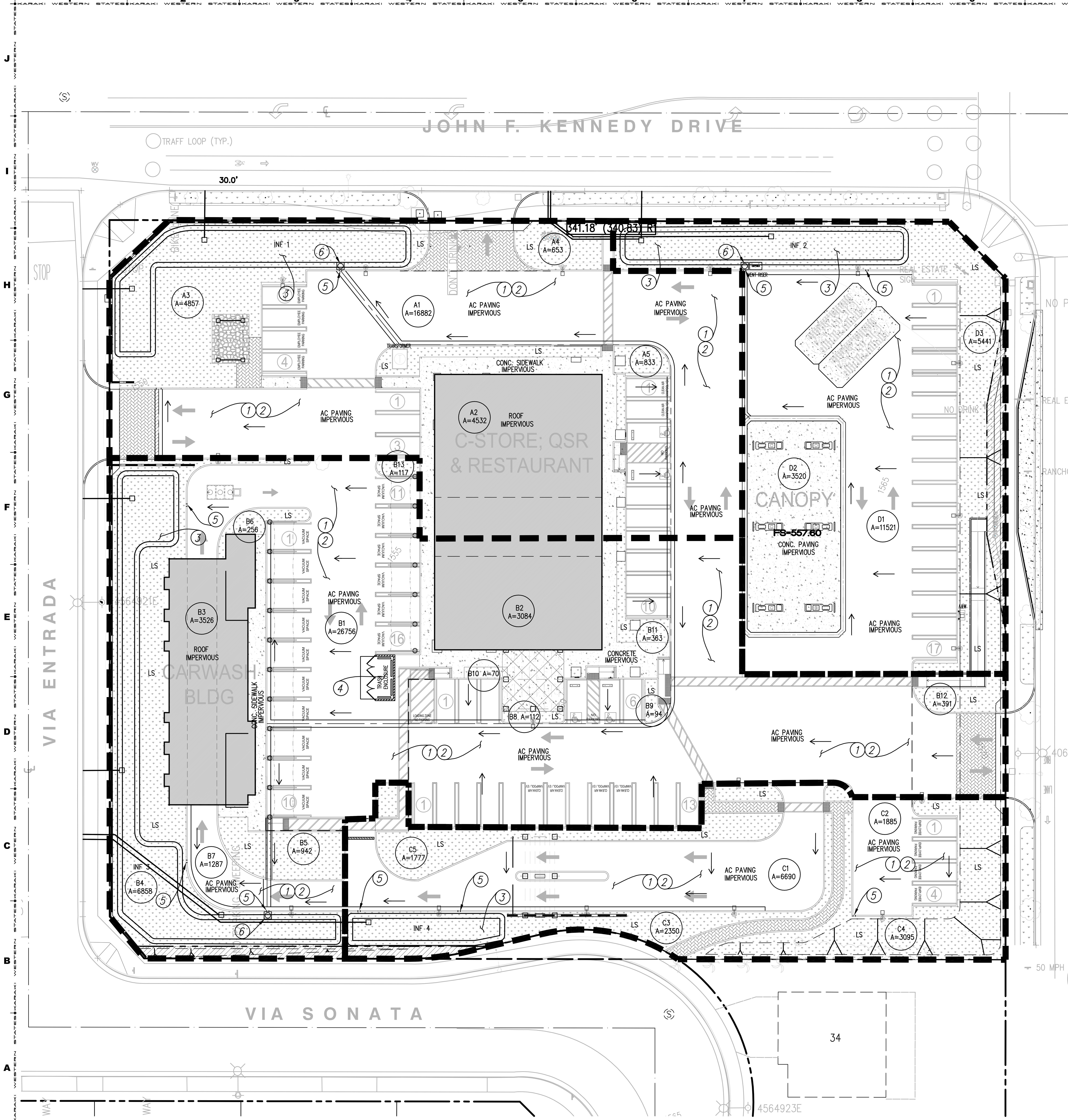
☐ Y ☒ N

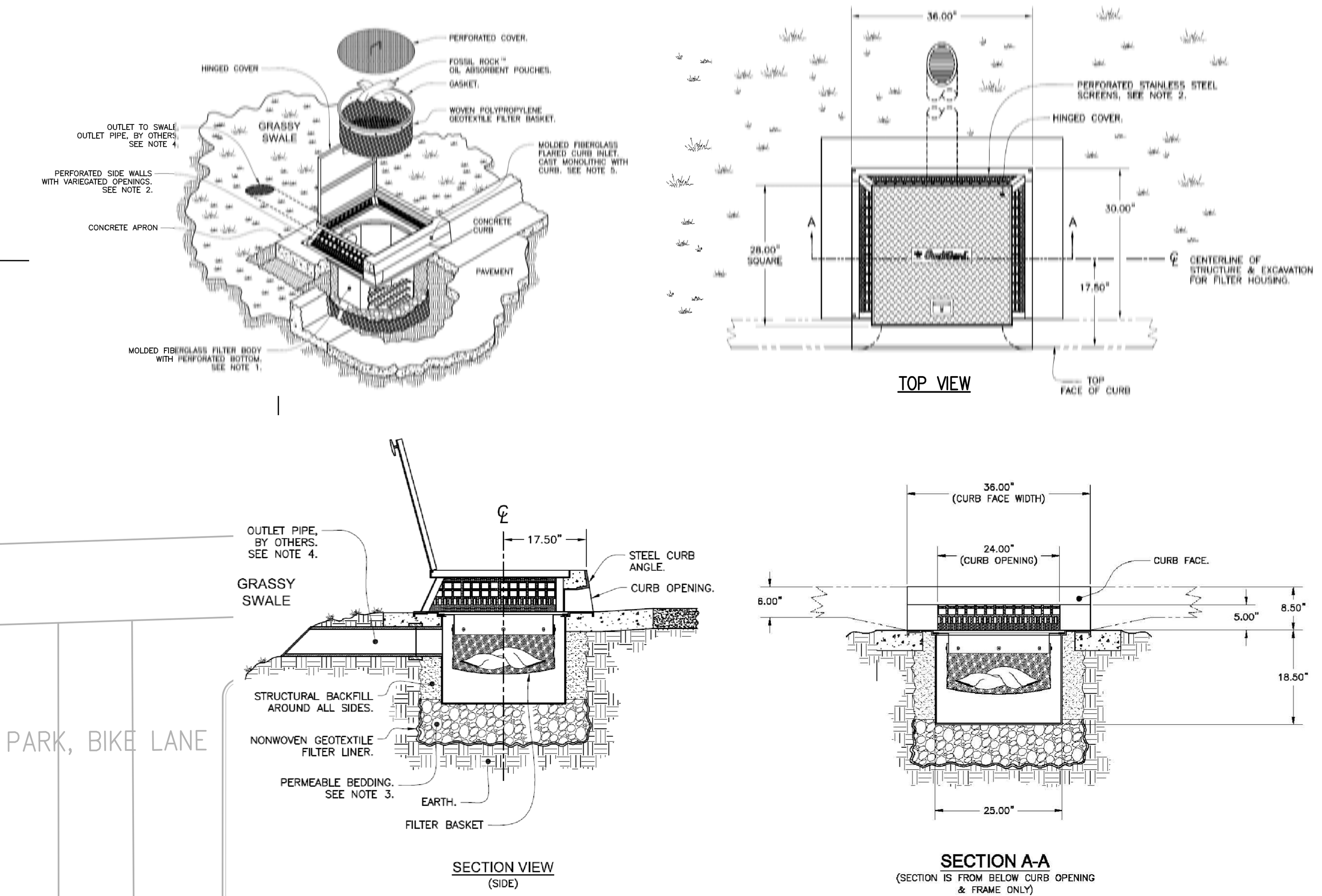
Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

1.u





SWALE GUARD DETAIL
GRASS SWALE PREFILTER

BMP'S

ROUTINE NON-STRUCTURAL BMP

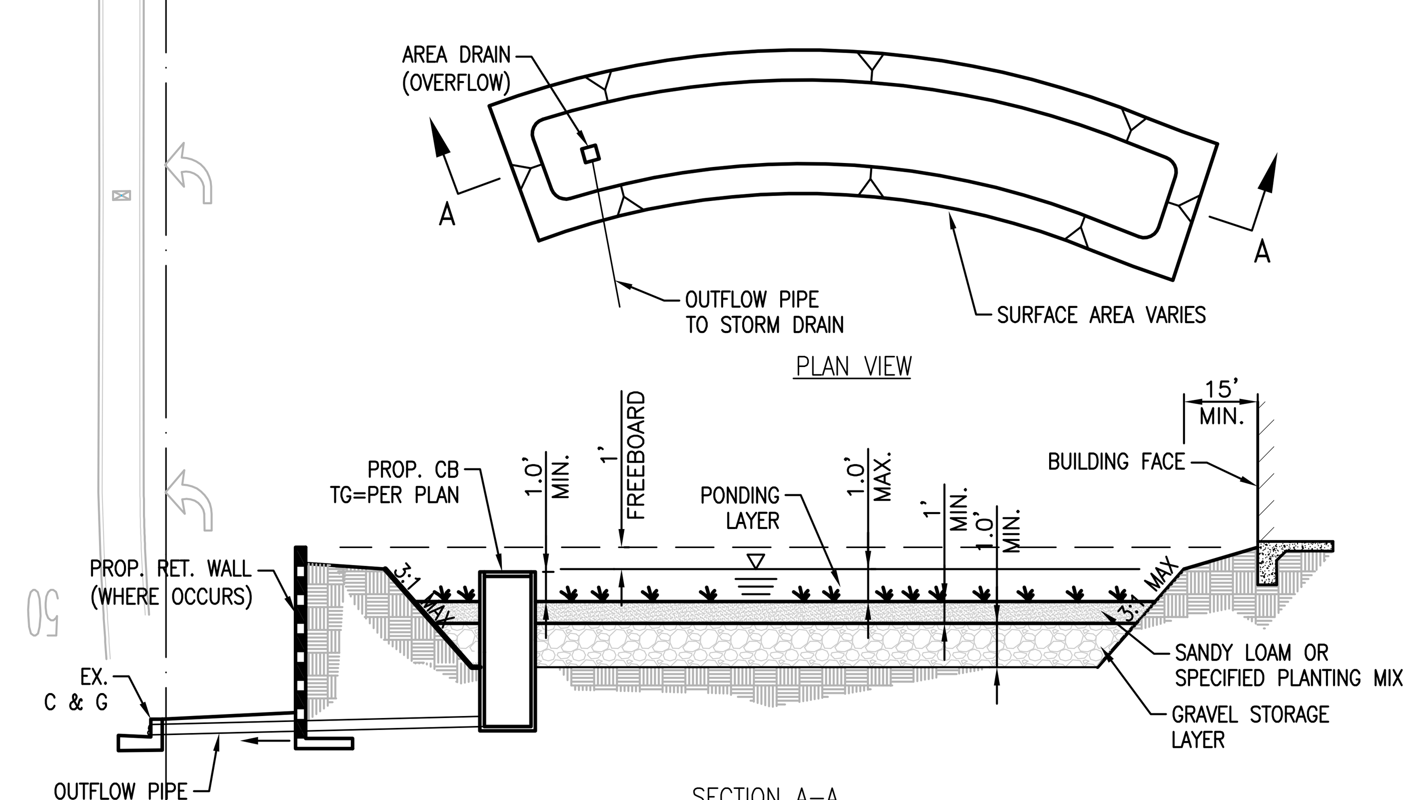
1. STREET SWEEPING
2. COMMON AREA LITTER CONTROL

STRUCTURAL BMP

3. INFILTRATION BASIN
4. TRASH ENCLOSURE
5. 1.0' CURB CUT
6. SWALE GUARD

1" = 20'

0 10 20 40



TYPICAL SECTION
INFILTRATION BASIN

KARAKI WSe
WESTERN STATES ENGINEERING
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
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■ CONSULTANT/ SEALS

■ SUBMITTAL

NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			

■ REVISIONS

NO.	DESCRIPTION	BY	DATE
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△			
△			
△			

■ OWNER NAME & ADDRESS

ROYAL EXCEL ENTERPRISES

7033 CANOGA AVE #2
CANOGA PARK, CA 91303

■ PROJECT NAME & ADDRESS

76 GAS STATION
C-STORE / Q.S.R.
CARWASH

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

■ NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

■ CONFIDENTIALITY STATEMENT

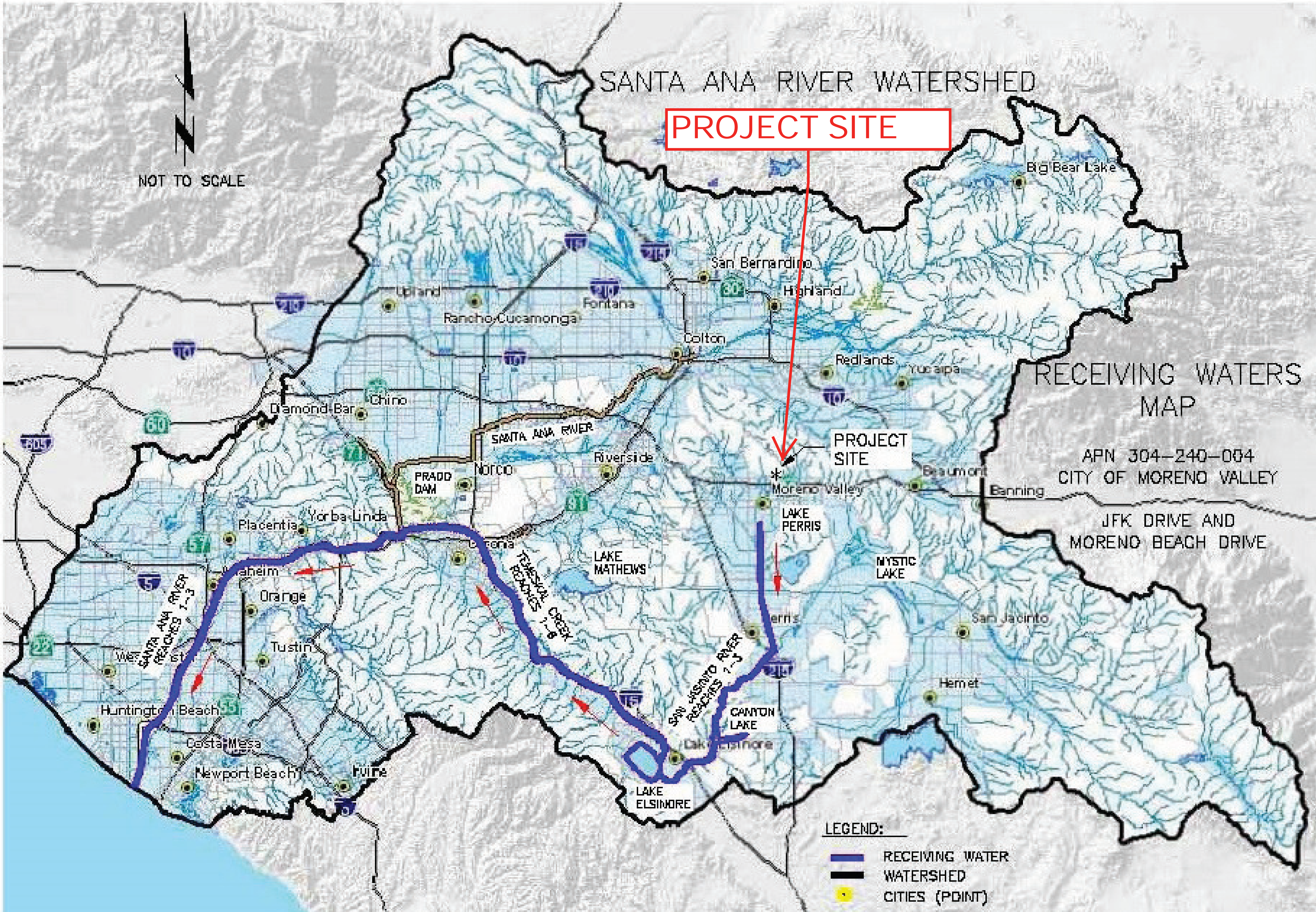
■ DESIGNED BY:
■ DRAWN BY:
■ CHECKED BY:
■ DATE DRAWN:
■ SCALE:
■ SHEET TITLE

WATER QUALITY MANAGEMENT PLAN

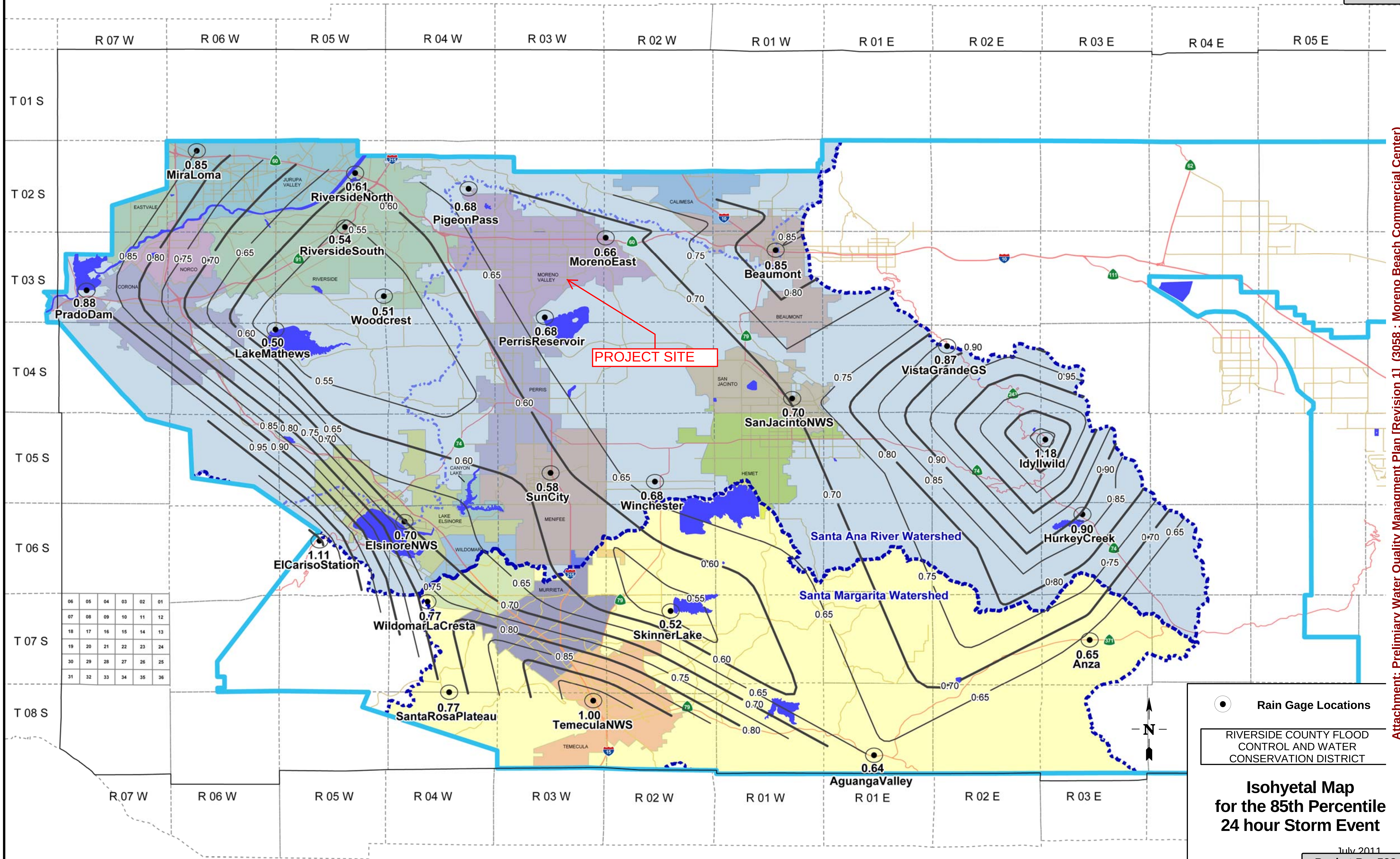
■ SHEET NUMBER

1 OF 1

■ JOB No E97617 ■ CUP No -



SANTA ANA RIVER WATERSHED
PROJECT SITE
NOT TO SCALE
RECEIVING WATERS MAP
PROJECT SITE
APN 304-240-004
CITY OF MORENO VALLEY
JFK DRIVE AND
MORENO BEACH DRIVE
Big Bear Lake
San Bernardino
Highland
Upland
Fontana
Rancho Cucamonga
Colton
Redlands
Yucaipa
Chino
Diamond Bar
SANTA ANA RIVER
Riverside
Norco
PRADO DAM
Beaumont
Moreno Valley
Banning
LAKE PERRIS
Yorba Linda
Placentia
LAKE MATHEWS
MYSTIC LAKE
Orange
Tustin
San Jacinto
Hemet
SANTA ANA RIVER REACHES 1-3
TEMESCAL CREEK REACHES 1-6
SAN JACINTO RIVER REACHES 1-3
CANYON LAKE
Huntington Beach
Costa Mesa
Newport Beach
Irvine
LAKE ELSINORE
LEGEND:
RECEIVING WATER
WATERSHED
CITIES (POINT)

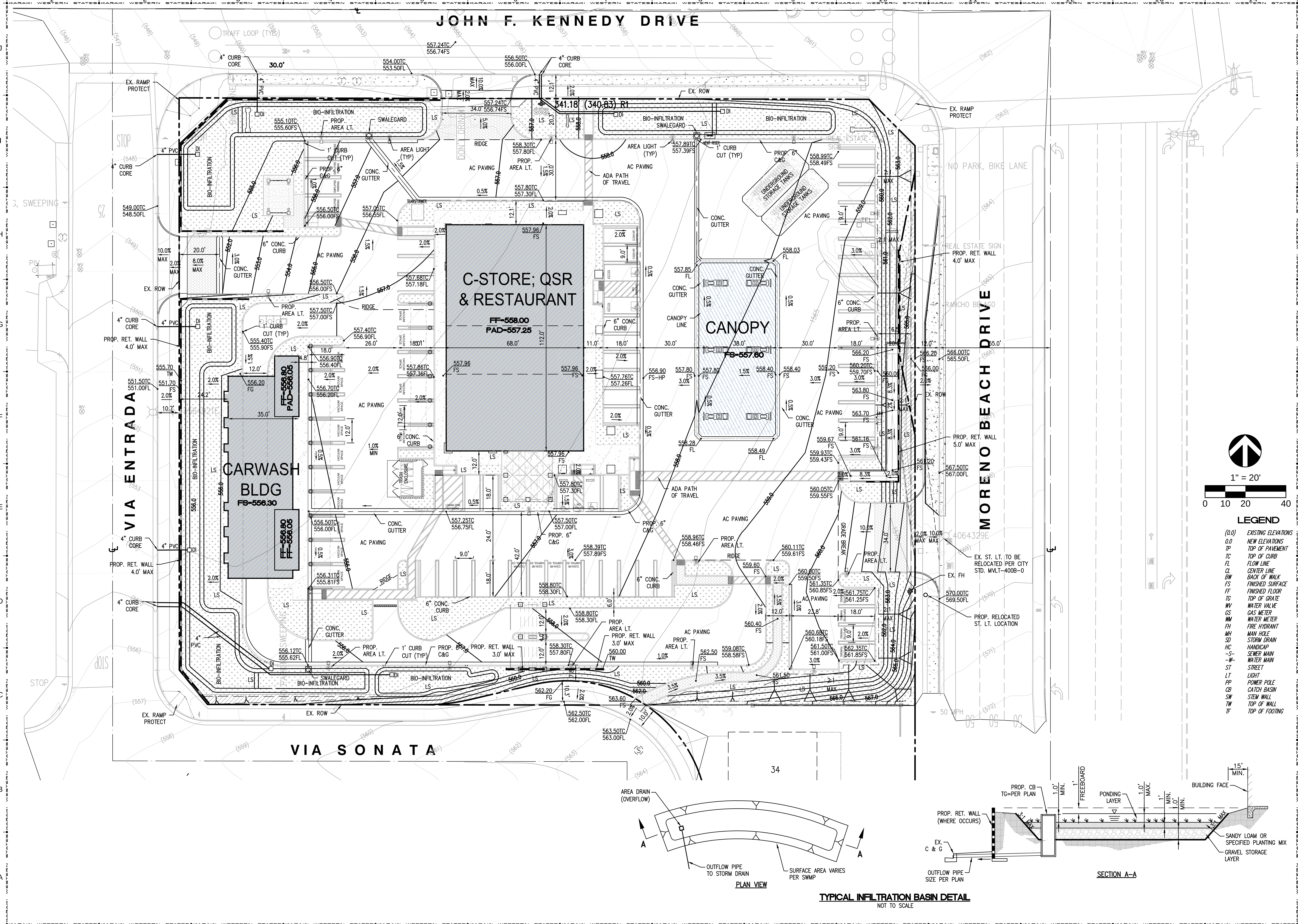


Attachment: Preliminary Water Quality Managment Plan [Revision 1] (3058 : Moreno Beach Commercial Center)

LOCATION MAP

Appendix 2: Construction Plans

Grading and Drainage Plans



LEGEND

(0.0)	EXISTING ELEVATIONS
0.0	NEW ELEVATIONS
TP	TOP OF PAVEMENT
TC	TOP OF CURB
FL	FLOW LINE
CL	CENTER LINE
BW	BACK OF WALK
FS	FINISHED SURFACE
FF	FINISHED FLOOR
TG	TOP OF GRATE
WV	WATER VALVE
GS	GAS METER
WM	WATER METER
FH	FIRE HYDRANT
MH	MAN HOLE
SD	STORM DRAIN
HC	HANDICAP
-S-	SEWER MAIN
-W-	WATER MAIN
ST	STREET
LT	LIGHT
PP	POWER POLE
CB	CATCH BASIN
SW	STEM WALL
TW	TOP OF WALL
TF	TOP OF FOOTING

KARAKI WSe
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■ REVISIONS

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■ NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

■ CONFIDENTIALITY STATEMENT

■ DESIGNED BY:

■ DRAWN BY:

■ CHECKED BY:

■ DATE DRAWN:

■ SCALE:

■ SHEET TITLE

PRELIMINARY
GRADING
PLAN

■ SHEET NUMBER

1 OF 1

■ JOB No E97617

■ CUP No -

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

GEOBODEN, INC.
Geotechnical Consultants

December 12, 2017
Moreno Beach-1-01

Royal Excel Enterprises
7033 Canoga Avenue #2
Canoga Park, California 91303

Subject: **Infiltration/Percolation Testing for Stormwater Retention**
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

As requested, we have performed percolation/infiltration testing on the subject site in order to determine the infiltration potential of the surface soils. The percolation rates determined should be useful in assessing stormwater retention needs. It is our understanding that on-site stormwater retention will be required. It is proposed to collect the stormwater runoff within subsurface percolation swales/pits. This report presents the results of our study, discussion of our findings, and provides percolation rates for the subject system.

PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to determine the general percolation rates and physical characteristics of the onsite soils in order to provide design parameters for the proposed onsite infiltration system. Services provided for this study are in accordance with our agreement and consisted of the following:

- Site exploration consisting of the excavation and logging of three test holes;
- Percolation testing in the test holes (P-1, P-2 and P-3);
- Compilation of this report, which presents the results of our study and provides percolation rates for the design of an onsite infiltration system.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The site is located at southwest corner of John F. Kennedy and Moreno Beach Drive in Moreno Valley, California. The proposed project will consist of a 76 Gas Station with associated improvements. Further information regarding proposed development and test hole locations is shown on Figure 1, Percolation Test Holes Location Map.

5 Hodgenville | Irvine, CA 92620 | Off 949-872-9565 | Fax 949-743-2935

FIELD INVESTIGATION

Our field investigation consisted of excavating three shallow exploratory test holes, which were also used as percolation test holes. Hollow-stem drilling equipment was used to excavate the exploratory test holes. An engineer logged and observed the test holes excavations. Soil classification was based on visual observation. The approximate locations of the exploratory and percolation test holes are shown on Figure 1 (Percolation Test Holes Location Map). Logs of the exploratory test holes are presented in Appendix A.

SUBSURFACE SOILS CONDITIONS

SOIL PROFILE

The soils encountered within our test holes consisted of native soil materials. Native soils encountered within the exploratory test holes consisted primarily of silty sand and sand with gravel. A more detailed description of these materials is provided in the exploratory test holes logs included in the enclosed Appendix A. Soils encountered were classified according to the Unified Soil Classification System (USCS).

GROUNDWATER

Groundwater was not encountered within the exploratory test holes to the maximum explored depth of 5 feet below ground surface (bgs). Based on information from the Department of Water Resources, Water Data Library, ground water level in the site vicinity is at a depth of greater than 50 feet beneath the existing ground surface. Fluctuations of the groundwater table, localized zones of perched water, and rise in soil moisture content should be anticipated during the rainy season. Irrigation of landscaped areas can also lead to an increase in soil moisture content and fluctuations of intermittent shallow perched groundwater levels.

PERCOLATION TESTING AND PROCEDURE

Percolation testing was performed to assess the general percolation rates of the onsite soils for the design of an onsite infiltration system.

The continuous pre-soak (falling-head) test procedure was utilized for testing. Water was allowed to presoak in each test hole prior to obtaining test readings. Following the presoak period, the drop in water level in each hole was monitored every 10 minutes to determine the appropriate method for testing. Test holes were refilled following each reading or when the water depth was below 6 inches. Test times ranged from 120 minutes. The drop in water level was recorded to the nearest 1/10th inch to produce conservative water level readings.

SUMMARY OF INFILTRATION TEST RESULTS

Tests results are summarized below:

Test Hole No.	Rate (Inch/Hour)
1	2.5
2	2.5-3
3	3-3.5

Based on the obtained field data, 2.5 inches per hour should be utilized in the design of the proposed onsite drain system. The base of the system should be founded into natural soils.

It should be noted that the infiltration rates determined are ultimate rates based upon field test results. An appropriate safety factor should be applied to account for subsoil inconsistencies and potential silting of the percolating soils. The safety factor should be determined with consideration to other factors in the storm water retention system design (particularly stormwater volume estimates) and the safety factors associated with those design components.

The Storm water Manager's Resource Center (SMRC) web site (http://www.stormwatercenter.net/) includes guidelines for disposal of storm water with respect to setback of structures. It is included in the criteria that infiltration facilities should be setback 10 feet down-gradient from structures. In order to avoid potential adversely impacting any existing structures, we recommend that any infiltration system be kept a horizontal distance of at least 10 feet from the edge of new building and the property line.

LIMITATIONS

The findings and recommendations of this report were prepared in accordance with generally accepted professional engineering and engineering geologic principals and practice within our opinion at this time in Southern California. Our conclusions and recommendations are based on the results of the field investigations, combined with an interpolation of subsurface conditions between and beyond exploration locations.

As the project evolves, our continued consultation and construction monitoring should be considered. GeoBoden should review plans and specifications to ensure the recommendations presented herein have been appropriately interpreted, and that the design assumptions used in this study are valid. Where significant design changes occur, GeoBoden may be required to augment or modify these recommendations. Subsurface conditions may differ in some locations from those encountered in the explorations, and may require additional analyses and/or modified recommendations. This report was written for Client, and the design team members, and only for the proposed development described herein. We are not responsible for technical interpretations made by others, or exploratory information that has not been described or documented in this report. Specific questions or interpretations concerning our findings and conclusions may require written clarification.

We appreciate the opportunity to provide service to you on this project. If you have questions regarding this letter or the data included, please contact the undersigned.

Sincerely,
GEOBODEN, INC.

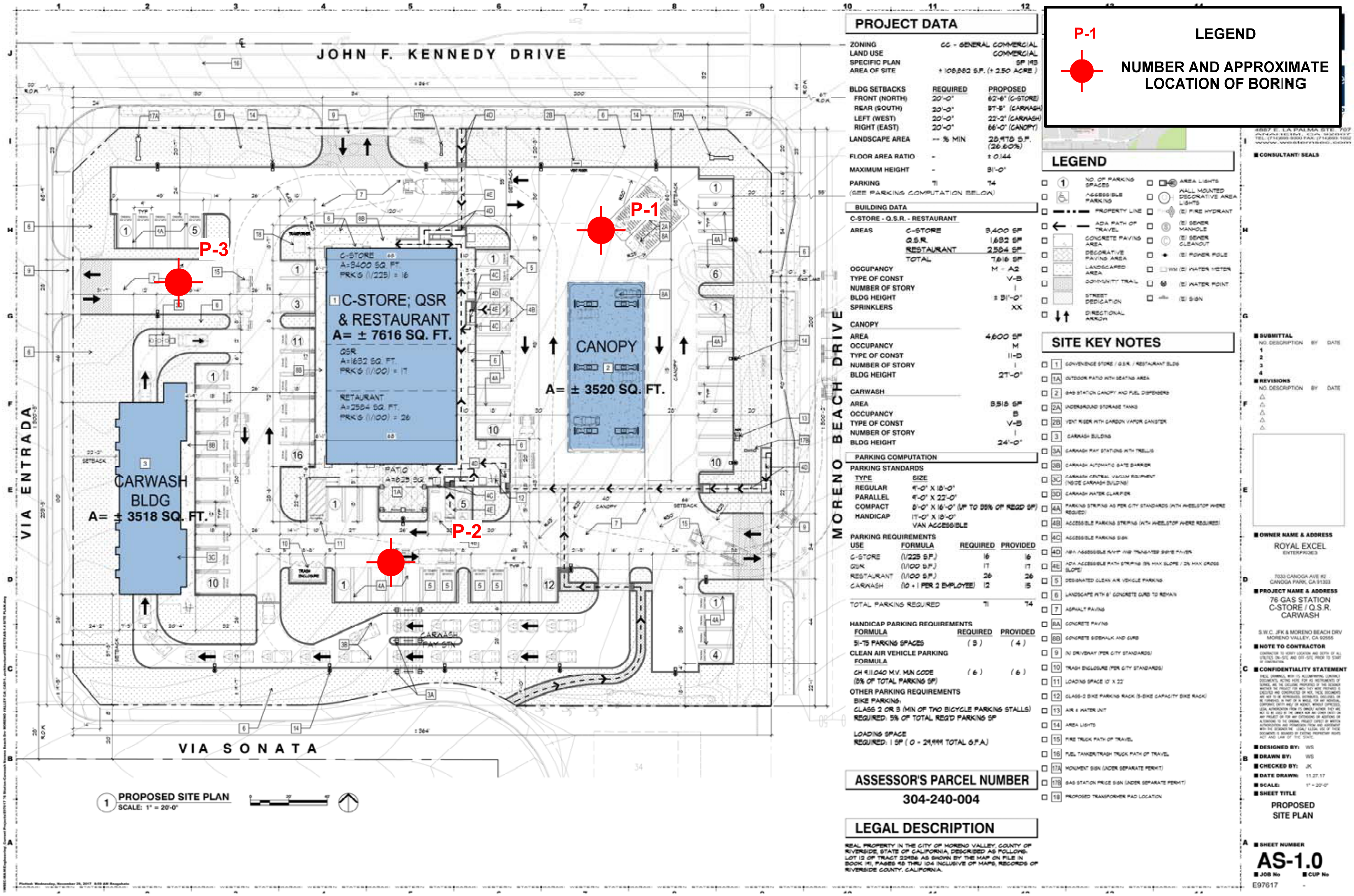
REGISTERED PROFESSIONAL ENGINEER
SHAHROKH E. RADVAR
2742
GEOTECHNICAL
STATE OF CALIFORNIA

Cyrus Radvar
Principal Engineer, G.E. 2742

Copies: 3/Addressee

Attachments:

Figure 1 – Percolation Test Holes Location Map
Appendix A – Test Holes Logs



GEOBODEN INC.
Geotechnical Consultants

PERCOLATION BORING LOCATION PLAN
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

Figure By S.R.	Project No. Moreno Bea
Map No. XX	Figure No. 1
Date	

GEO-ETKA, INC.

BORING NUMBER P-1

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-2-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 12/10/17 **COMPLETED** 12/10/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0.0		SAND w. SILT (SP-SM): light gray, dry										
2.5												
5.0												

Bottom of borehole at 5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 5.0 feet.

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 12/12/17 11:12 - C:\PASSPORT\GB\76 GAS STATION-JFK & MORENO BEACH DRIVE\PERCOLATION\LOGS.GPJ

GEO-ETKA, INC.

BORING NUMBER P-2

CLIENT	Royal Excel Enterprises	**PROJECT NAME**	Proposed 76 Gas Station
PROJECT NUMBER	Moreno Beach-2-01	**PROJECT LOCATION**	Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED	12/10/17 **COMPLETED** 12/10/17	**GROUND ELEVATION**	**HOLE SIZE** 8 inches
DRILLING CONTRACTOR	GeoBoden, Inc.	**GROUND WATER LEVELS:**	
DRILLING METHOD	HSA	**AT TIME OF DRILLING**	---
LOGGED BY	C.R. **CHECKED BY**	**AT END OF DRILLING**	---
NOTES		**AFTER DRILLING**	---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0.0		POORLY-GRADED SAND w. SILT (SP-SM): olive, dry										
2.5												
5.0												

Bottom of borehole at 5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 5.0 feet.

GEO-ETKA, INC.

BORING NUMBER P-3

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-2-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 12/10/17 **COMPLETED** 12/10/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0.0		SILTY SAND (SM): olive gray, dry										
2.5												
5.0												

Bottom of borehole at 5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 5.0 feet.

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE

Moreno Valley, California

Prepared for:
ROYAL EXCEL ENTERPRISES

Prepared by:
GEOBODEN INC.
Irvine, CA 92620

December 8, 2017

Project No. Moreno Beach-1-01

GEOBODEN INC.

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED 76 GAS STATION

SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE

MORENO VALLEY, CALIFORNIA

ROYAL EXCEL ENTERPRISES

Prepared by:

GEOBODEN INC.
5 Hodgenville
Irvine, California 92620

December 8, 2017

JOB NO. Moreno Beach-1-01

GEOBODEN, INC.
Geotechnical Consultants

December 8, 2017 Project No. Moreno Beach-1-01

Royal Excel Enterprises
7033 Canoga Avenue #2
Canoga Park, California 91303

Subject: Geotechnical Investigation Report
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

GeoBoden, Inc. (GeoBoden) is pleased to submit herewith our geotechnical investigation report for the Proposed 76 Gas Station to be constructed at southwest corner John F. Kennedy in the city of Moreno Valley, California.

This report presents the results of our field investigation, laboratory testing and our engineering judgment, opinions, conclusions and recommendations pertaining to geotechnical design aspects of the proposed development.

It has been a pleasure to be of service to you on 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,
GEOBODEN, INC.

REGISTERED PROFESSIONAL ENGINEER
SHAHROKH E. RADVAR
2742
GEOTECHNICAL
STATE OF CALIFORNIA

Cyrus Radvar,
Principal Engineer, G.E. 2742

Copies: 4/Addressee

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

TABLE OF CONTENTS

FIGURES

APPENDIXES

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
Moreno Valley, California

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation performed by GeoBoden, Inc. (GeoBoden) for the Proposed 76 Gas Station to be located at southwest corner of John F. Keneedy and Moreno Beach Drive in Moreno Valley, California. The general location of the project is shown on Figure 1.

The purposes of this investigation were to determine the geotechnical properties of subsurface soil conditions, to evaluate their in-place characteristics, evaluate site seismicity, and to provide geotechnical recommendations with respect to site grading and for design and construction of proposed foundations and other site improvements.

The scope of the authorized investigation included performing a site reconnaissance, conducting field exploration and laboratory testing programs, performing engineering analyses, and preparing this Geotechnical Investigation Report. Evaluation of environmental issues or the potential presence of hazardous materials was not within the scope of services provided.

This report has been prepared for Royal Excel Enterprises and their other project team members, to be used solely in the development of facilities described herein. This report may not contain sufficient information for other uses or the purposes of other parties.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

The site is located at southwest corner of John F. Kennedy and Moreno Beach Drive in Moreno Valley, California. The proposed project will consist of a 76 Gas Station with associated improvements.

The maximum column load for the new building will be about 75 kips, and the line load will be about 3 kips per lineal feet. Currently, it is our understanding that the proposed building will consist of masonry construction with slab on-grade.

3.0 GEOTECHNICAL INVESTIGATION

Our geotechnical investigation included a field exploration program and a laboratory testing programs. These programs were performed in accordance with our scope of services. The field exploration and laboratory testing programs are briefly described below. A more detailed description of the field exploration and laboratory testing programs is provided in Appendix A and Appendix B, respectively.

3.1 FIELD EXPLORATION PROGRAM

The field exploration program was initiated under the supervision of an engineer. Eight (8) exploratory borings were drilled using a truck-mounted drilling rig equipped with 6-inch diameter hollow stem augers. The borings were advanced to depths of ranging from 11.5 to 21.5 feet (below ground surface). The approximate locations of exploratory borings are shown on Figure 2.

Logs of subsurface conditions encountered in the borings were prepared in the field by a representative of our firm. Soil samples consisting of relatively undisturbed brass ring samples and Standard Penetration Tests (SPT) samples were collected at approximately 5-foot depth intervals and were returned to the laboratory for testing. The SPTs were performed in accordance with ASTM D 1586. Final boring logs were prepared from the field logs and are presented in Appendix A.

3.2 LABORATORY TESTING

Selected samples collected during drilling activities were tested in the laboratory to assist in evaluating controlling engineering properties of subsurface materials at the site. Physical tests performed included moisture and density determination, consolidation, No. 200 Sieve, direct shear, and corrosion. The results of laboratory are presented in Appendix B.

4.0 DISCUSSION OF FINDINGS

The following discussion of findings for the site is based on the results of the field exploration and laboratory testing programs.

4.1 SITE AND SUBSURFACE CONDITIONS

The site is underlain by sand and silt with gravel and silty sand. The native soils underlying the site encountered within our borings were medium dense to dense.

4.2 GROUNDWATER CONDITIONS

Groundwater was not encountered within our exploratory borings to the maximum explored depth of 21.5 feet (below ground surface). Based on information from the Department of Water Resources, Water Data Library, ground water level in the site vicinity is at a depth of greater than 50 feet beneath the existing ground surface.

Fluctuations of the groundwater table, localized zones of perched water, and rise in soil moisture content should be anticipated during the rainy season. Irrigation of landscaped areas can also lead to an increase in soil moisture content and fluctuations of intermittent shallow perched groundwater levels.

4.3 SOIL ENGINEERING PROPERTIES

Physical tests were performed on the relatively undisturbed samples to characterize the engineering properties of the native soils. Moisture content determination was performed on the samples to evaluate the in-situ moisture content. Moisture content and dry unit weight results are included in Appendix B.

4.4 CONSOLIDATION CHARACTERISTICS

Consolidation tests were performed on samples of the existing overburden soils recovered from the boring. Results of the consolidation tests indicate that the overburden material will have low compressibility under the anticipated loads. These characteristics are compatible with the allowable bearing capacity values and corresponding settlement estimates presented in Foundations Section of our report.

4.5 COLLAPSE POTENTIALS

Results of consolidation tests on samples of native soil indicate that the native soils will have low collapse potential. Removal and recompaction of the surficial soils is expected to reduce the anticipated amount of total differential settlement within the site.

4.6 EXPANSIVE SOILS

The near surface soils are granular which exhibit VERY LOW expansion potential. We anticipate that the design and performance of the proposed new building will not be affected by expansion of onsite soils.

4.7 STRENGTH CHARACTERISTICS

Strength tests were performed on select samples of the existing native overburden soils recovered from the boring. Results of these strength tests generally indicate high friction angle with little cohesion. These characteristics are compatible with the allowable bearing capacity recommendations presented in section 7.7 (Foundations).

5.0 STRONG GROUND MOTION POTENTIAL

The project site is located in a seismically active area typical of Southern California and likely to be subjected to a strong ground shaking due to earthquakes on nearby faults.

The site is not mapped within an Alquist-Priolo (AP) Special Study Zone. Pinto Mountain fault zone (Moreno Valley fault) is the closest known active fault, located about 0.77-km of the site with an anticipated maximum moment magnitude (M_w) of 7.2.

5.1 CBC DESIGN PARAMETERS

To accommodate effects of ground shaking produced by regional seismic events, seismic design can, at the discretion of the designing Structural Engineer, be performed in accordance with the 2016 edition of the California Building Code (CBC). Table below, 2016 CBC Seismic Parameters, lists (next) seismic design parameters based on the 2016 CBC methodology, which is based on ASCE/SEI 7-10:

2016 CBC Seismic Design Parameters	Value
Site Latitude (decimal degrees)	33.9163
Site Longitude (decimal degrees)	-117.1749
Site Class Definition (ASCE 7 Table 20.3-1)	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s (Figure 1613.3.1(1))	1.936
Mapped Spectral Response Acceleration at 1s Period, S_1 (Figure 1613.3.1(2))	0.861
Short Period Site Coefficient at 0.2s Period, F_a (Table 1613.3.3(1))	1.000
Long Period Site Coefficient at 1s Period, F_v (Table 1613.3.3(2))	1.500
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS} (Eq. 16-37)	1.936
Adjusted Spectral Response Acceleration at 1s Period, S_{M1} (Eq. 16-38)	1.292
Design Spectral Response Acceleration at 0.2s Period, S_{DS} (Eq. 16-39)	1.290
Design Spectral Response Acceleration at 1s Period, S_{D1} (Eq. 16-40)	0.861

6.0 LIQUEFACTION POTENTIAL

For liquefaction to occur, all of three key ingredients are required: liquefaction-susceptible soils, groundwater within a depth of 50 feet or less, and strong earthquake shaking. Soils susceptible to liquefaction are generally saturated loose to medium dense sands and non-plastic silt deposits below the water table.

Groundwater is not present at the site at shallow depths and soils consist predominately of medium dense to dense sandy soil materials. It is our opinion the potential for liquefaction at the site is minimal. Due to the absence of loose sandy soil layers, potential for dry sand seismic settlement is also minimal.

It is our opinion that potential for subsidence and liquefaction is minimal at the site and will not adversely impact the foundation of the proposed building and the associated site improvements.

7.0 DESIGN RECOMMENDATIONS

Based upon the results of our investigation, the proposed development is considered geotechnically feasible provided the recommendations presented herein are incorporated into the design and construction. If changes in the design of the structure are made or variations or

changed conditions are encountered during construction, GeoBoden should be contacted to evaluate their effects on these recommendations. The following geotechnical engineering recommendations for the proposed buildings are based on observations from the field investigation program and the physical test results.

7.1 EARTHWORK

All earthworks, including excavation, backfill and preparation of subgrade, should be performed in accordance with the geotechnical recommendations presented in this report and applicable portions of the grading code of local regulatory agencies. All earthwork should be performed under the observation and testing of a qualified geotechnical engineer.

7.2 SITE AND FOUNDATION PREPARATION

All site preparation should be observed by experienced personnel reporting to the project Geotechnical Engineer. Our field monitoring services are an essential continuation of our prior studies to confirm and correlate the findings and our prior recommendations with the actual subsurface conditions exposed during construction, and to confirm that suitable fill soils are placed and properly compacted.

Earthwork is expected to consist of subgrade preparation for construction of the building pad and surface parking. Minimal site preparation will provide satisfactory support for the new footings, floor slab and the new pavement. We recommend that the upper 3 feet of existing soils within the building footprints be removed and recompacted. If loose, disturbed, or otherwise unsuitable materials are encountered at the bottom of excavation, removal of unsuitable soils will be required until firm soils are encountered.

Excavations below the final grade level should be properly backfilled using lean concrete or approved fill material compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM Test Method D1557. The backfill and any additional fill should be placed in loose lifts less than 8 inches thick, moisture conditioned to near optimum moisture content, and compacted to 90 percent. Fill materials should be free of construction debris, roots, organic matter, rubble, contaminated soils, and any other unsuitable or deleterious material as determined by the Geotechnical Engineer. The on-site soils are suitable for use as compacted

fill, provided the soil is free of any deleterious substance. All import fill material should be approved by the Geotechnical Engineer prior to importing to the site for use as compacted fill.

7.3 FILL PLACEMENT AND COMPACTION REQUIREMENTS

Material for engineered fill should be select free of organic material, debris, and other deleterious substances, and should not contain fragments greater than 3 inches in maximum dimension. On-site excavated soils that meet these requirements may be used to backfill the excavated building pad area.

All fill should be placed in 6-inch-thick maximum lifts, watered or air dried as necessary to near optimum moisture content, and then compacted in place to a maximum relative compaction of 90 percent. The laboratory maximum dry density and optimum moisture content for each change in soil type should be determined in accordance with Test Method ASTM D 1557. A representative of the project consultant should be present on-site during grading operations to verify proper placement and compaction of all fill, as well as to verify compliance with the other geotechnical recommendations presented herein.

Imported soils, if any, should consist of clean materials exhibiting a VERY LOW expansion potential (Expansion Index less than 20). Soils to be imported should be approved by the project geotechnical consultant prior to importation.

7.4 VOLUMETRIC CHANGES

Volumetric changes in earth quantities will occur when excavated onsite soil materials are replaced as properly compacted fill. It is anticipated that shrinkage due to recompaction of existing soils will range from 3 to 5 percent. The actual shrinkage or bulking that will occur during grading will depend on the average degree of relative compaction achieved.

A subsidence estimate at 0.10 to 0.15 feet may be anticipated as a result of the scarification and recompaction of the exposed ground surfaces within the removal areas.

The above estimates of shrinkage and subsidence are intended for use by the project planners in determining earthwork quantities and should not be considered absolute values. Contingencies

should be made for balancing earthwork quantities based on actual shrinkage and subsidence that will occur during grading.

7.5 GEOTECHNICAL OBSERVATIONS

Exposed bottom surfaces in each removal area should be observed and approved by the project geotechnical consultant prior to placing fill. No fill should be placed without prior approval from the geotechnical consultant.

The project geotechnical consultant should be present on site during grading operations to verify proper placement and compaction of fill, as well as to verify compliance with the recommendations presented herein.

7.6 UTILITY TRENCH BACKFIL

All utility trench backfill should be compacted to a minimum relative compaction of 90 percent. Trench backfill materials should be placed in lifts no greater than approximately 6 inches in thickness, watered or air-dried as necessary to near optimum moisture content, and then mechanically compacted in place to a minimum relative compaction of 90 percent. A representative of the project geotechnical consultant should probe and test the backfills to verify adequate compaction.

As an alternative for shallow trenches where pipe or utility lines may be damaged by mechanical compaction equipment, such as under floor slabs, imported clean sand exhibiting a sand equivalent (SE) value of 30 or greater may be utilized. The sand backfill materials should be watered to achieve near optimum moisture conditions and then tamped into place. No specific relative compaction will be required; however, observation, probing, and if deemed necessary, testing should be performed by a representative of the project geotechnical consultant to verify an adequate degree of compaction and that the backfill will not be subject to settlement.

Where utility trenches enter the footprint of the floor slabs, they should be backfilled through their entire depths with on-site fill materials, sand-cement slurry, or concrete rather than with any sand or gravel shading. This “Plug” of less- or non-permeable materials will mitigate the

potential for water to migrate through the backfilled trenches from outside to the areas beneath the foundations and floor slabs.

7.7 SHALLOW FOUNDATIONS

Following the site and foundation preparation recommended above, foundation for load bearing walls and interior columns may be designed as discussed below.

7.7.1 Bearing Capacity and Settlement

Load bearing walls and interior columns may be supported on continuous spread footings and isolated spread footings, respectively, and should bear entirely upon undisturbed native or properly engineered fill. Continuous and isolated footings should have a minimum width of 18 inches and 24 inches, respectively. All footings should be embedded a minimum depth of 18 inches measured from the lowest adjacent finish grade. Continuous and isolated footings placed on such materials may be designed using an allowable (net) bearing capacity of 2,000 pounds per square foot (psf) respectively. Allowable increases of 250 psf for each additional 1 foot in width and 250 psf for each additional 6 inches in depth may be utilized, if desired. The maximum allowable bearing pressure should be 3,000 psf. The maximum bearing value applies to combined dead and sustained live loads. The allowable bearing pressure may be increased by one-third when considering transient live loads, including seismic and wind forces.

Based on the allowable bearing value recommended above, total settlement of the shallow footings are anticipated to be less than one inch, provided foundation preparations conform to the recommendations described in this report. Differential settlement is anticipated to be approximately half the total settlement for similarly loaded footings spaced up to approximately 30 feet apart.

7.7.2 Lateral Load Resistance

Lateral load resistance for the spread footings will be developed by passive soil pressure against sides of footings below grade and by friction acting at the base of the concrete footings bearing on compacted fill. An allowable passive pressure of 250 psf per foot of depth may be used for design purposes. An allowable coefficient of friction 0.35 may be used for dead and

sustained live load forces to compute the frictional resistance of the footings constructed directly on compacted fill. Safety factors of 2.0 and 1.5 have been incorporated in development of allowable passive and frictional resistance values, respectively. Under seismic and wind loading conditions, the passive pressure and frictional resistance may be increased by one-third.

7.7.3 Footing Reinforcement

Reinforcement for footings should be designed by the structural engineer based on the anticipated loading conditions. Footings for structures that are supported in very low to low expansive soils should have No. 4 bars, two top and two bottom.

7.8 CONCRETE SLAB ON-GRADE

Concrete slabs will be placed on undisturbed natural soils or properly compacted fill as outlined in Section 7.2. Moisture content of subgrade soils should be maintained near the optimum moisture content.

At the time of the concrete pour, subgrade soils should be firm and relatively unyielding. Any disturbed soils should be excavated and then replaced and compacted to a minimum of 90 percent relative compaction. Slabs should be designed to accommodate very low to low expansive fill soils. The structural engineer should determine the minimum slab thickness and reinforcing depending upon the expansive soil condition intended use. Slabs placed on very low to low expansive soils should be at least 4 inches thick and have minimum reinforcement of No. 3 bars placed at mid-height of the slabs and spaced 18 inches on centers, in both directions. The structural engineer may require thicker slabs with more reinforcement depending on the anticipated slab loading conditions.

If moisture-sensitive floor covering is planned, a layer of open-graded gravel, at least 4 inches thick, should be placed below the concrete slab to form a capillary break. Alternately, moisture-proof membrane (such as 10-mil) may be utilized. The vapor barrier should be placed between sand layers (2 inches above and below) to protect the membrane from damage during construction. Gravel for use under a concrete floor slab should be clean, crushed rock that meets the gradation requirements presented next.

Sieve Size	Percentage
1 inch	100
¾ inch	90-100
No. 4	0-10

7.9 PRELIMINARY PAVEMENT DESIGN

Pavement design should be confirmed at the completion of site grading when the subgrade soils are in-place. This should include sampling and R-Value testing of the actual subgrade soils and an analysis based upon the anticipated traffic loading.

For a preliminary pavement design, recommendations for pavement design section of asphalt parking areas are provided below. These values are based on an assumed R-value of 45.

For pavement design, Traffic indexes (TI) of 4.0 and 5.5 were used for the parking areas and auto driveways, respectively. The preliminary flexible pavement layer thickness is as follows:

RECOMMMENDED ASPHALT PAVEMENT SECTION LAYER THICKNESS

Pavement Material	**Recommended Thickness**	
	TI = 4.0	**TI = 5.5**
Asphalt Concrete Surface Course	3 inches	4 inches
Class II Aggregate Base Course	5 inches	6 inches
Compacted Subgrade Soils	12 inches	12 inches

Asphalt concrete should conform to Sections 203 and 302 of the latest edition of the Standard Specifications for Public Works Construction ("Greenbook").

Class II aggregate base should conform to Section 26 of the Caltrans Standard Specifications, latest edition. The aggregate base course should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Method D 1557.

Portland cement concrete paving sections were determined in accordance with procedures developed by the Portland Cement Association. Concrete paving sections for three Traffic Indices are presented below. We have assumed that the portland cement concrete will have a compressive strength of at least 3,000 pounds per square inch.

Assumed Traffic Index	PCC Paving (Inches)	Base Course (Inches)
4½ (Automobile Parking)	6	4
5½ (Driveways and Light Track Traffic)	6½	4
6½ (Roadways and Heavy Truck Traffic)	7	4

7.10 SOLUBLE SULFATES AND SOIL CORROSIVITY

The soluble sulfate, pH, and chloride concentration tests were performed on a sample of the on-site soils. Corrosion test results are presented in Appendix B. Results of the minimum resistivity tests indicate that on-site soils have mildly corrosive potential when in contact with ferrous materials. Typical recommendations for mitigation of the corrosive potential of the soil in contact with building materials are the following:

- Below grade ferrous metals should be given a high quality protective coating, such as an 18 mil plastic tape, extruded polyethylene, coal tar enamel, or Portland cement mortar.

- Below grade ferrous metals should be electrically insulated (isolated) from above grade ferrous metals and other dissimilar metals, by means of dielectric fittings in utilities and exposed metal structures breaking grade.

- Steel and wire reinforcement within concrete in contact with the site soils should have at least two inches of concrete cover.

If ferrous building materials are expected to be placed in contact with site soils, it may be desirable to consult a corrosion specialist regarding chosen construction materials, and/or protection design for the proposed facility.

Corrosion test results also indicate that the surficial soils at the site have negligible sulfate attack potential on concrete. No sulfate-resistant cement will be necessary for concrete placed in contact with the on-site soils.

8.0 CONSTRUCTION CONSIDERATIONS

Based on our field exploration program, earthwork can be performed with conventional construction equipment.

8.1 TEMPORARY DEWATERING

Groundwater was not encountered in borings to the maximum explored depth of 21.5 feet below ground surface. Based on the anticipated excavation depths, the need for temporary dewatering is considered very low.

8.2 CONSTRUCTION SLOPES

Excavations during construction should be conducted so that slope failure and excessive ground movement will not occur. The short-term stability of excavation depends on many factors, including slope angle, engineering characteristics of the subsoils, height of the excavation and length of time the excavation remains unsupported and exposed to equipment vibrations, rainfall and desiccation.

Where space permits, and providing that adjacent facilities are adequately supported, open excavations may be considered. In general, unsupported slopes for temporary construction excavations should not be expected to stand at an inclination steeper than 1:1 (horizontal:vertical). The temporary excavation side walls may be cut vertically to a height of 3 feet and then laid back at a 1:1 slope ratio above a height of 3 feet.

Surcharge loads should be kept away from the top of temporary excavations a horizontal distance equal to at least one-half the depth of excavation. Surface drainage should be controlled along the top of temporary excavations to preclude wetting of the soils and erosion

of the excavation faces. Even with the implementation of the above recommendations, sloughing of the surface of the temporary excavations may still occur, and workmen should be adequately protected from such sloughing.

If site conditions do not provide sufficient space for sloped excavations at the project site, slot cutting techniques in a repeating "ABC" sequence may be required. First, all the slots designated as "A" should be excavated, backfilled and recompacted. The procedure should continue with the "B" slots and end with the "C" slots. The width of each slot should not exceed 6 feet. If any evidence of potential instability is observed, revised recommendations such as narrower slot cuts may be necessary. All slot excavation and backfilling procedures should be performed under the observation and testing of a qualified geotechnical engineer.

9.0 POST INVESTIGATION SERVICES

Final project plans and specifications should be reviewed prior to construction to confirm that the full intent of the recommendations presented herein have been applied to design and construction. Following review of plans and specifications, observation should be performed by the geotechnical engineer during construction to document that foundation elements are founded on/or penetrate onto the recommended soils, and that suitable backfill soils are placed upon competent materials and properly compacted at the recommended moisture content.

10.0 CLOSURE

The conclusions, recommendations, and opinions presented herein are: (1) based upon our evaluation and interpretation of the limited data obtained from our field and laboratory programs; (2) based upon an interpolation of soil conditions between and beyond the borings; (3) are subject to confirmation of the actual conditions encountered during construction; and, (4) are based upon the assumption that sufficient observation and testing will be provided during construction.

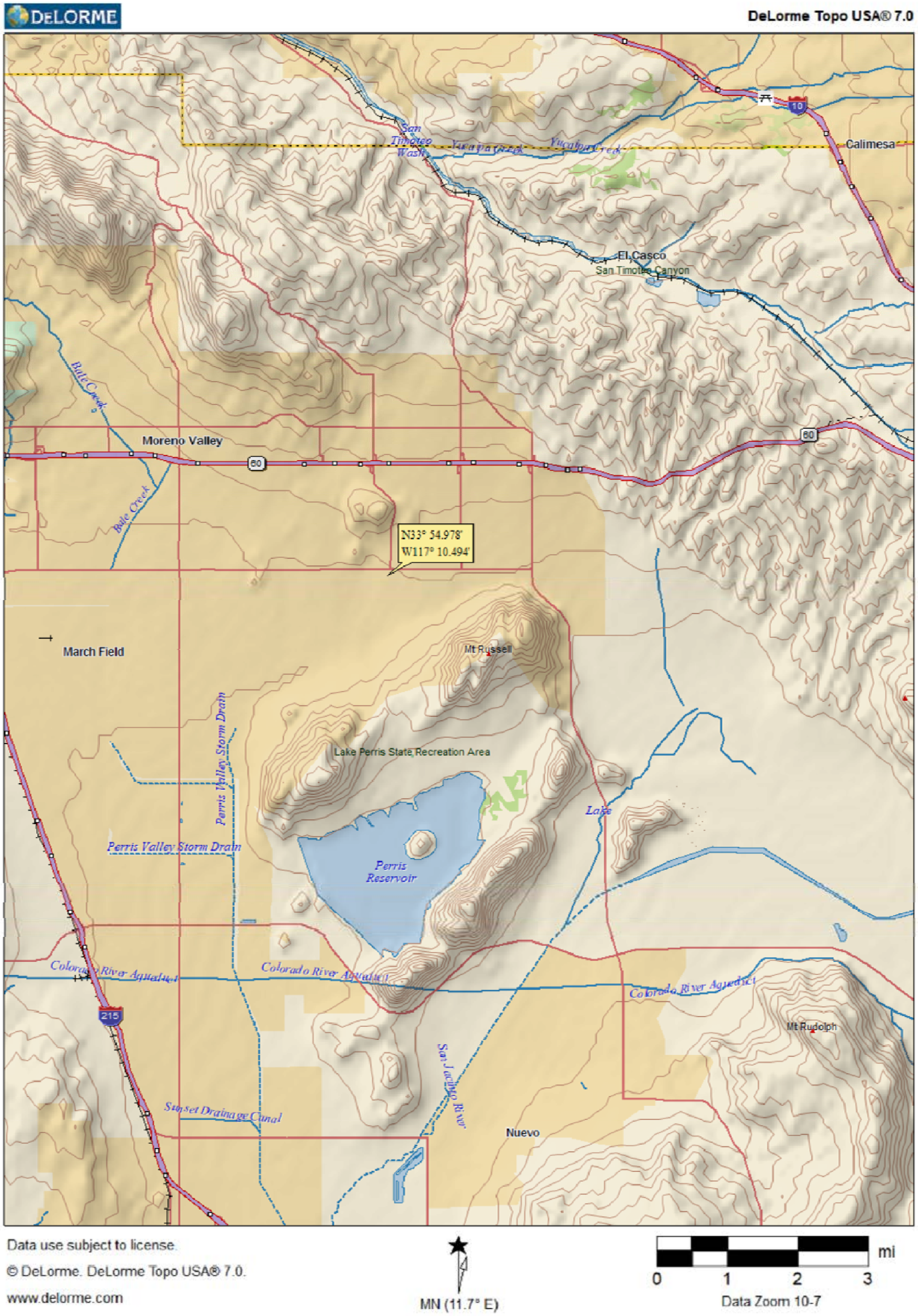
If parties other than GeoBoden are engaged to provide construction geotechnical services, they must be notified that they will be required to assume complete responsibility for the geotechnical phase of the project by concurring with the findings and recommendations in this report or providing alternate recommendations.

If pertinent changes are made in the project plans or conditions are encountered during construction that appear to be different than indicated by this report, please contact this office. Significant variations may necessitate a re-evaluation of the recommendations presented in this report.

11.0 REFERENCES

California Building Code, 2016 Volume 2.

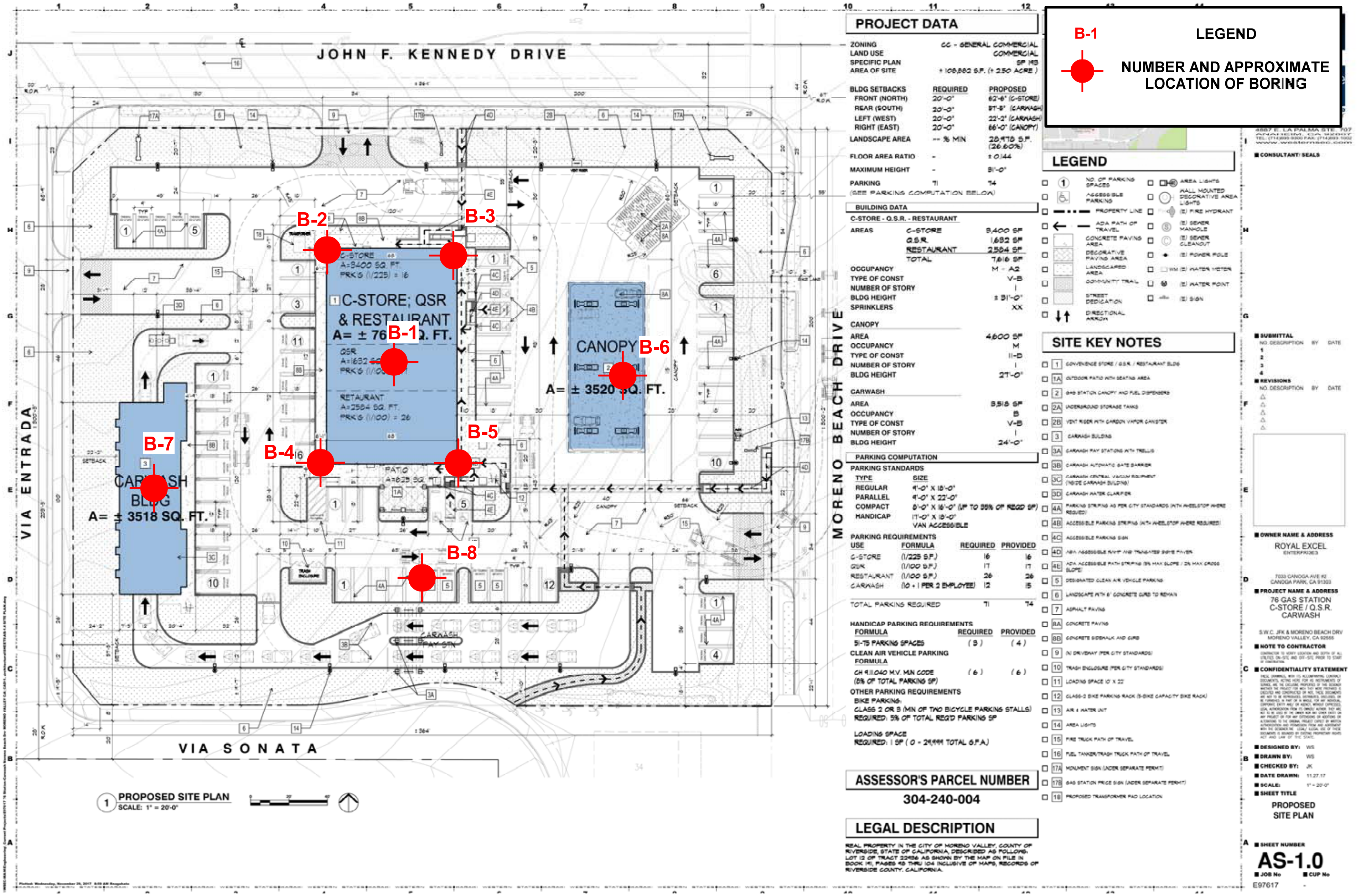
FIGURES



GEOBODEN INC.
Geotechnical Consultants

SITE VICINITY MAP
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

Figure By S.R.	Project No Moreno Beach-1-
Map No. XX	Figure No. 1
Date 12-08-1	



GEOBODEN INC.

Geotechnical Consultants

BORING LOCATION PLAN

Proposed 76 Gas Station

Southwest John F. Kennedy/Moreno Beach Drive

Moreno Valley, California

Figure By	Project No.
S.R.	Moreno Bea
Map No.	Figure No.
XX	2
Date	

1.u

Attachment: Prelimiary Water Quality Managment Plan [Revision 1] (3058 : Moreno Beach Commercial Center)

APPENDIX A
BORING LOGS

APPENDIX A
SUBSURFACE EXPLORATION PROGRAM

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

Prior to drilling, the proposed borings were located in the field by measuring from existing site features.

A total of 8 exploratory borings (B-1 through B-8) were drilled using a hollow-stem auger drill rig equipped with 6-inch outside diameter (O.D.) augers. GeoBoden of Irvine, California performed the drilling on November 25, 2017. The boring locations are shown on Figure 2.

Depth-discrete soil samples were collected at selected intervals from the exploratory borings using a 2 ½ -inch inside diameter (I.D.) modified California Split-barrel sampler fitted with 12 brass ring of 2 ½ inches in O.D. and 1-inch in height and one brass liner (2 ½ -inch O.D. by 6 inches long) above the brass rings. The sampler was lowered to the bottom of the boreholes and driven 18 inches into the soil with a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler the lower 12 inches is shown on the blow count column of the boring logs.

After removing the sampler from the boreholes, the sampler was opened and the brass rings and liner containing the soil were removed and observed for soil classification. Brass rings containing the soil were sealed in plastic canisters to preserve the natural moisture content of the soil. Soil samples collected from exploratory borings were labeled, and were transported for physical testing.

Standard Penetration Tests (SPTs) were also performed within the borings. The SPT consists of driving a standard sampler, as described in the ASTM 1586 Standard Method, using a 140-pound hammer falling 30 inches. The number of blows required to drive the SPT sampler the lower 12 inches of the sampling interval is recorded on the blow count column of the boring logs.

The soil classifications and descriptions on field logs were performed using the Unified Soil Classification System as described by the American Society for Testing and Materials (ASTM) D 2488-90, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)." The final boring logs were prepared from the field logs and are presented in this Appendix.

At the completion of the sampling and logging, the exploratory borings were backfilled with the drilled cuttings.

GEOBODEN, INC.

BORING NUMBER B-1

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light brownish gray, dry, ~85% sand, ~10% fines, ~5% gravel										
5			MC R-1		30		103	3				
10		light olive gray	SS S-2		12							
15			MC R-3		31							
20			SS S-4		31							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

GEOBODEN, INC.

BORING NUMBER B-2

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		POORLY-GRADED SAND w. SILT (SP-SM): pale olive, dry, ~5% fine gravel, ~10% fines, ~85% medium sand										
5			MC R-1		28		108	4				1
8		POORLY-GRADED SAND w. SILT & GRAVEL (SP): pale olive, dry, ~15% subangular gravel up to 2 inch, ~10% fines, ~75% fine sand										
10			SS S-2		14			3				
15			MC R-3		34		114	2				
20			SS S-4		36							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-3

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		POORLY-GRADED SAND w. SILT (SP-SM): olive gray, dry, ~5% gravel, ~10% fines, ~85% sand										
5			MC R-1		24		105	3				1
10		grayish brown	SS S-2		11			2				
15			MC R-3		32		108	3				
20			SS S-4		36							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

GEOBODEN, INC.

BORING NUMBER B-4

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): olive, dry, ~75% sand, ~20% fines, ~5% gravel										
5			MC R-1		32		109	6				
10		light olive brown	MC R-2		31		112	5				
15			MC R-3		36							
		POORLY-GRADED SAND w. SILT & GRAVEL (SP-SM): brown, dry, ~15% fine gravel, ~75% medium sand, ~10% fines										
20			SS S-4		39							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-5

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light yellowish brown, dry, ~10% fines, ~90% sand										
5			MC R-1		19		104	2				
10		SAND w. GRAVEL (SP): pale olive, dry , ~15% fine to coarse gravel, ~80% fine sand, ~5% fines	MC R-2		32							
15			MC R-3		38							
20			SS S-4		40							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-6

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light brown, dry, ~5% gravel										
5			MC R-1		30		111	2				
10			MC R-2		36							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-7

PAGE 1 OF 1

CLIENT	Royal Excel Enterprises	**PROJECT NAME**	Proposed 76 Gas Station
PROJECT NUMBER	Moreno Beach-1-01	**PROJECT LOCATION**	Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED	11/25/17 **COMPLETED** 11/25/17	**GROUND ELEVATION**	**HOLE SIZE** 8 inches
DRILLING CONTRACTOR	GeoBoden, Inc.	**GROUND WATER LEVELS:**	
DRILLING METHOD	HSA	**AT TIME OF DRILLING**	---
LOGGED BY	C.R. **CHECKED BY**	**AT END OF DRILLING**	---
NOTES		**AFTER DRILLING**	---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): brown, dry, ~70% sand, ~30% fines										
5		POORLY-GRADED SAND w. SILT (SP-SM): light olive gray, dry, ~5% gravel, ~10% fines, ~85% sand	MC R-1		41		109	4				
10			MC R-2		39							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-8

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): brown, dry, ~20% fines, ~75% sand, ~5% gravel										
5			MC R-1		41		114	2				
10			MC R-2		45							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

APPENDIX B
LABORATORY TESTING

APPENDIX B
LABORATORY TESTING

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

Laboratory tests were performed on selected samples to assess the engineering properties and physical characteristics of soils at the site. The following tests were performed:

- moisture content and dry density
- No. 200 Wash sieve
- consolidation
- direct shear
- corrosion

Test results are summarized on laboratory data sheets or presented in tabular form in this appendix.

Moisture Density Tests

The field moisture contents, as a percentage of the dry weight of the soils, were determined by weighing samples before and after oven drying. The dry density, in pounds per cubic foot, was also determined fir all relatively undisturbed ring samples collected. These analyses were performed in accordance with ASTM D 2937. The results of these determinations are shown on the boring logs in Appendix A.

No. 200 Wash Sieve

Quantitative determination of the percentage of soil finer than 0.075 mm was performed on selected soil samples by washing the soil through the No. 200 sieve. Test procedures were performed in accordance with ASTM Method D1140. The results of the tests are shown on the boring logs.

Consolidation

The test was performed in accordance with ASTM Test method D 2345. The compression curve from the consolidation tests is presented in this Appendix.

Direct Shear

Direct shear tests were performed on undisturbed samples of on-site soils. A different normal stress was applied vertically to each soil sample ring which was then sheared in a horizontal direction. The resulting shear strength for the corresponding normal stress was measured at a maximum constant rate of strain of 0.005 inches per minute. The direct shear results are shown graphically on a laboratory data sheet included in this appendix.

Corrosion Potential

A selected soil sample was tested to determine the corrosivity of the site soil to steel and concrete. The soil sample was tested for soluble sulfate (Caltrans 417), soluble chloride (Caltrans 422), and pH and minimum resistivity (Caltrans 643). The results of corrosion tests are summarized in Table B-1.

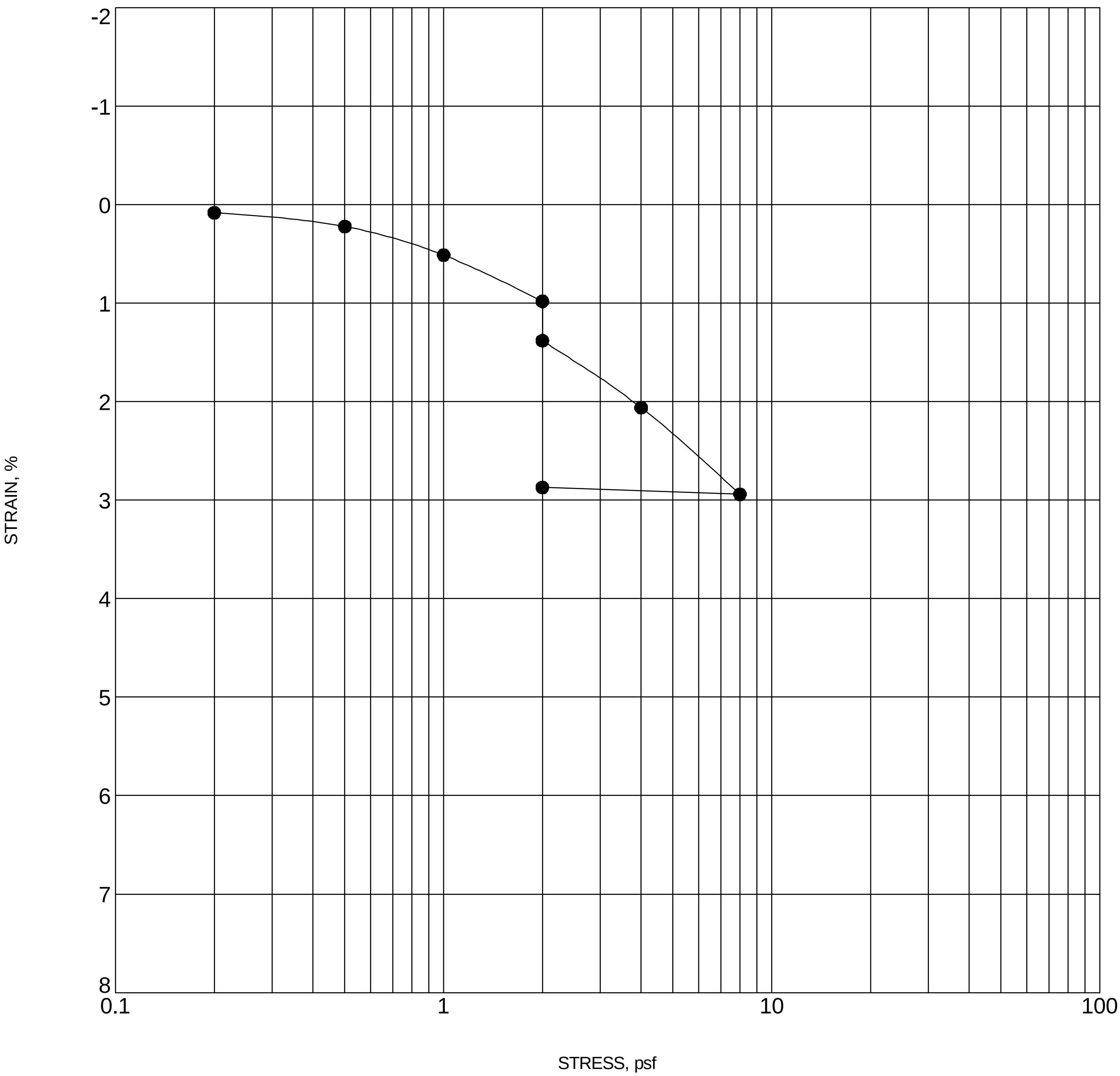
TABLE B-1 (Corrosion Test Results)

Boring No.	Depth (ft)	Chloride Content (Calif. 422) ppm	Sulfate Content (Calif. 417) % by Weight	pH (Calif. 643)	Resistivity (Calif. 643) Ohm*cm
B-1	0-5	78	0.0129	7.3	1,925

GEOBODEN, INC.

CONSOLIDATION TEST

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive



	Specimen Identification		Classification	γ_d	MC%
●	**B-1**	**5.0**	**POORLY-GRADED SAND w. SILT**	**103**	**3**

GEOBODEN, INC.

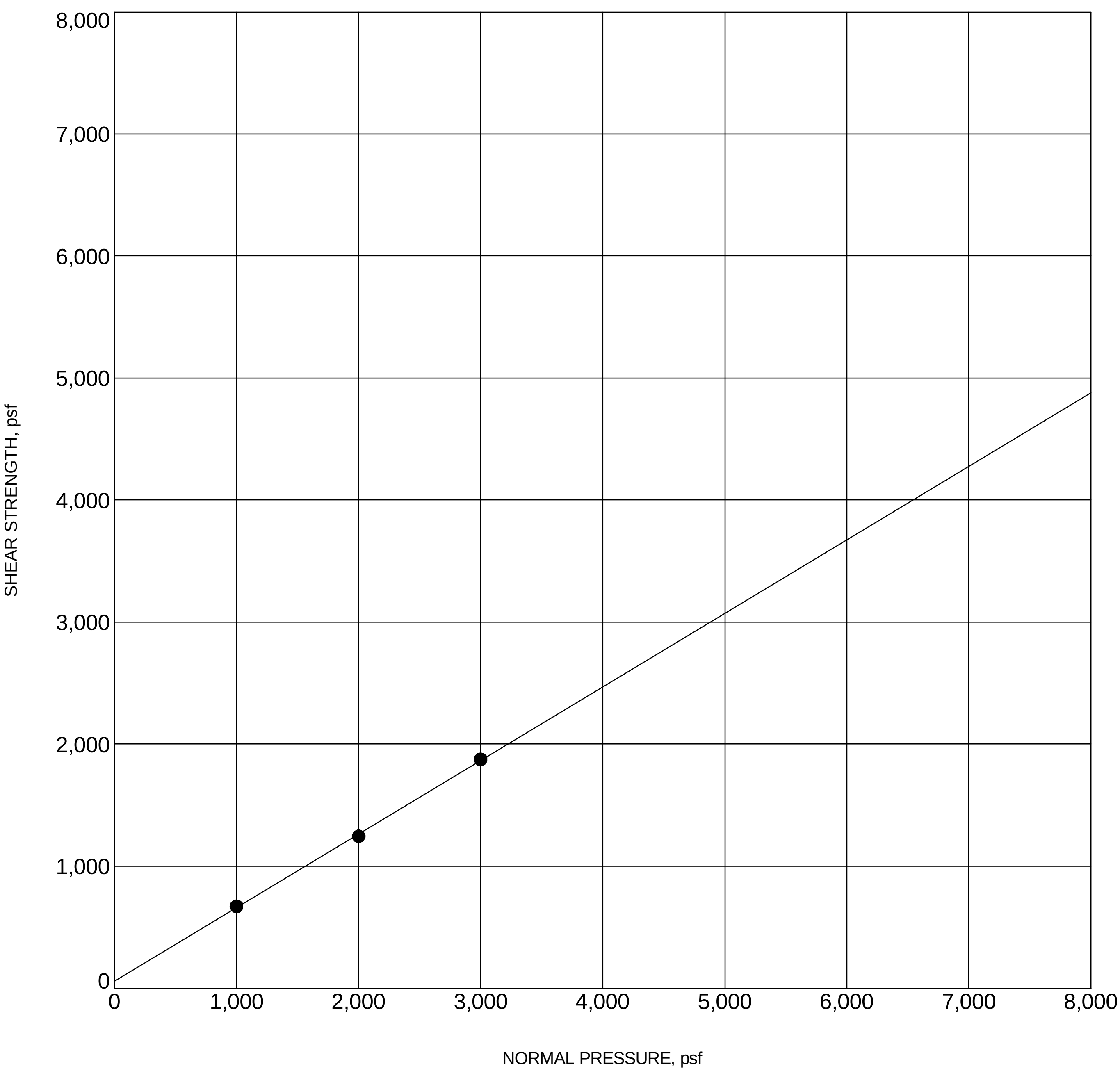
DIRECT SHEAR TEST

CLIENT Royal Excel Enterprises

PROJECT NAME Proposed 76 Gas Station

PROJECT NUMBER Moreno Beach-1-01

PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive



	Specimen Identification		Classification	γ_d	MC%	c	ϕ
●	**B-3**	**5.0**	**POORLY-GRADED SAND w. SILT (SP-SM)**	**105**	**3**	**59.0**	**31**

DIRECT SHEAR - GINT STD US LAB.GDT - 12/8/17 09:15 - C:\PASSPORT\GBI\76 GAS STATION-JFK & MORENO BEACH DRIVE\LOGS.GPJ

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

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	Western States Engineering	Date	2/1/2018
Designed by	RR	Case No	
Company Project Number/Name	76 Gas Station Moreno Valley		

BMP Identification

BMP NAME / ID INF-1

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}= 0.68 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 Impervious 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)*
A1	*16882*	*Concrete or Asphalt*	*1*	*0.89*	*15058.7*			
A2	*4532*	*Roofs*	*1*	*0.89*	*4042.5*			
A3	*4857*	*Ornamental Landscaping*	*0.1*	*0.11*	*536.5*			
	26271	***Total***			**19637.7**	**0.68**	***1112.8***	***1720***

Notes:

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: Western States Engineering
Date: 2/1/2018
Designed by: RR
Case No:
Company Project Number/Name: 76 Gas Station Moreno Valley

BMP Identification

BMP NAME / ID: INF-3

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}= 0.68 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 Impervious 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)*
B1	26756	Concrete or Asphalt	1	0.89	23866.4			
B2	3084	Roofs	1	0.89	2750.9			
B3	3526	Roofs	1	0.89	3145.2			
B4	6858	Ornamental Landscaping	0.1	0.11	757.5			
B7	1287	Concrete or Asphalt	1	0.89	1148			
	41511	Total			31668	0.68	1794.5	2503

Notes:

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: Western States Engineering — Date: 2/1/2018

Designed by: RR — Case No:

Company Project Number/Name: 76 Gas Station Moreno Valley

BMP Identification

BMP NAME / ID: INF-4

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}= 0.68 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)*
C1	*6690*	*Concrete or Asphalt*	*1*	*0.89*	*5967.5*			
C2	*1885*	*Concrete or Asphalt*	*1*	*0.89*	*1681.4*			
C3	*2350*	*Ornamental Landscaping*	*0.1*	*0.11*	*259.6*			
C4	*3095*	*Ornamental Landscaping*	*0.1*	*0.11*	*341.9*			
	14020	***Total***			**8250.4**	**0.68**	***467.5***	***527***

Notes:

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: Western States Engineering | Date: 2/1/2018

Designed by: RR | Case No:

Company Project Number/Name: 76 Gas Station Moreno Valley

BMP Identification

BMP NAME / ID: INF-2

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}= 0.68 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)*
D1	11521	Concrete or Asphalt	1	0.89	10276.7			
D2	3520	Roofs	1	0.89	3139.8			
D3	5441	Ornamental Landscaping	0.1	0.11	601			
	20482	Total			14017.5	0.68	794.3	1300

Notes:

Infiltration Basin - Design Procedure (Rev. 03-2012)	BMP ID	Legend:	Required Entries
	INF - 1		Calculated Cells

Company Name:	Western States Engineering	Date:	2/1/2018
Designed by:	RR	County/City Case No.:	

Design Volume

a) Tributary area (BMP subarea)	A_T =	0.603	acres
b) Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	1,113	ft^3

Maximum Depth

a) Infiltration rate	I =	2.5	in/hr
b) Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" from this BMP Handbook)	FS =	10	
c) Calculate D_1 $D_1 = \dfrac{\text{I (in/hr) x 72 hrs}}{\text{12 (in/ft) x FS}}$	D_1 =	1.5	ft
d) Enter the depth of freeboard (at least 1 ft)		1	ft
e) Enter depth to historic high ground water (measured from **top** of basin)		50	ft
f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin)		21	ft
g) D_2 is the smaller of: Depth to groundwater - (10 ft + freeboard) and Depth to impermeable layer - (5 ft + freeboard)	D_2 =	15.0	ft
h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet	D_{MAX} =	1.5	ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1)	z =	4	:1
b) Proposed basin depth (excluding freeboard)	d_B =	1	ft
c) Minimum bottom surface area of basin (A_S= V_{BMP}/d_B)	A_S =	1113	ft^2
d) Proposed Design Surface Area	A_D =	1720	ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP})	Volume =	6	ft^3
b) Forebay depth (height of berm/splashwall. 1 foot min.)	Depth =	n/a	ft
c) Forebay surface area (minimum)	Area =	#######	ft^2
d) Full height notch-type weir	Width (W) =	n/a	in

Notes:

Infiltration Basin - Design Procedure
(Rev. 03-2012)

BMP ID: INF - 3

Legend: Required Entries / Calculated Cells

Company Name: Western States Engineering — Date: 2/1/2018

Designed by: RR — County/City Case No.:

Design Volume

a) Tributary area (BMP subarea)	A_T =	0.953	acres
b) Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	1,795	ft^3

Maximum Depth

a) Infiltration rate	I =	2.5	in/hr
b) Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" from this BMP Handbook)	FS =	10	
c) Calculate D_1 — $D_1 = \dfrac{I\ (in/hr) \times 72\ hrs}{12\ (in/ft) \times FS}$	D_1 =	1.5	ft
d) Enter the depth of freeboard (at least 1 ft)		1	ft
e) Enter depth to historic high ground water (measured from **top** of basin)		50	ft
f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin)		21	ft
g) D_2 is the smaller of: Depth to groundwater - (10 ft + freeboard) and Depth to impermeable layer - (5 ft + freeboard)	D_2 =	15.0	ft
h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet	D_{MAX} =	1.5	ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1)	z =	4	:1
b) Proposed basin depth (excluding freeboard)	d_B =	1	ft
c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$)	A_S =	1795	ft^2
d) Proposed Design Surface Area	A_D =	2503	ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP})	Volume =	9	ft^3
b) Forebay depth (height of berm/splashwall. 1 foot min.)	Depth =	n/a	ft
c) Forebay surface area (minimum)	Area =	#######	ft^2
d) Full height notch-type weir	Width (W) =	n/a	in

Notes:

Attachment: Prelimiary Water Quality Managment Plan [Revision 1] (3058 : Moreno Beach Commercial Center)

Infiltration Basin - Design Procedure (Rev. 03-2012)	BMP ID	Legend:	Required Entries
	INF - 4		Calculated Cells

Company Name: Western States Engineering — Date: 2/1/2018

Designed by: RR — County/City Case No.:

Design Volume

a) Tributary area (BMP subarea) — $A_T =$ 0.318 acres

b) Enter V_{BMP} determined from Section 2.1 of this Handbook — $V_{BMP} =$ 468 ft^3

Maximum Depth

a) Infiltration rate — $I =$ 2.5 in/hr

b) Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" from this BMP Handbook) — $FS =$ 10

c) Calculate D_1 — $D_1 = \dfrac{\text{I (in/hr) x 72 hrs}}{\text{12 (in/ft) x FS}}$ — $D_1 =$ 1.5 ft

d) Enter the depth of freeboard (at least 1 ft) — 1 ft

e) Enter depth to historic high ground water (measured from **top** of basin) — 50 ft

f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin) — 21 ft

g) D_2 is the smaller of:

Depth to groundwater - (10 ft + freeboard) and
Depth to impermeable layer - (5 ft + freeboard) — $D_2 =$ 15.0 ft

h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet — $D_{MAX} =$ 1.5 ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1) — $z =$ 4 :1

b) Proposed basin depth (excluding freeboard) — $d_B =$ 1 ft

c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$) — $A_S =$ 468 ft^2

d) Proposed Design Surface Area — $A_D =$ 527 ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP}) — Volume = 2 ft^3

b) Forebay depth (height of berm/splashwall. 1 foot min.) — Depth = n/a ft

c) Forebay surface area (minimum) — Area = ####### ft^2

d) Full height notch-type weir — Width (W) = n/a in

Notes:

Attachment: Prelimiary Water Quality Managment Plan [Revision 1] (3058 : Moreno Beach Commercial Center)

Infiltration Basin - Design Procedure (Rev. 03-2012)	BMP ID	Legend:	Required Entries
	INF - 2		Calculated Cells

Company Name: Western States Engineering — Date: 2/1/2018

Designed by: RR — County/City Case No.:

Design Volume

a) Tributary area (BMP subarea) — A_T = 0.47 acres

b) Enter V_{BMP} determined from Section 2.1 of this Handbook — V_{BMP} = 794 ft^3

Maximum Depth

a) Infiltration rate — I = 2.5 in/hr

b) Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" from this BMP Handbook) — FS = 10

c) Calculate D_1 — $D_1 = \dfrac{I\ (in/hr) \times 72\ hrs}{12\ (in/ft) \times FS}$ — D_1 = 1.5 ft

d) Enter the depth of freeboard (at least 1 ft) — 1 ft

e) Enter depth to historic high ground water (measured from **top** of basin) — 50 ft

f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin) — 21 ft

g) D_2 is the smaller of:

Depth to groundwater - (10 ft + freeboard) and
Depth to impermeable layer - (5 ft + freeboard) — D_2 = 15.0 ft

h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet — D_{MAX} = 1.5 ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1) — z = 4 :1

b) Proposed basin depth (excluding freeboard) — d_B = 1 ft

c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$) — A_S = 794 ft^2

d) Proposed Design Surface Area — A_D = 1300 ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP}) — Volume = 4 ft^3

b) Forebay depth (height of berm/splashwall. 1 foot min.) — Depth = n/a ft

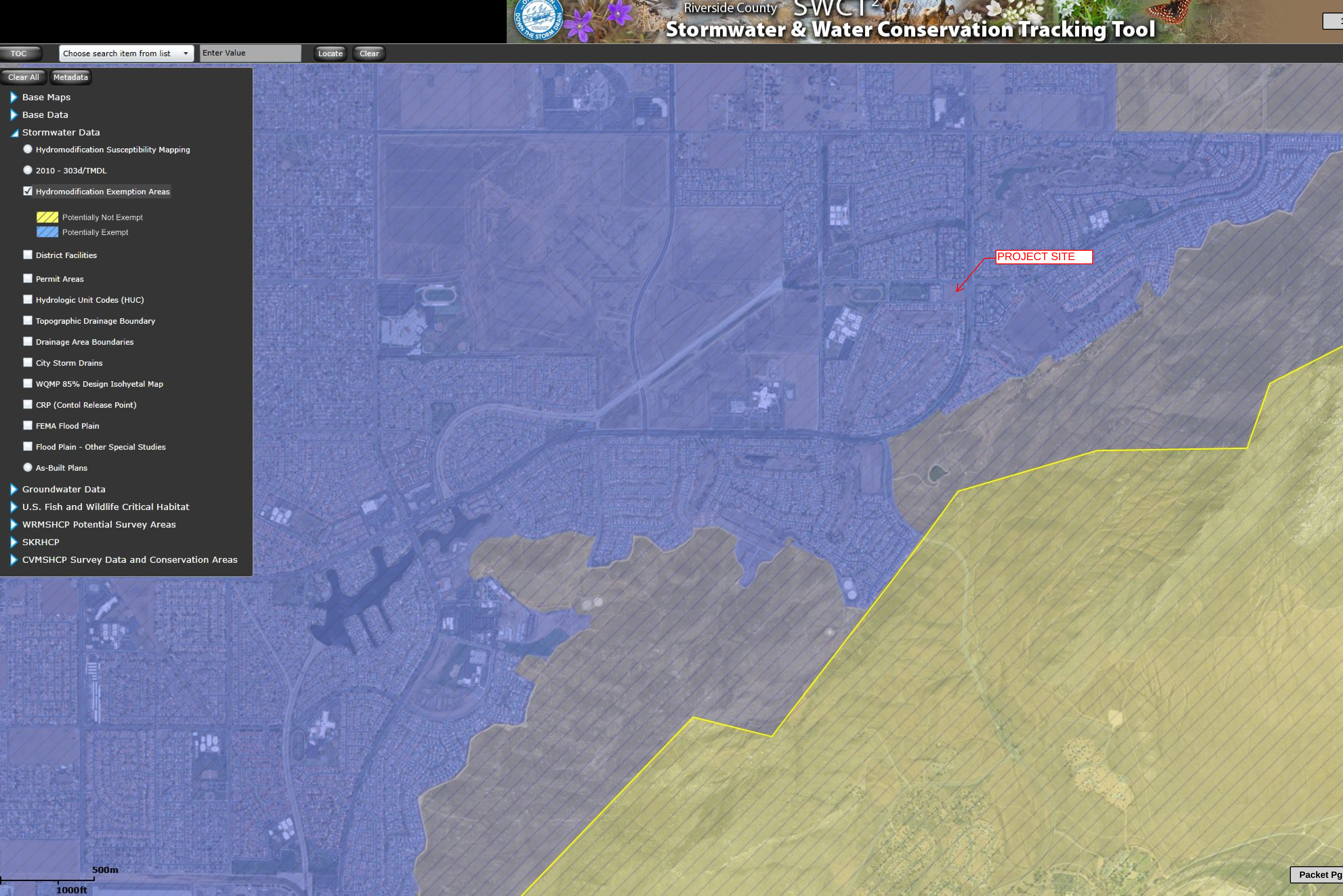
c) Forebay surface area (minimum) — Area = ####### ft^2

d) Full height notch-type weir — Width (W) = n/a in

Notes:

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern



Attachment: Preliminary Water Quality Managment Plan [Revision 1] (3058 : Moreno Beach Commercial Center)

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

PROJECT SOURCE CONTROL BMPS

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☒ **A.** On-site storm drain inlets	☒ Locations of inlets.	☒ Mark all inlets with the words “No Dumping! Flows to Bay” or similar	☒ Maintain and periodically repaint or replace inlet markings ☒ 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 www.cabmphandbooks.com ☒ 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.
☐ **B.** Interior floor drains and elevator shaft sump pumps		☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
☐ **C.** Interior parking garages		☐ State that parking garage floor drains will be plumbed to the sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☐ **D1.** Need for future indoor & structural pest control		☐ Note building design features that discourage entry of pests.	☐ Provide Integrated Pest Management information to owners, lessees, and operators.
☒ **D2.** Landscape/Outdoor Pesticide Use Note: should be consistent with project landscape plan (if applicable).	☒ Show Locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. ☒ Show self-retaining landscape areas, if any. ☒ 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: ☒ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ☒ 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. ☒ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. ☒ 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.	☒ Maintain landscaping using minimum or no pesticides ☒ See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com ☒ Provide Integrated Pest Management information to new owners, lessees and operators

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	**…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS**		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☐ **E.** Pools, spas, ponds, decorative fountains, and other water features	☐ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	☐ If the local municipality 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.	☐ See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
☒ **F.** Food Services	☒ 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. ☐ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	☐ If the local municipality 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. ☐ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	☒ 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.

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☒ **G.** Refuse areas	☒ 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. ☒ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms. ☒ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	☒ State how site refuse will be handled and provide supporting detail to what is shown on plans. ☒ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	☒ 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 onsite. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
☐ **H.** Industrial processes.	☐ Show process area.	☐ 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."	☐ See Fact Sheet SC-10, "Non- Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☐ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	☐ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent contamination. ☐ 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. ☐ 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.	☐ Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for: • 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	☐ 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

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☒ **J.** Vehicle and Equipment Cleaning	☒ Show on drawings as appropriate: (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 shutoff 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.	☐ If a car wash area is not provided, describe measures taken to discourage on-site car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): ☒ Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. ☐ Car dealerships and similar may rinse cars with water only. ☒ See Fact Sheet SC-21, "Vehicle and Equipment Cleaning," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE...	...THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☒ **K.** Vehicle/Equipment Repair and Maintenance	☒ 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.	☒ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.	In the SUSMP report, note that all of the following restrictions apply to use the site:
	☒ 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.	☒ 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.	☒ 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.
	☐ 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.	☒ 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.	☒ 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. ☒ 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.

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☒ **L.** Fuel Dispensing Areas	☒ Fueling areas1 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. ☒ 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 area1.] The canopy [or cover] shall not drain onto the fueling area.		☒ The property owner shall dry sweep the fueling area routinely. ☐ See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
☐ **M.** Loading Docks	☐ 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 should be drained to the sanitary sewer where feasible. Direct connections to storm drains from depressed loading docks are prohibited. ☐ 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. ☐ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		☐ Move loaded and unloaded items indoors as soon as possible. ☐ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
☐ **N.** Fire Sprinkler Test Water		☐ Provide a means to drain fire Sprinkler test water to the sanitary sewer.	☐ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	**…THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPS**		
Potential Sources of Runoff Pollutants	**Permanent Controls – Show on Source Control Exhibit, Appendix 1**	**Permanent Control – List in SUSMP Table and Narrative**	**Operational BMPs – Include in SUSMP Table and Narrative**
O. Miscellaneous Drain or Wash Water			
☐ Boiler Drain Lines		☐ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.	
☐ Condensate Drain Lines		☐ 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.	
☐ Rooftop Equipment		☐ Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment.	
☐ Drainage Sumps		☐ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.	
☐ Roofing, gutters, and trim		☒ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	
☐ **P.** Plazas, sidewalks, and parking lots			☒ Plazas, sidewalks, and parking lots shall be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Operations and Maintenance (O&M) Plan

Water Quality Management Plan
For

76 Station – JFK Drive/Moreno Beach Drive

TR 22936
APN: 304-240-004

Royal Excel Enterprises
7033 Canoga Ave, Canoga Park

Property Management Company:
To be determined

Exhibit A, Operations and Maintenance Plan

BMP Applicable? Yes/ No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation and Maintenance Responsibility
Non-Structural Source Control BMPs			
Yes	**Education for Property Owners, Tenants, and Occupants** This will be addressed through educational materials. All included materials provide ways of mitigating stormwater pollution in everyday activities associated with employees of the property management company and their sub-contractors. Practical informational materials are provided to increase the public's understanding of stormwater quality, sources of pollutants, and what they can do to reduce pollutants in stormwater.	PMC to provide education material, a copy of the approved WQMP and Operation & Maintenance Plan (O&M) to the owner & employees.	Property Management Company (PMC)
Yes	**Activity Restriction** Rules or guidelines for developments are established within the appropriate documents which prohibit activities that can result in discharges of pollutants.	PMC employees notified of activities that are prohibited by tenants, occupants & employees. Restrictions identified in Employee Manual and reviewed yearly by employees.	PMC
Yes	**Common Area Landscaped Management** Specific practices are followed and ongoing maintenance is conducted to minimize erosion and over-irrigation, conserve water, and reduce pesticide and fertilizer applications.	Professional landscape company to conduct maintenance of landscaping to meet current water efficiency and keep plants healthy and bio areas maintained with proper soil amendments. Regular maintenance once a week and monthly inspection to determine deficiencies	The PMC will maintain or hire professionals to manage the upkeep of the project's landscaped areas.
Yes	**BMP Maintenance** In order to ensure adequate and comprehensive BMP implementation, all responsible parties are identified for implementing all non-structural and structural BMPs, cleaning, inspection, and other maintenance activities are specified including responsible parties for conducting such activities.	A minimum 2 Inspections/ Cleanings per year per manufacturer's specifications starting on or near October 1st (before the rainy season)	PMC (During the first year, a contract between the PMC and manufacturer will be established for inspections. Afterwards, the BMP can be

			inspected by a PMC chosen maintenance crew)
Yes	**Title 22 CCR Compliance** Hazardous waste is managed properly through compliance with applicable Title 22 regulations. Hazardous materials or wastes will be generated, handled, transported, or disposed of in association with the project; measures are taken to comply with applicable local, state, and federal regulation to avoid harm to humans and the environment.	The distribution of these materials will be the responsibility of the PMC at the time of the leasing signing or home purchase per property owner, tenant or occupant or at the initial hiring on an employee.	PMC
Yes	**Spill Contingency Plan**	1) Educate and train employess about spill prevention and cleanup. 2) Identify key spill response personnel. 3) Clean up leaks and spills immediately using dry cleaning methods and absorbents. Never hose down or bury dry materials. For larger spills a private spill company or hazmat team may be necessary. 4) Report spills that pose an immediate threat to human life or the environment to local agencies such as the fire department.	PMC
No	**Underground Storage Tank Compliance**		
No	**Uniform Fire Code Implementation**		
Yes	**Common Area Litter Control** The proposed project will have various trash receptacles located near the common areas. Trash management and litter control procedures are specified within this report, including responsible parties, and implemented	Once per week provide litter removal of site parking lot and landscape areas and to empty	PMC

	to reduce pollution of drainage water.	common area trash bins.	
Yes	**Employee Training** Practical informational materials and/or training are provided to employees at the initial time of hiring by the PMC to increase their understanding of stormwater quality, sources of pollutants, and their responsibility for reducing pollutants in stormwater.	The distribution of these materials will be the responsibility of the PMC at the initial hiring of the employee.	PMC
No	**Housekeeping of Loading Docks**		
Yes	**Common Area Catch Basin Inspection** In order to ensure adequate and comprehensive BMP implementation, all responsible parties are identified for implementing all non-structural and structural BMPs, cleaning, inspection, and other maintenance activities are specified including responsible parties for conducting such activities.	Common inspection should occur weekly or prior to any significant storm events by method of clearing any trash/ debris from the catch basin.	PMC
Yes	**Street Sweeping Private Streets and Parking Lots** Regular sweeping is conducted to reduce pollution of drainage water.	City's Street Sweeping Services or approved Private Company on a weekly basis	PMC
Yes	**Retail Gasoline Outlets**		PMC
Structural Source Control BMPs			
Yes	**Provide Storm Drain System Stenciling and Signage** Catch Basin Stenciling and Signage will be placed on all on-site catch basins to the satisfaction of the City Engineer.	Inspect and repair as needed all onsite storm drain stencilling & signage. Inspection should occur at minimum twice per year.	PMC
No	**Design and Construct Outdoor Material Storage Areas to Reduce Pollutant Introduction**		
Yes	**Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction**	A trash enclosure will be constructed for the site. PMC will make sure no runoff will enter or leave the enclosure.	PMC
Yes	**Use Efficient Irrigation Systems and Landscape Design** Site efficient irrigation and landscaping has been implemented by the project's landscape architect to the satisfaction of the City Engineer and Planning Department.	Efficient irrigation and landscaping should be implemented prior to construction completion by	The PMC will maintain or hire professionals to manage the upkeep of the project's landscaped

		the Contractor. The PMC will be responsible for the upkeep. Irrigation piping, timers, and landscaped areas should be inspected at least 4 times per year by the PMC or a professional landscaper.	
No	**Protect Slopes and Channels and Provide Energy Dissipation**		
No	**Loading Docks**		
No	**Maintenance Bays**		
Yes	**Vehicle Wash Areas**		
No	**Outdoor Processing Areas**		
No	**Equipment Wash Areas**		
Yes	**Fueling Areas**	Inspect and clean trash and debris and oil with dry methods. Never hose down this area.	PMC
No	**Hillside Landscaping**		
No	**Wash Water Controls for Food Preparation Area**		
BMPs			
Yes	Swale Guar Pre Filter	The Property Management Company as the owner will be responsible to hire or contract a maintenance supplier conduct visual inspections, maintain, inspect, and repair as necessary.	The swaleguard prefilter maintenance will conform to manufacturer's specifications. Refer to attached installation, operation and maintenance manual. Inspections shall be schedule 2 times per year or as recommended by the maintenance supplier. All maintenance shall be performed by the maintenance supplier only.
Yes	Infiltration Basin	Ongoing including just before annual storm seasons	PMC to hire professional maintenance company

		and following rainfall events. Maintain vegetation as needed. Use of fertilizers, pesticides and herbicides should be strenuously avoided to ensure they don't contribute to water pollution. Remove debris and litter from the entire basin to minimize clogging and improve aesthetics. Check for obvious problems and repair as needed. Address odor, insects, and overgrowth issues. No water should be present 72 hours after an event. No long term standing water should be present at all. No algae formation should be visible. Check for erosion and sediment laden areas in the basin. Repair as needed. Revegetate side slopes where needed.	

Required Permits
This section must list any permits required for the implementation, operation, and maintenance of the BMPs. Possible examples are:

- No required permits are needed for the implementation, operation, and maintenance of the previously listed BMPs.

Forms to Record the BMP Implementation, Maintenance, and Inspection
The form that will be used to record the implementation, maintenance, and inspection of the BMPs is attached.

Recordkeeping
All records must be maintained for at least five (5) years and must be made available for review upon request.

Notice to Owner:
The property is currently owned by the Royal Excel Enterprises. The Owner will be responsible for the long term maintenance of the project's storm water facilities and conformance to this WQMP after construction is complete.

The owner is aware of the maintenance responsibilities of the proposed BMPs. A funding mechanism is in place to maintain the BMPs at the frequency stated in the WQMP.

RECORD OF BMP IMPLEMENTATION, MAINTENANCE, AND INSPECTION

Today's Date: ______________________________

Name of Person Performing Activity: ______________________________
(Printed)

Signature: ______________________________

BMP Name (As Shown on O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

3.1 INFILTRATION BASIN

Type of BMP	LID - Infiltration
Treatment Mechanisms	Infiltration, Evapotranspiration (when vegetated), Evaporation, and Sedimentation
Maximum Treatment Area	50 acres
Other Names	Bioinfiltration Basin

Description

An Infiltration Basin is a flat earthen basin designed to capture the design capture volume, V_{BMP}. The stormwater infiltrates through the bottom of the basin into the underlying soil over a 72 hour drawdown period. Flows exceeding V_{BMP} must discharge to a downstream conveyance system. Trash and sediment accumulate within the forebay as stormwater passes into the basin. Infiltration basins are highly effective in removing all targeted pollutants from stormwater runoff.

Figure 1 – Infiltration Basin

See Appendix A, and Appendix C, Section 1 of *Basin Guidelines*, for additional requirements.

Siting Considerations

The use of infiltration basins may be restricted by concerns over ground water contamination, soil permeability, and clogging at the site. See the applicable WQMP for any specific feasibility considerations for using infiltration BMPs. Where this BMP is being used, the soil beneath the basin must be thoroughly evaluated in a geotechnical report since the underlying soils are critical to the basin's long term performance. To protect the basin from erosion, the sides and bottom of the basin must be vegetated, preferably with native or low water use plant species.

In addition, these basins may not be appropriate for the following site conditions:

- Industrial sites or locations where spills of toxic materials may occur
- Sites with very low soil infiltration rates
- Sites with high groundwater tables or excessively high soil infiltration rates, where pollutants can affect ground water quality
- Sites with unstabilized soil or construction activity upstream
- On steeply sloping terrain
- Infiltration basins located in a fill condition should refer to Appendix A of this Handbook for details on special requirements/restrictions

INFILTRATION BASIN BMP FACT SHEET

Setbacks

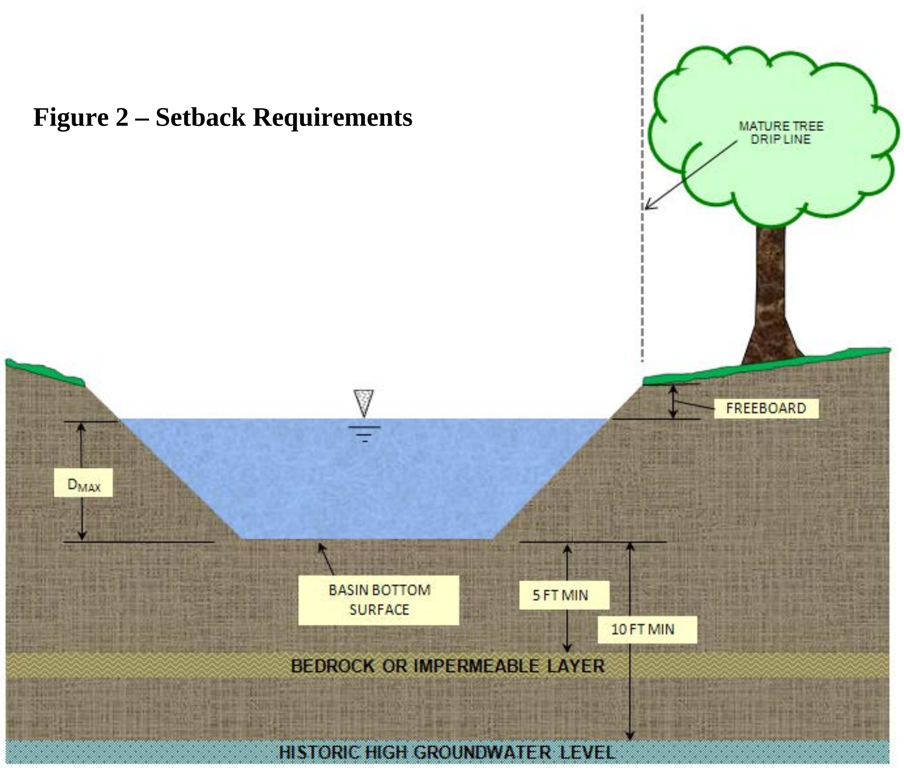
Always consult your geotechnical engineer for site specific recommendations regarding setbacks for infiltration trenches. Recommended setbacks are needed to protect buildings, existing trees, walls, onsite or nearby wells, streams, and tanks. Setbacks should be considered early in the design process since they can affect where infiltration facilities may be placed and how deep they are allowed to be. For instance, depth setbacks can dictate fairly shallow facilities that will have a larger footprint and, in some cases, may make an infiltration basin infeasible. In that instance, another BMP must be selected.

Infiltration basins typically must be set back:

- 10 feet from the historic high groundwater (measured vertically from the bottom of the basin, as shown in Figure 2)
- 5 feet from bedrock or impermeable surface layer (measured vertically from the bottom of the basin, as shown in Figure 2)
- From all existing mature tree drip lines as indicated in Figure 2 (to protect their root structure)
- 100 feet horizontally from wells, tanks or springs

Setbacks to walls and foundations must be included as part of the Geotechnical Report. All other setbacks shall be in accordance with applicable standards of the District's *Basin Guidelines* (Appendix C).

Figure 2 – Setback Requirements



Forebay

A concrete forebay shall be provided to reduce sediment clogging and to reduce erosion. The forebay shall have a design volume of at least 0.5% V_{BMP} and a minimum 1 foot high concrete splashwall / berm. Full height notch-type weir(s), offset from the line of flow from the basin inlet to prevent short circuiting, shall be used to outlet the forebay. It is recommended that two weirs be used and that they be located on opposite sides of the forebay (see Figure 2).

Overflow

Flows exceeding V_{BMP} must discharge to an acceptable downstream conveyance system. Where an adequate outlet is present, an overflow structure may be used. Where an embankment is present, an emergency spillway may be used instead. Overflows must be placed just above the design water surface for V_{BMP} and be near the outlet of the system. The overflow structure shall be similar to the District's Standard Drawing CB 110. Additional details may be found in the District's *Basin Guidelines* (Appendix C).

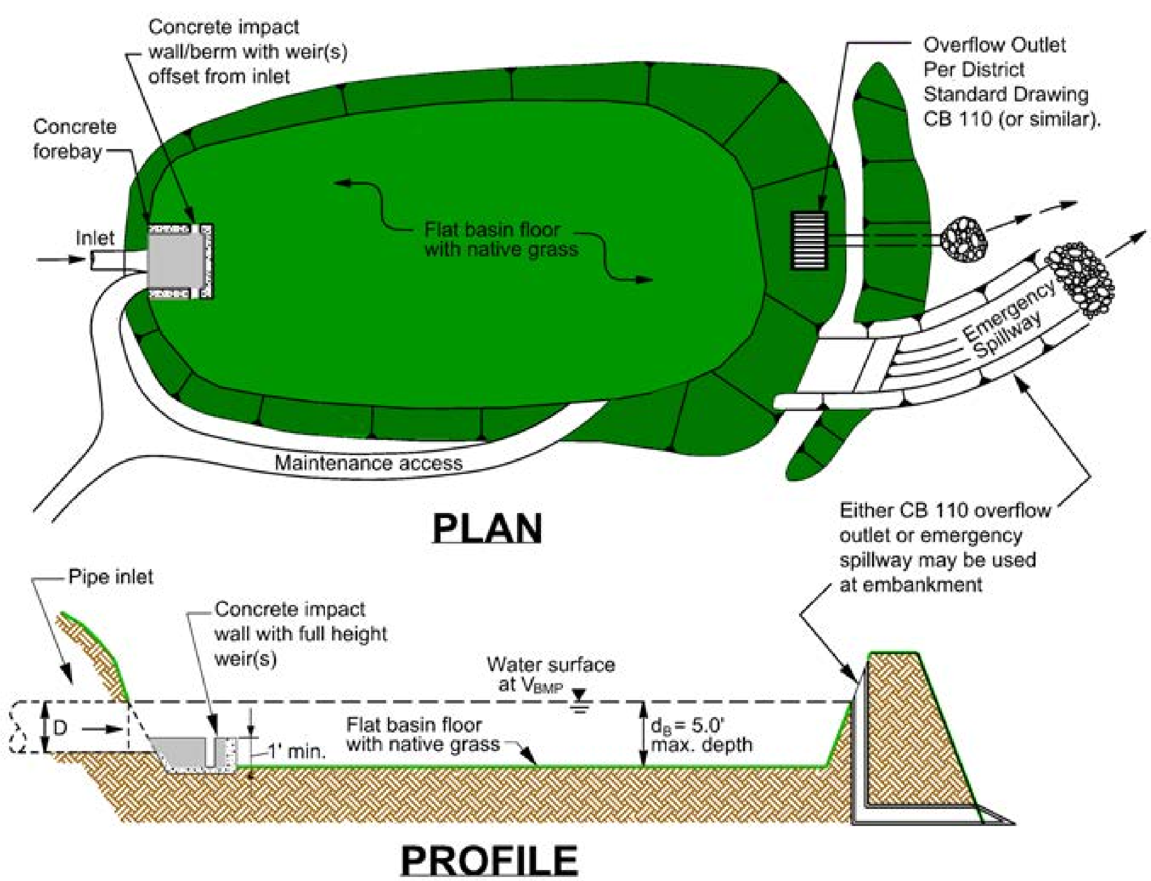


Figure 3 – Infiltration Basin

INFILTRATION BASIN BMP FACT SHEET

Landscaping Requirements

Basin vegetation provides erosion protection, improves sediment removal and assists in allowing infiltration to occur. The basin surface and side slopes shall be planted with native grasses. Proper landscape management is also required to ensure that the vegetation does not contribute to water pollution through pesticides, herbicides, or fertilizers. Landscaping shall be in accordance with County of Riverside Ordinance 859 and the District's *Basin Guidelines* (Appendix C), or other guidelines issued by the Engineering Authority.

Maintenance

Normal maintenance of an infiltration basin includes the maintenance of landscaping, debris and trash removal from the surface of the basin, and tending to problems associated with standing water (vectors, odors, etc.). Significant ponding, especially more than 72 hours after an event, may indicate that the basin surface is no longer providing sufficient infiltration and requires aeration. See the District's *Basin Guidelines* (Appendix C) for additional requirements (i.e., fencing, maintenance access, etc.).

Table 1 - Inspection and Maintenance

Schedule	Inspection and Maintenance Activity
Ongoing including just before annual storm seasons and following rainfall events.	• Maintain vegetation as needed. Use of fertilizers, pesticides and herbicides should be strenuously avoided to ensure they don't contribute to water pollution. If appropriate native plant selections and other IPM methods are used, such products shouldn't be needed. If such projects are used, o Products shall be applied in accordance with their labeling, especially in relation to application to water, and in areas subjected to flooding. o Fertilizers should not be applied within 15 days before, after, or during the rain season. • Remove debris and litter from the entire basin to minimize clogging and improve aesthetics. • Check for obvious problems and repair as needed. Address odor, insects, and overgrowth issues associated with stagnant or standing water in the basin bottom. There should be no long-term ponding water. • Check for erosion and sediment laden areas in the basin. Repair as needed. Clean forebay if needed. • Revegetate side slopes where needed.
Annually. If possible, schedule these inspections within 72 hours after a significant rainfall.	• Inspection of hydraulic and structural facilities. Examine the inlet for blockage, the embankment and spillway integrity, as well as damage to any structural element. • Check for erosion, slumping and overgrowth. Repair as needed. • Check basin depth for sediment build up and reduced total capacity. Scrape bottom as needed and remove sediment. Restore to original cross-section and infiltration rate. Replant basin vegetation. • Verify the basin bottom is allowing acceptable infiltration. Use a disc or other method to aerate basin bottom only if there is actual significant loss of infiltrative capacity, rather than on a routine basis[1]. • No water should be present 72 hours after an event. No long term standing water should be present at all. No algae formation should be visible. Correct problem as needed.
1. CA Stormwater BMP Handbook for New Development and Significant Redevelopment	

Table 2 - Design and Sizing Criteria for Infiltration Basins

Design Parameter	Infiltration Basin
Design Volume	V_{BMP}
Forebay Volume	0.5% V_{BMP}
Drawdown time (maximum)	72 hours
Maximum tributary area	50 acres [2]
Minimum infiltration rate	Must be sufficient to drain the basin within the required Drawdown time over the life of the BMP. The WQMP may include specific requirements for minimum tested infiltration rates.
Maximum Depth	5 feet
Spillway erosion control	Energy dissipators to reduce velocities[1]
Basin Slope	0%
Freeboard (minimum)	1 foot [1]
Historic High Groundwater Setback (max)	10 feet
Bedrock/impermeable layer setback (max)	5 feet
Tree setbacks	Mature tree drip line must not overhang the basin
Set back from wells, tanks or springs	100 feet
Set back from foundations	As recommended in Geotechnical Report

1. **Ventura County's Technical Guidance Manual for Stormwater Quality Control Measures**
2. **CA Stormwater BMP Handbook for New Development and Significant Redevelopment**

Note: The information contained in this BMP Factsheet is intended to be a summary of design considerations and requirements. Additional information which applies to all detention basins may be found in the District's Basin Guidelines (Appendix C). In addition, information herein may be superseded by other guidelines issued by the co-permittee.

INFILTRATION BASIN SIZING PROCEDURE

1. Find the Design Volume, V_{BMP}.
   a) Enter the Tributary Area, A_T.
   b) Enter the Design Volume, V_{BMP}, determined from Section 2.1 of this Handbook.
2. Determine the Maximum Depth.
   a) Enter the infiltration rate. The infiltration rate shall be established as described in Appendix A: "Infiltration Testing".
   b) Enter the design Factor of Safety from Table 1 in Appendix A: "Infiltration Testing".
   c) The spreadsheet will determine D_1, the maximum allowable depth of the basin based on the infiltration rate along with the maximum drawdown time (72 hours) and the Factor of Safety.

$$D_1 = [(t) \times (I)] / 12s$$

Where I = site infiltration rate (in/hr)
s = safety factor
t = drawdown time (maximum 72 hours)

d) Enter the depth of freeboard.

e) Enter the depth to the historic high groundwater level measured from the top of the basin.

f) Enter the depth to the top of bedrock or other impermeable layer measured from the finished grade.

g) The spreadsheet will determine D_2, the total basin depth (including freeboard, if used) of the basin, based on restrictions to the depth by groundwater and an impermeable layer.

D_2 = Depth to groundwater – (10 + freeboard) (ft);

or

D_2 = Depth to impermeable layer – (5 + freeboard) (ft)

Whichever is least.

h) The spreadsheet will determine the maximum allowable effective depth of basin, D_{MAX}, based on the smallest value between D_1 and D_2. D_{MAX} is the maximum depth of water only and does not include freeboard. D_{MAX} shall not exceed 5 feet.

3. Basin Geometry

a) Enter the basin side slopes, z (no steeper than 4:1).

b) Enter the proposed basin depth, d_B excluding freeboard.

c) The spreadsheet will determine the minimum required surface area of the basin:

$$A_s = V_{BMP} / d_B$$

Where A_s = minimum area required (ft^2)
V_{BMP} = volume of the infiltration basin (ft^3)
d_B= proposed depth not to exceed maximum allowable depth, D_{MAX} (ft)

d) Enter the proposed bottom surface area. This area shall not be less than the minimum required surface area.

4. Forebay

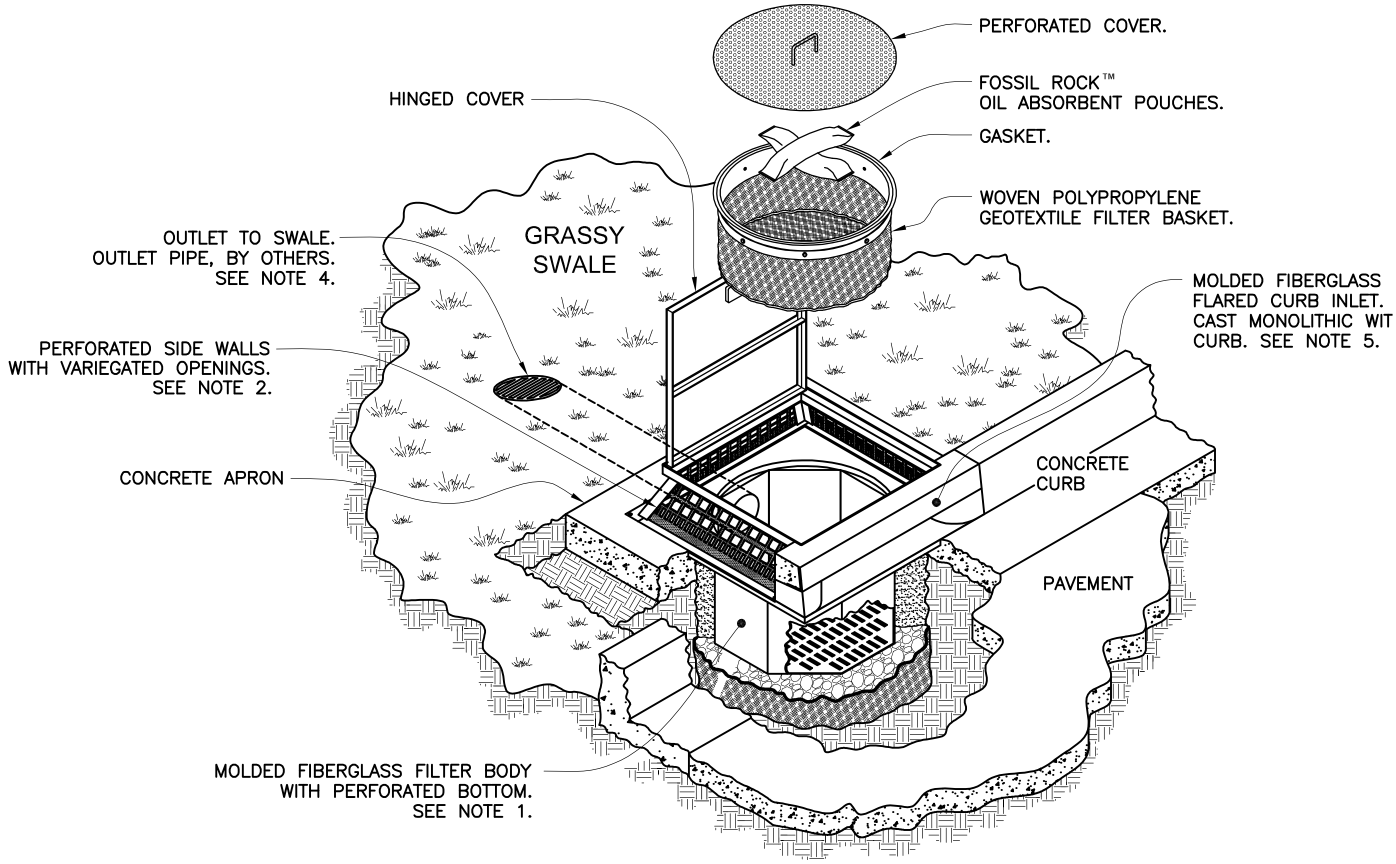
A concrete forebay with a design volume of at least 0.5% V_{BMP} and a minimum 1 foot high concrete splashwall shall be provided. Full-height rectangular weir(s) shall be used to outlet the forebay. The weir(s) must be offset from the line of flow from the basin inlet. It is recommended that two weirs be used and that they be located on opposite sides of the forebay (see Figure 2).

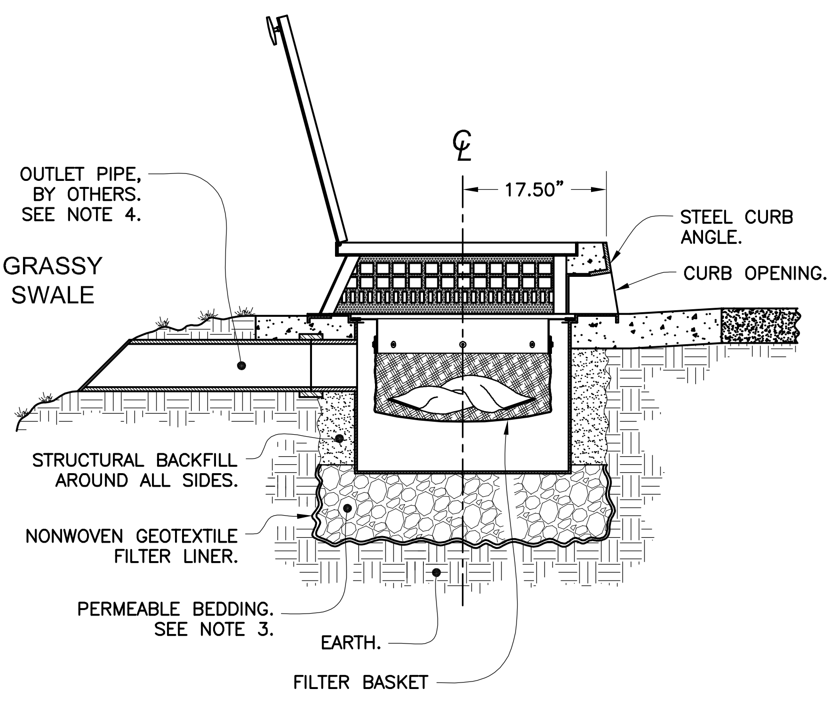
a) The spreadsheet will determine the minimum required forebay volume based on 0.5% V_{BMP}.

b) Enter the proposed depth of the forebay berm/splashwall (1foot minimum).

c) The spreadsheet will determine the minimum required forebay surface area.

d) Enter the width of rectangular weir to be used (minimum 1.5 inches). Weir width should be established based on a 5 minute drawdown time.





SECTION VIEW
(SIDE)

U.S. PATENT NUMBER 6,905,599

NOTES:

1. SwaleGard® body shall be fabricated from petroleum resistant fiberglass, per UL-MH19409.

2. Metal components shall be fabricated from either mild steel, (hot dipped galvanized per ASTM A123), or stainless steel Type 304.

3. Install SwaleGard® on permeable bedding, (drain rock or sand) and nonwoven geotextile filter cloth. Bedding shall be a minimum depth of 12 inches beneath the bottom of fiberglass body.

4. SwaleGard® pre-filter is supplied with sump outlet pipe connection stub. Outlet pipe assembly supplied by othe

5. Contact manufacturer for use within high ground water areas, or in areas with low perk rates / impervious ground conditions.

Inlet
Filtration

SwaleGard®

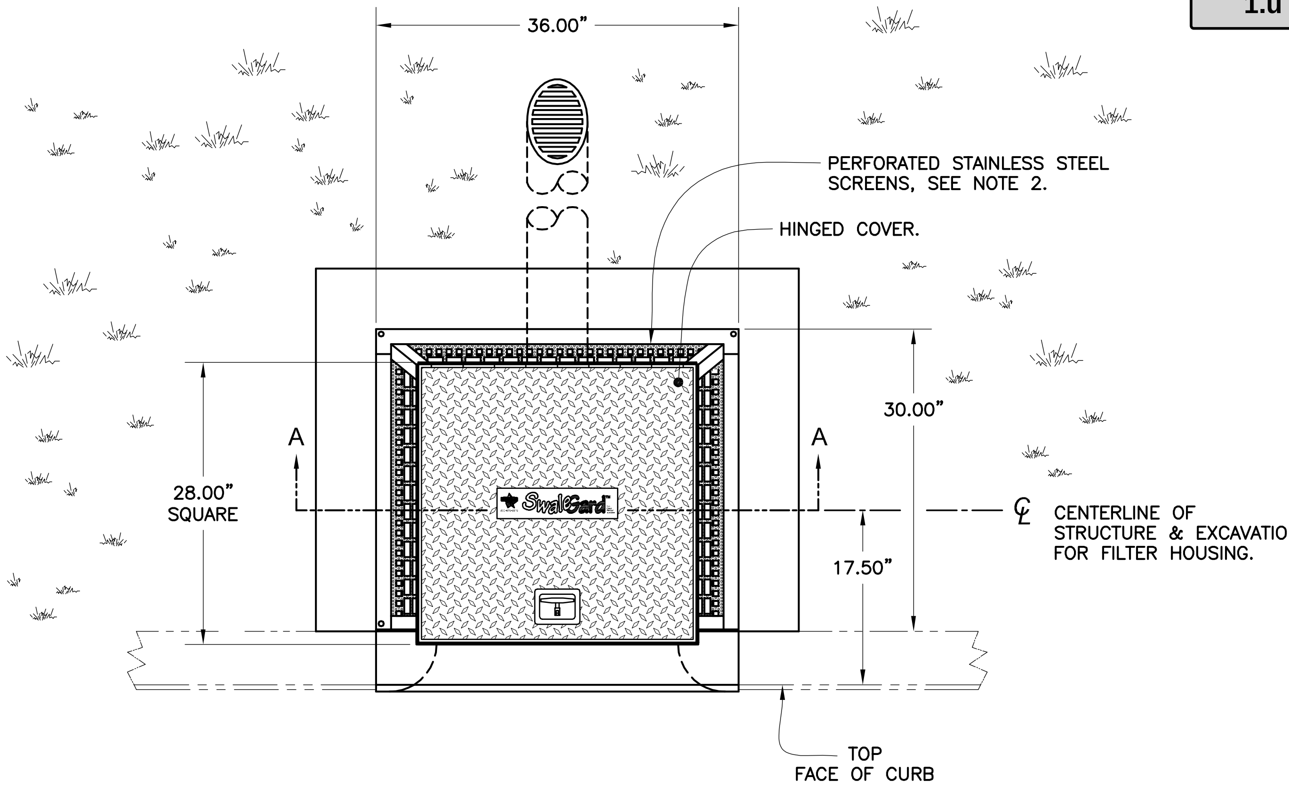
Grassy Swale Prefilter

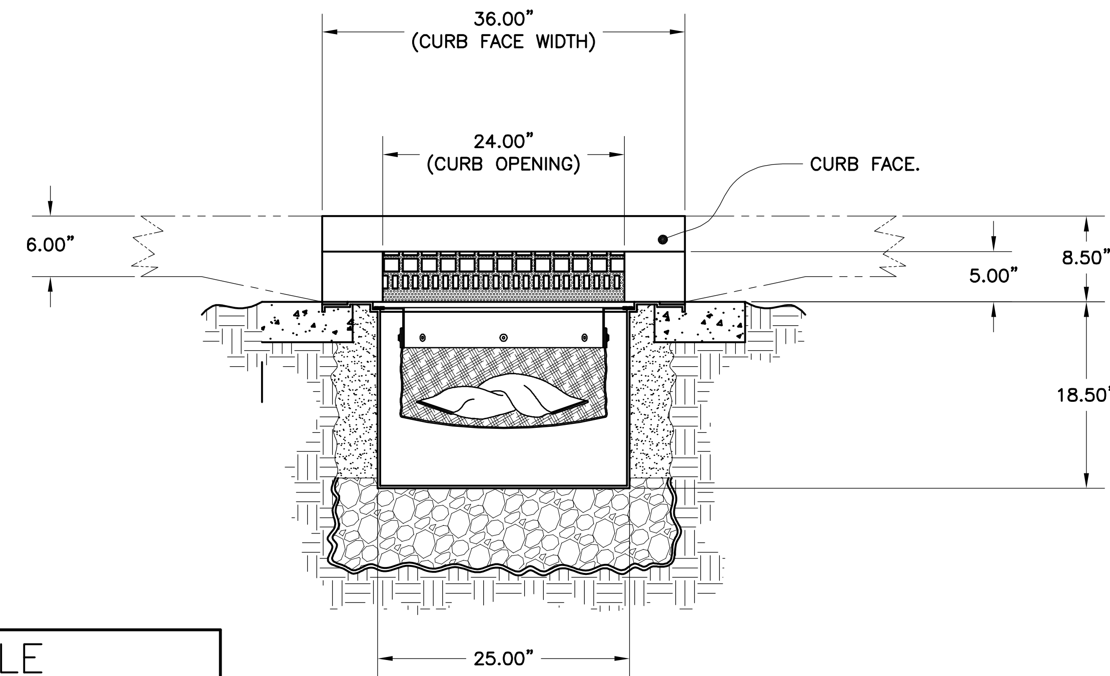
Oldcastle®
Stormwater Solutions

7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

DRAWING NO.	REV	ECO	DATE
SG-0001	F	ECO–0139 JPR 2/3/16	JPR 9

SG-0001





SECTION A-A

(SECTION IS FROM BELOW CURB OPENING & FRAME ONLY)

TABLE	
MODEL NUMBER	OUTLET PIPE DIAMETER
FF–GS24–4	4"
FF–GS24–6	6"

U.S. PATENT NUMBER 6,905,599

Inlet Filtration

SwaleGard®

Grassy Swale Prefilter

Oldcastle® Stormwater Solutions

7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

DRAWING NO.	REV	ECO	DATE
SG-0001	F	ECO–0139 JPR 2/3/16	JPR 9[...]

NOISE IMPACT ANALYSIS

76 GAS STATION AND RESTAURANTS PROJECT

CITY OF MORENO VALLEY

LEAD AGENCY:
CITY OF MORENO VALLEY

PREPARED BY:
VISTA ENVIRONMENTAL
1021 DIDRIKSON WAY
LAGUNA BEACH, CALIFORNIA 92651
MARISA JUE
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PROJECT NO. 17096

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TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

APPENDIX

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
UMTA	Federal Urban Mass Transit Administration

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed 76 Gas Station and Restaurants project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and,
- An analysis of long-term operations-related noise impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located in the southern portion of the City of Moreno Valley (City) on the southwest corner of John F. Kennedy Drive and Moreno Beach Drive. The approximately 2.5-acre project site is currently vacant and is bounded by John F. Kennedy Drive and residential uses to the north, Moreno Beach Drive and residential uses to the east, Via Sonata and residential uses to the south, and Via Entrada and a municipal storage building to the west. The project location is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptor to the project site is the single-family home located adjacent to the southern edge of the project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the project site on the north side of John F. Kennedy Drive. The nearest school to the project site is Landmark Middle School, which is located as near as 0.2 mile west of the project site.

1.3 Proposed Project Description

The proposed project would consist of the development of a 12-vehicle fueling position gas station with a 4,600-square foot canopy, a 3,400-square foot convenience store (C-Store), and a 3,518-square foot carwash. The proposed project would also include a 2,584-square foot sit-down restaurant, a 1,632-square foot quick serve restaurant (QSR), and a 74-space parking lot. The proposed site plan is shown in Figure 2.

1.4 Executive Summary

Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following noise and vibration regulations from the City and State of California (State).

City of Moreno Valley Noise Regulations

The following lists the noise and vibration regulations from the Municipal Code that are applicable, but not limited to the proposed project.

- Section 9.10.170 Vibration;
- Section 11.80.030(B)(1) Sound Level Limits;
- Section 11.80.030(D)(7) Construction Prohibitions

State of California Noise Regulations

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 2700-27207 – On Road Vehicle Noise Limits
- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

Expose persons to noise levels in excess of standards?

Potentially significant impact. Implementation of Mitigation Measure 1 would reduce the impact to less than significant levels.

Expose persons to excessive groundborne vibration?

Less than significant impact.

Result in a substantial permanent increase in ambient noise levels above existing levels without the proposed project?

Less than significant impact.

Result in a substantial temporary increase in ambient noise levels above existing levels without the proposed project?

Potentially significant impact. Implementation of Mitigation Measure 1 would reduce the impact to less than significant levels.

Expose persons to excessive noise levels from aircraft?

Less than significant impact.

1.5 Mitigation Measures Required for the Proposed Project

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above and through implementation of the following mitigation all noise and vibration impacts would be reduced to less than significant levels.

<u>Mitigation Measure 1:</u>
The project applicant shall require the proposed carwash to be constructed with automatic car doors with a minimum of Sound Transmission Class (STC) rating of 14 STC at the entrance and exit of the carwash which would be closed prior to operating the car wash for each car to be washed. The project applicant shall also require all vacuum and blower motors be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m..

SOURCE: Google Earth.

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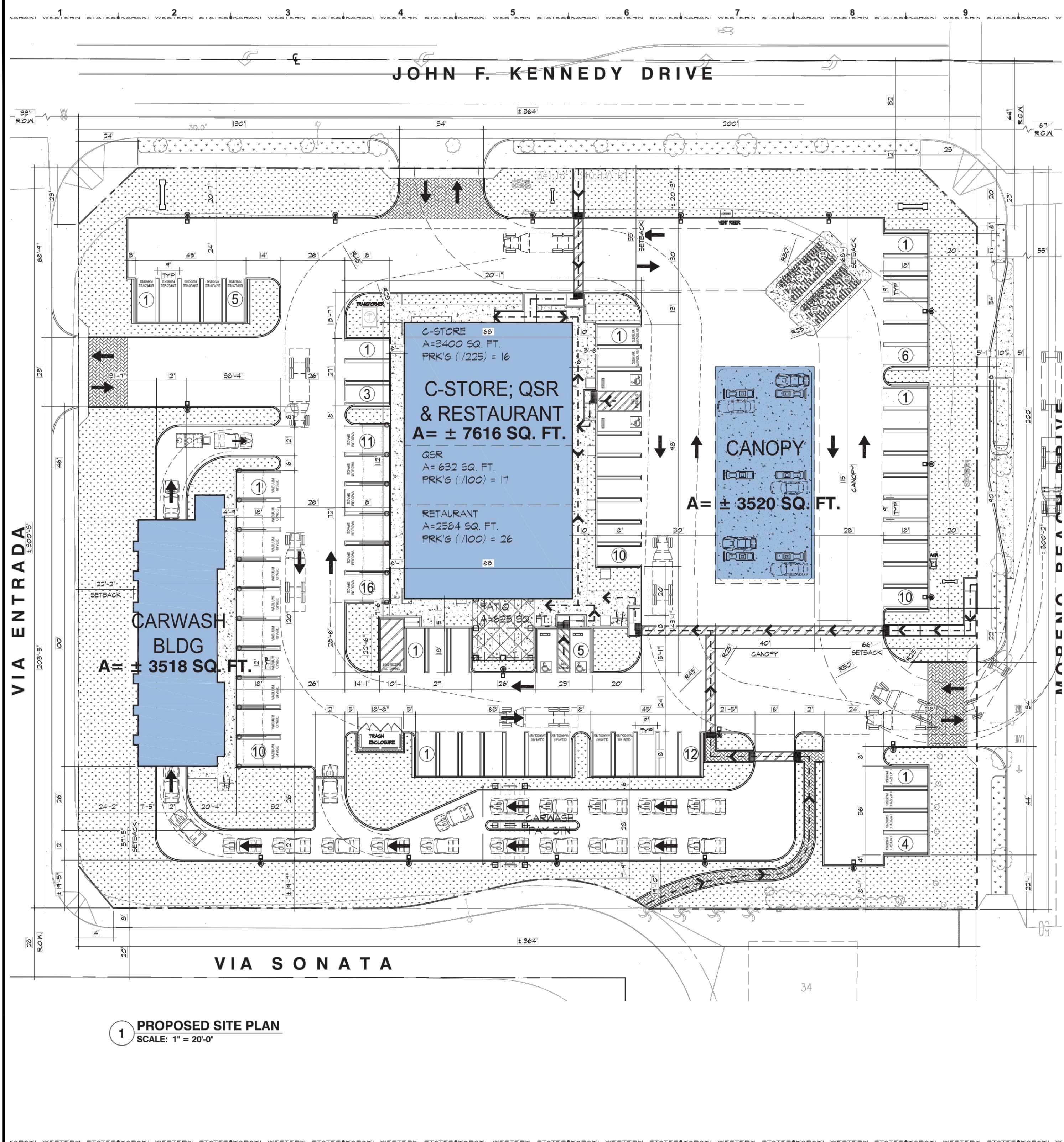
Figure 1
Project Location Map

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)



SOURCE: Karaki Western States, November 27, 2017.

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VISTA ENVIRONMENTAL

Figure 2

Prop

2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Moreno Valley relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is “VdB”, which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground’s surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or “side-to-side and perpendicular to the direction of propagation.”

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Moreno Valley. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the federal Urban Mass Transit Administration (UMTA), while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the FTA is the only agency that has defined what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings are provided below in Table A.

Table A – FTA Project Effects on Cumulative Noise Exposure

Existing Noise Exposure (dBA Leq or Ldn)	Allowable Noise Impact Exposure dBA Leq or Ldn		
	Project Only	Combined	Noise Exposure Increase
45	51	52	+7
50	53	55	+5
55	55	58	+3
60	57	62	+2
65	60	66	+1
70	64	71	+1
75	65	75	0

Source: Federal Transit Administration, 2006.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans issued the *Transportation- and Construction-Induced Vibration Guidance Manual* in 2004. The manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations

The City of Moreno Valley General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

City of Moreno Valley General Plan

The following applicable goals and policies to the proposed project are from the Noise Element of the General Plan.

Objective 6.3

Provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes.

Policies

6.3.6 Building shall be limited in areas of sensitive receptors.

Objective 6.4

Review noise issues during the planning process and require noise attenuation measures to minimize acoustic impacts to existing and future surrounding land uses.

Policies

6.4.1 Site, landscape and architectural design features shall be encouraged to mitigate noise impacts for new developments, with a preference for noise barriers that avoid freeway sound barrier walls.

Objective 6.5

Minimize noise impacts from significant noise generators such as, but not limited to, motor vehicles, trains, aircraft, commercial, industrial, construction, and other activities.

Policies

6.5.1 New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses.

6.5.1 Construction activities shall be operated in a manner that limits noise impacts on surrounding uses.

City of Moreno Valley Municipal Code

The City of Moreno Valley Municipal Code establishes the following applicable standards related to noise.

Section 9.10.170 Vibration

No vibration shall be permitted which can be felt at or beyond the property line.

Section 11.80.030 Prohibited Acts

A. General Prohibition. It is unlawful and a violation of this chapter to maintain, make, cause, or allow the making of any sound that causes a noise disturbance, as defined in Section 11.80.020.

B. Sound causing permanent hearing loss.

1. Sound level limits. Based on statistics from the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health, Table 1 and Table 1-A specify sound level limits which, if exceeded, will have a high probability of producing permanent hearing loss in anyone in the area where the sound levels are being exceeded. No sound shall be permitted within the city which exceeds the parameters set for in Tables 11.80.030-1 [see Table B] and 11.80.030-1-A [see Table C] of this chapter:

Table B – City of Moreno Valley Maximum Continuous Sound Levels

Duration per Day (Continuous Hours)	Sound Level [dB(A)]
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
.5	110
.25	115

Source: City of Moreno Valley Municipal Code Section 11.80.030.

Table C – City of Moreno Valley Maximum Impulsive Sound Levels

Number of Repetitions per 24-Hour Period	Sound Level [dB(A)]
1	145
10	135
100	125

Source: City of Moreno Valley Municipal Code Section 11.80.030.

C. Nonimpulsive Sound Decibel Limits. No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimpulsive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table

11.80.030-2 [see Table D] when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

Table D – City of Moreno Valley Maximum Sound Levels for Source Land Uses

Residential		Commercial	
Daytime[1]	**Nighttime[2]**	**Daytime[1]**	**Nighttime[2]**
60	55	65	60

Notes:
[1] Daytime defined as 8:00 a.m. to 10:00 p.m.
[2] Nighttime define as 10:01 p.m. to 7:59 a.m. the following day.
Source: City of Moreno Valley Municipal Code Section 11.80.030.

D. Specific Prohibitions. In addition to the general prohibitions set out in subsection A of this section, and unless otherwise exempted by this chapter, the following specific acts, or the causing or permitting thereof, are regulated as follows:

7. Construction and Demolition. No person shall operate or cause 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. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.

E. Exemptions. The following uses and activities shall be exempt from the sound level regulations except the maximum sound levels provided in Tables 11.80.030-1 [see Table B] and 11.80.030-1A [see Table C]:

5. Sounds from the operation of motor vehicles, to the extent they are regulated by the California Vehicle Code.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise level environment, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the area of the project site is generally characterized by vehicular traffic on John F. Kennedy Drive and Moreno Beach Drive. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using two Extech Model 407780 Type 2 integrating sound level meters programmed in "slow" mode to record the sound pressure level at 3-second intervals for approximately 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded. The sound level meters and microphones were mounted approximately five to seven feet above the ground and were equipped with a windscreen. The sound level meters were calibrated before and after the monitoring using an Extech calibrator, Model 407766. The noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

Noise Measurement Location

The noise monitoring locations were selected in order to obtain noise measurements of the current noise levels in the project study area and to provide a baseline for any potential noise impacts that may be created by development of the proposed project. The noise measurement sites were selected to provide a representative sampling of the noise levels created by nearby roadways. Descriptions of the noise monitoring sites are provided below in Table E. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 10:08 a.m. on Tuesday, December 12, 2017 and 10:16 a.m. on Wednesday, December 13, 2017. When the noise measurements were started the sky was clear, the temperature was 69 degrees Fahrenheit, the humidity was 14 percent, barometric pressure was 29 inches of mercury, and there was no wind. Overnight, it was clear and the temperature reached a low of 52 degrees Fahrenheit. At the conclusion of the noise measurements, the sky was clear, the temperature was 67 degrees Fahrenheit, the humidity was 20 percent, barometric pressure was 28 inches of mercury, and there was no wind.

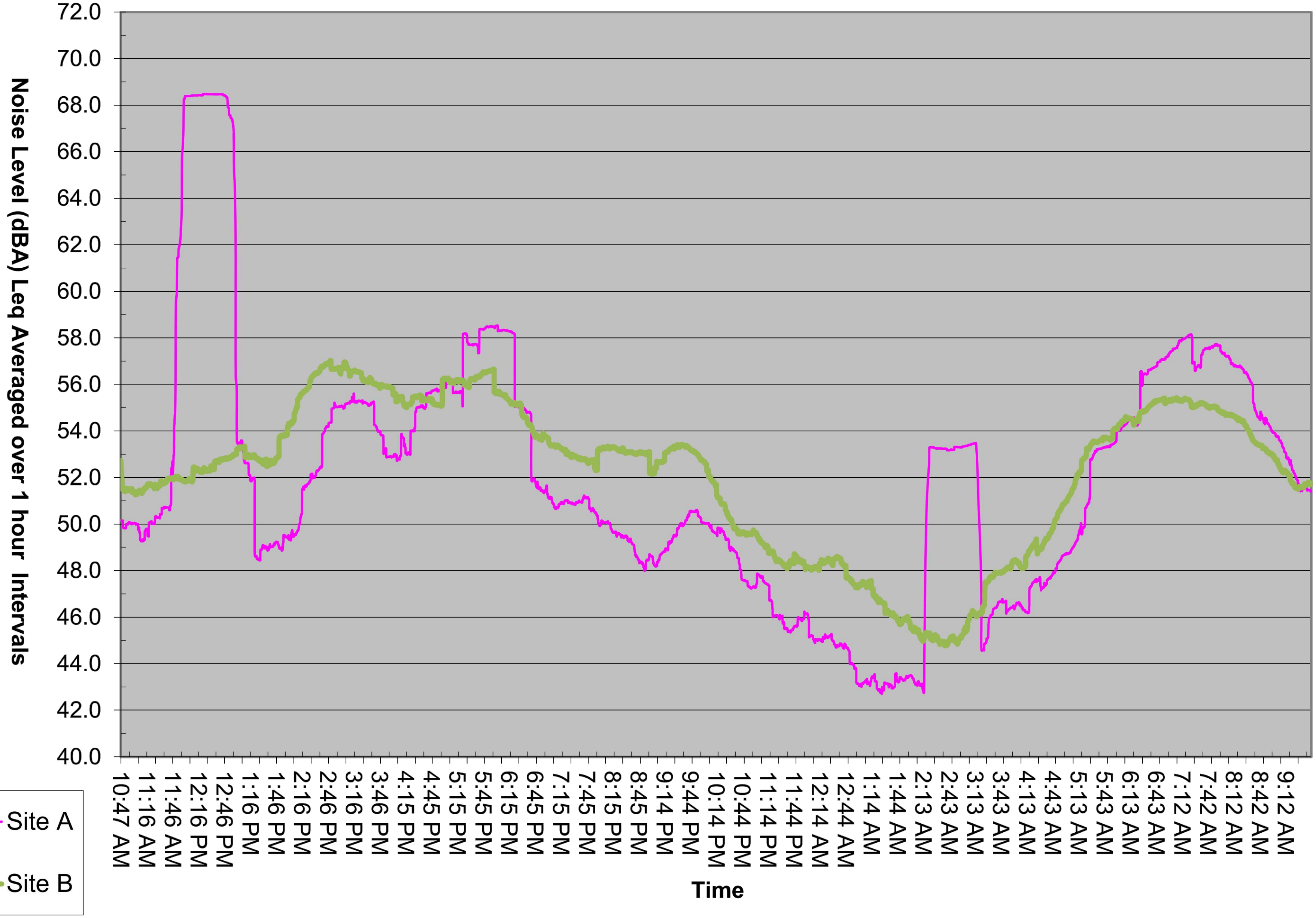
5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table E. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table E also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The noise monitoring data printouts are included in Appendix B. Figure 3 shows a graph of the 24-hour noise measurements.

Table E – Existing (Ambient) Noise Level Measurements

Site No.	Site Description	Average (dBA L_{eq})	Maximum (dBA L_{max})	Min. 1-Hour Interval (dBA L_{eq}/Time)	Max. 1-Hour Interval (dBA L_{eq}/Time)	Average (dBA CNEL)
A	Located on a light pole in front of a single-family home approximately 25 feet south of the Via Sonata centerline.	56.8	87.9	42.7 1:20 a.m.	68.5 12:17 p.m.	59.7
B	Located on a tree next to a multi-family unit approximately 70 feet north of the John F. Kennedy Drive centerline.	53.1	79.8	44.8 2:32 a.m.	57.0 2:47 p.m.	58.0

Source: Noise measurements taken with two Extech Model 407780 Type 2 integrating sound level meters between Tuesday, December 12 and Wednesday, December 13, 2017.



SOURCE: Extech Model 407780 Type 2 Integrated Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 3
Field Noise Measurements Graph

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table F below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in *Air Quality and Greenhouse Gas Emissions Impact Analysis 76 Gas Station and Restaurants Project*, prepared by Vista Environmental, January 2, 2018.

Table F – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet[4] (dBA, slow[3])
Site Preparation				
Grader	1	40	85	83
Scraper	1	40	85	84
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Grading				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Tractor, Loader or Backhoe[5]	2	40	84	N/A
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	2	40	85	83
Generator	1	50	82	81
Welder	3	40	73	74
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Paving				
Cement & Mortar Mixer	1	40	85	79
Paver	1	50	85	77
Paving Equipment	1	50	85	77
Roller	2	20	85	80
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
[5] For the tractor/loader/backhoe, the tractor noise level was utilized, since it is the loudest of the three types of equipment.
Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table F also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed in Table F and through use of the RCNM. For each phase of construction, the nearest piece of equipment was placed at the shortest distance of the proposed activity to the nearest sensitive receptor and each subsequent piece of equipment was placed an additional 50 feet away

6.2 Operations-Related Noise

The proposed project would result in increases in traffic noise to the nearby roadways as well as introduce new sensitive receptors to the project site. The project impacts to the offsite roadways and onsite noise impacts to the proposed residential units were analyzed through use of the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108 (FHWA Model). The following section provides a discussion of the software and modeling input parameters used in this analysis and a discussion of the resultant existing noise model.

FHWA Model Methodology

In order to quantify the potential noise impacts created and received by the proposed project and compare them to the existing noise levels, the existing roadway noise environment was modeled using the FHWA Model. The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for: the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT) and the percentage of ADT which flows during the day, evening and night, the travel speed, the vehicle mix on the roadway, which is a percentage of the volume of automobiles, medium trucks and heavy trucks, the roadway grade, the angle of view of the observer exposed to the roadway and site conditions ("hard" or "soft" relates to the absorption of the ground, pavement or landscaping). The following section provides a discussion of the software and modeling input parameters used in this analysis and a discussion of the resultant existing noise model.

FHWA Model Traffic Noise Prediction Model Inputs

The roadway parameters used for this study are presented in Table G. The roadway classifications are based on the City's General Plan Circulation Element. The roadway speeds are based on the posted speed limits. The distance to the nearest sensitive receptor was determined by measuring the distance from the roadway centerline to the nearest residence. Since the study area is located in a suburban environment and landscaping or natural vegetation exists along the sides of all analyzed roadways, soft site conditions were modeled.

Table G – FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor[1] (feet)
John F. Kennedy Drive	West of Via Entrada	Minor Arterial	35	75
John F. Kennedy Drive	East of Via Entrada	Minor Arterial	35	75
John F. Kennedy Drive	West of Moreno Beach Drive	Minor Arterial	35	75
John F. Kennedy Drive	East of Moreno Beach Drive	Minor Arterial	45	70
John F. Kennedy Drive	East of Championship Drive	Minor Arterial	45	130
Moreno Beach Drive	North of Cactus Avenue	Divided Major Arterial	50	100
Moreno Beach Drive	North of John F. Kennedy Drive	Divided Major Arterial	50	100
Moreno Beach Drive	South of John F. Kennedy Drive	Divided Major Arterial	50	100
Iris Avenue	West of Via Del Lago	Divided Major Arterial	50	100

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor[1] (feet)
Cactus Avenue	West of Moreno Beach Drive	Minor Arterial	50	80
Cactus Avenue	East of Moreno Beach Drive	Minor Arterial	50	60
Cactus Avenue	East of Redlands Avenue	Minor Arterial	50	80
Oliver Street	North of John F. Kennedy Drive	Minor Arterial	35	70
Oliver Street	South of John F. Kennedy Drive	Minor Arterial	35	70

Notes:
[1] Distance measured from nearest residential structure to centerline of roadway.
Source: K2 Traffic Engineering, Inc., 2017; and City of Moreno Valley, 2006.

The existing year and year 2022 without project and with project average daily traffic (ADT) volumes on the study area roadways were obtained from the *Focused Traffic Impact Study New Gas Station and Restaurants at SWC of Moreno Beach Drive and John F. Kennedy Drive, Moreno Valley*, (Traffic Impact Study) prepared by prepared by K2 Traffic Engineering, Inc., December 20, 2017. The ADT volumes were calculated by multiplying the PM peak hour volumes by 12. The ADT volumes have been provided for both without the project and with project conditions for the existing year and year 2022 scenarios. The ADT volumes used in this analysis are shown in Table H.

Table H – Average Daily Traffic Volumes

Roadway	Segment	Average Daily Traffic Volumes			
		Existing	Existing + Project	Pre-Project Completion Year (2022)	Post-Project Completion (Year 2022)
John F. Kennedy Drive	West of Via Entrada	1,400	1,500	1,500	1,700
John F. Kennedy Drive	East of Via Entrada	1,900	2,100	2,100	2,300
John F. Kennedy Drive	West of Moreno Beach Drive	2,100	3,300	2,400	3,500
John F. Kennedy Drive	East of Moreno Beach Drive	8,300	8,900	9,200	9,700
John F. Kennedy Drive	East of Championship Drive	6,300	6,400	7,000	7,000
Moreno Beach Drive	North of Cactus Avenue	13,100	13,300	14,500	14,600
Moreno Beach Drive	North of John F. Kennedy Drive	11,700	12,800	13,100	14,000
Moreno Beach Drive	South of John F. Kennedy Drive	14,400	15,200	15,900	16,700
Iris Avenue	West of Via Del Lago	13,700	13,800	15,100	15,200
Cactus Avenue	West of Moreno Beach Drive	7,100	7,200	7,800	8,000
Cactus Avenue	East of Moreno Beach Drive	3,500	3,600	3,900	4,000
Cactus Avenue	East of Redlands Avenue	400	500	500	500
Oliver Street	North of John F. Kennedy Drive	2,200	2,300	2,400	2,600
Oliver Street	South of John F. Kennedy Drive	1,800	1,800	1,900	2,000

Source: K2 Traffic Engineering, Inc., 2017; and City of Moreno Valley, 2006.

The vehicle mix used in the FHWA-RD-77-108 Model is shown in Table I and is based on the typical vehicle mix observed for arterial roadways in Riverside County. The vehicle mix provides the hourly distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA model.

Table I – Roadway Vehicle Mix

Vehicle Type	Traffic Flow Distributions: Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	Overall
Automobiles	69.5%	12.9%	9.6%	92.0%
Medium Trucks	1.44%	0.06%	1.5%	3.0%
Heavy Trucks	2.4%	0.1%	2.5%	5.0%

Source: Riverside County General Plan, 2005.

FHWA Model Source Assumptions

To assess the roadway noise generation in a uniform manner, all vehicles are analyzed at the single lane equivalent acoustic center of the roadway being analyzed. In order to determine the height above the road grade where the noise is being emitted from, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

6.3 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table J gives approximate vibration levels for particular construction activities. The data in Table J provides a reasonable estimate for a wide range of soil conditions.

Table J – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, May 2006.

The construction-related and operational vibration impacts have been calculated through the vibration levels shown above in Table J and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table F.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the proposed project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above noise levels existing without the proposed project; or
- Exposure of persons residing or working in the project area to excessive noise levels from aircraft.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not expose persons to or generate noise levels in excess of standards established in the General Plan or Noise Ordinance or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the construction and operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include site preparation and grading of the 2.5-acre project site, building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant, paving of the onsite driveways and parking areas, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptor to the project site is the single-family home located adjacent to the southern edge of the project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the project site on the north side of John F. Kennedy Drive.

Section 11.80.030(B) of the City's Municipal Code limits all noise sources in the City to the noise levels where a high probability hearing loss would occur as determined by the Center for Disease Control and Prevention and OSHA. The noise levels thresholds are shown above in Table B and include a threshold of 90 dBA for eight hours, which is the typical daily duration of construction activities. Section 11.80.030(D)(7) of the City's Municipal Code provides additional prohibitions on construction activities by restricting construction activities from occurring between the hours of 8:00 p.m. and 7:00 a.m.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table F – Construction Equipment Noise Emissions and Usage Factors in order to determine if the proposed construction activities would exceed the City noise standards, which are provided above in Table B. The results are shown below in Table K and the RCNM printouts are provided in Appendix C.

Table K – Worst Case Construction Noise Levels at Nearest Receptors

	Homes on South Side of Via Sonata		Home Adjacent to Southern Edge of Project Site[1]		Homes on North Side of John F. Kennedy Drive[1]	
Construction Phase	**Distance (feet)**	**Noise Level (dBA Leq)**	**Distance (feet)**	**Noise Level (dBA Leq)**	**Distance (feet)**	**Noise Level (dBA Leq)**
Site Preparation	75	79	15	87	110	71
Grading	75	79	15	87	110	71
Building Construction	133	72	145	67	185	65
Paving	95	72	30	75	110	66
Painting	133	65	145	59	185	57
City's Noise Threshold[2]		**90**		**90**		**90**

[1] 5 dBA sound attenuation applied to the home adjacent to the southern edge of the project site at 15104 La Casa Drive and to the homes on the north side of John F. Kennedy Drive in order to account for existing walls.
[2] City Noise Threshold obtained from Section 11.80.030(B) of the Municipal Code.
Source: RCNM, Federal Highway Administration, 2006

Table K shows that the greatest noise impacts at the nearby residential uses would occur during the site preparation and grading phases at the home adjacent to the southern edge of the project site, with a noise level as high as 87 dBA, which is within the City's 8-hour noise threshold of 90 dBA. Table K also shows that none of the construction phases would exceed the City's noise standard. Through adherence to the limitation of allowable construction times provided in Section 11.80.030(D)(7) of the City's Municipal Code, the construction-related noise levels would not exceed any standards. Therefore, impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. The operation of the proposed project may generate onsite noise levels that exceed City standards at the existing nearby sensitive receptors. The operational noise impacts to the nearby sensitive receptors and proposed onsite sensitive receptors have been analyzed separately below.

Noise Impacts to the Nearby Offsite Sensitive Receptors

The operation of the proposed project may create an increase in onsite noise levels from rooftop mechanical equipment, car wash, fueling station, parking lot, and delivery truck activities. Section 11.80.030(C) of the City's Municipal Code limits noise levels at the nearby residential properties to 60 dBA between 8:00 a.m. and 10:00 p.m. and 55 dBA between 10:01 p.m. and 7:59 a.m. the following day. Section 11.80.030(C) also provides noise standards impacting commercial uses, however the nearest commercial uses are located approximately 0.5 mile to the north of the project site and due to the distance, no noise impacts are anticipated to the nearby commercial uses.

In order to determine the noise impacts from rooftop mechanical equipment, parking lot activities, delivery truck activities, car wash activities, and gas dispensing activities, reference noise measurements were taken of each noise source and are shown below in Table L. Table L also shows the anticipated noise level from each source at the nearest off-site receptors. The operational reference noise measurements are shown in Appendix D.

Table L – Operational Noise Levels at the Nearest Receptors Prior to Mitigation

Noise Source	Noise Levels at Homes South of Via Sonata		Noise Levels at Home Adjacent to Project Site		Noise Levels North of John F. Kennedy Drive	
	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})
Rooftop Equipment[1]	200	41	210	40	185	41
Parking Lot	95	38	30	48	110	36
Truck Delivery[3]	175	39	180	39	115	43
Car Wash[4]	130	63	200	60	260	57
Fueling Pumps[5]	260	33	145	38	250	34
Combined Noise Levels		**64**		**60**		**58**
City Noise Standards (Day/Night)		**60/55**		**60/55**		**60/55**
Exceed City Standards (Day/Night)?		**Yes/Yes**		**No/Yes**		**No/Yes**

Notes:
[1] The rooftop equipment was based on a noise measurement 10 feet from an operational rooftop HVAC unit that measured 66.6 dBA Leq.
[2] The parking lot was based on a noise measurement 5 feet from a commercial parking lot that produced a noise level of 63.1 dBA Leq
[3] The truck delivery was based on a noise measurement 30 feet from a truck unloading that produced a noise level of 54.8 dBA Leq.
[4] The car wash was based on a noise measurement 30 feet from a car wash that produced a noise level of 76.2 dBA Leq.
[5] The fueling pumps was based on a noise measurement 10 feet from fueling pumps that produced a noise level of 61.7 dBA Leq
Source: Noise calculation methodology from Caltrans, 2013.

Table L shows that the combined noise level at the homes located south of the project site on the south side of Via Sonata would be 64 dBA Leq, which would exceed both the City's daytime and nighttime noise standards of 60 dBA Leq and 55 dBA Leq, respectively. Table L also shows that the combined noise levels would be 60 dBA Leq at the home located adjacent to the southern edge of the project site and would be 58 dBA Leq at the homes located north of the project site on the north side of John F. Kennedy Drive, which would be within the City's daytime noise standard of 60 dBA Leq but would exceed the nighttime noise standard of 55 dBA Leq. This would result in a significant impact.

As shown above in Table L the noise source that creates the highest noise levels is the car wash. Mitigation Measure 1 is provided that would require the proposed carwash to be equipped with automatic doors at the entrance and exit of the carwash, which will be required to be closed prior to the running of the car wash. Additionally, all vacuum and blower motors would be required to be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m..

The operational noise levels at the nearby residential receptors have been recalculated based on implementation of Mitigation Measure 1 and the results are shown below in Table M. Table M shows that with the application of Mitigation Measure 1, the noise levels at the nearby residential receptors would be reduced to within both the City's daytime noise standard of 60 dBA Leq and the nighttime standard of 55 dBA Leq. With implementation of Mitigation Measure 1, the proposed project would not expose persons to or generate noise levels in excess of standards in the Noise Ordinance from onsite sources. Impacts would be less than significant.

Table M – Mitigated Operational Noise Levels at the Nearest Receptors

Noise Source	Noise Levels at Homes South of Via Sonata		Noise Levels at Home Adjacent to Project Site		Noise Levels North of John F. Kennedy Drive	
	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})	Distance Receptor to Source (feet)	Noise Level (dBA L_{eq})
Rooftop Equipment[1]	200	41	210	40	185	41
Parking Lot	95	38	30	48	110	36
Truck Delivery[3]	175	39	180	39	115	43
Car Wash[4]	130	51	200	47	260	45
Fueling Pumps[5]	260	33	145	38	250	34
Combined Noise Levels		**52**		**51**		**48**
City Noise Standards (Day/Night)		**60/55**		**60/55**		**60/55**
Exceed City Standards (Day/Night)?		**No/No**		**No/No**		**No/No**

Notes:
1 The rooftop equipment was based on a noise measurement 10 feet from an operational rooftop HVAC unit that measured 66.6 dBA Leq.
2 The parking lot was based on a noise measurement 5 feet from a commercial parking lot that produced a noise level of 63.1 dBA Leq
3 The truck delivery was based on a noise measurement 30 feet from a truck unloading that produced a noise level of 54.8 dBA Leq.
4 The car wash was based on a noise measurement 10 feet from a car wash with doors that produced a noise level of 73.1 dBA Leq.
5 The fueling pumps was based on a noise measurement 10 feet from fueling pumps that produced a noise level of 61.7 dBA Leq
Source: Vista Environmental.

Level of Significance Prior to Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1:

The project applicant shall require the proposed carwash to be constructed with automatic car doors with a minimum of Sound Transmission Class (STC) rating of 14 STC at the entrance and exit of the carwash which would be closed prior to operating the car wash for each car to be washed. The project applicant shall also require all vacuum and blower motors be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m..

Level of Significance after Mitigation

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include site preparation and grading of the 2.5-acre project site, building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant, paving of the onsite driveways and parking areas, and application of architectural coatings. The nearest off-site receptors to the project site is the single-family home located adjacent to the southern edge of the project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the project site on the north side of John F. Kennedy Drive.

Section 9.10.170 of the City's Municipal Code prohibits any vibration which can be felt at or beyond the property line. Since the City's Municipal does not provide a quantifiable vibration level, Caltrans guidance that is detailed above in Section 4.2 has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table J above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite receptor (15 feet away) would be 0.16 inch per second PPV. The vibration level at the nearest offsite receptor would be within the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. The proposed project would result in the operation of semi-trucks on the project site, which are a known source of vibration. The nearest off-site receptor to the project site is the single-family home located adjacent to the southern edge of the project site at 15104 La Casa Drive. There are also single-family homes located south approximately 75 feet south of the project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the project site on the north side of John F. Kennedy Drive.

Section 9.10.170 of the City's Municipal Code prohibits any vibration which can be felt at or beyond the property line. Since the onsite operation of semi-truck has the potential to create groundborne vibration that may expose persons to excessive vibration levels. In order to provide a conservative analysis, the operational activities have been analyzed based on the standard of being discernable at the nearest home, which is located as near as 65 feet from where a truck may operate onsite.

Caltrans has done extensive research on vibration level created along freeways and State Routes and their vibration measurements of roads have never exceeded 0.08 inches per second PPV at 15 feet from the center of the nearest lane, with the worst combinations of heavy trucks. Truck activities would occur onsite as near as 65 feet from the nearest home. Based on typical propagation rates, the vibration level at the nearest home would by 0.02 inch per second PPV. Caltrans research found that human response to transient sources becomes distinctly perceptible at 0.25 inch per second PPV. Therefore, vibration created from operation of the proposed project would be below the threshold of perception at the nearest offsite resident. Impacts would be less than significant.

Level of Significance

Less than significant impact.

7.4 Permanent Noise Level Increase

The ongoing operation of the proposed project may result in a potential substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the proposed project. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways and from onsite activities, which have been analyzed separately below.

Roadway Vehicular Noise

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

Objective 6.5 of the City's General Plan Noise Element, requires the City to minimize noise impacts from significant noise generators including roadway noise impacts. However neither the General Plan nor the CEQA Guidelines define what constitutes a "substantial permanent increase to ambient noise levels", as such, this impact analysis has utilized guidance from the Federal Transit Administration for a moderate impact that has been detailed above in Table A.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA model and parameters described above in Section 6.2 and the FHWA model noise calculation spreadsheets are provided in Appendix E. The proposed project's offsite traffic noise impacts have been analyzed for both the existing and year 2022 conditions, which are discussed below.

Existing Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the Existing scenario to the Existing With Project Scenario. The results of this comparison are shown in Table N.

Table N – Existing Year Project Traffic Noise Contributions

		dBA CNEL at Nearest Receptor[1]			
Roadway	Segment	Existing	Existing With Project	Project Contribution	Increase Threshold
John F. Kennedy Drive	West of Via Entrada	52.0	52.3	0.3	+5 dBA
John F. Kennedy Drive	East of Via Entrada	53.4	53.8	0.4	+5 dBA
John F. Kennedy Drive	West of Moreno Beach Drive	53.8	55.8	2.0	+3 dBA
John F. Kennedy Drive	East of Moreno Beach Drive	63.0	63.3	0.3	+2 dBA
John F. Kennedy Drive	East of Championship Drive	57.6	57.7	0.1	+3 dBA
Moreno Beach Drive	North of Cactus Avenue	64.4	64.5	0.1	+1 dBA
Moreno Beach Drive	North of John F. Kennedy Drive	63.9	64.3	0.4	+1 dBA
Moreno Beach Drive	South of John F. Kennedy Drive	64.8	65.0	0.2	+1 dBA
Iris Avenue	West of Via Del Lago	65.0	65.0	0.0	+1 dBA
Cactus Avenue	West of Moreno Beach Drive	63.0	63.0	0.0	+1 dBA
Cactus Avenue	East of Moreno Beach Drive	62.0	62.0	0.0	+2 dBA
Cactus Avenue	East of Redlands Avenue	50.0	51.1	1.0	+5 dBA
Oliver Street	North of John F. Kennedy Drive	55.0	55.0	0.0	+3 dBA
Oliver Street	South of John F. Kennedy Drive	54.0	54.0	0.0	+5 dBA

Notes:
[1] Distance to nearest residential uses are shown in Table G. Noise levels do not take into account existing noise barriers.
[2] Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table A.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table N shows that for the existing conditions, the proposed project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the existing conditions. Impacts would be less than significant.

Year 2022 Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the year 2022 without project scenario to the year 2022 with project scenario. The results of this comparison are shown in Table O.

Table O – Year 2022 Project Traffic Noise Contributions

		dBA CNEL at Nearest Receptor[1]			
Roadway	Segment	2022 No Project	2022 With Project	Project Contribution	Increase Threshold
John F. Kennedy Drive	West of Via Entrada	52.3	52.9	0.6	+5 dBA
John F. Kennedy Drive	East of Via Entrada	53.8	54.2	0.4	+5 dBA
John F. Kennedy Drive	West of Moreno Beach Drive	54.4	56.0	1.6	+3 dBA
John F. Kennedy Drive	East of Moreno Beach Drive	63.5	63.7	0.2	+2 dBA
John F. Kennedy Drive	East of Championship Drive	58.1	58.1	0.0	+2 dBA
Moreno Beach Drive	North of Cactus Avenue	64.8	64.9	0.1	+1 dBA
Moreno Beach Drive	North of John F. Kennedy Drive	64.4	64.7	0.3	+1 dBA
Moreno Beach Drive	South of John F. Kennedy Drive	65.2	65.4	0.2	+1 dBA
Iris Avenue	West of Via Del Lago	65.0	65.0	0.0	+1 dBA
Cactus Avenue	West of Moreno Beach Drive	63.0	63.0	0.0	+1 dBA
Cactus Avenue	East of Moreno Beach Drive	62.0	62.0	0.0	+2 dBA
Cactus Avenue	East of Redlands Avenue	51.0	51.0	0.0	+5 dBA
Oliver Street	North of John F. Kennedy Drive	55.0	55.0	0.0	+3 dBA
Oliver Street	South of John F. Kennedy Drive	54.0	54.0	0.0	+5 dBA

Notes:
[1] Distance to nearest residential use are shown in Table G. Noise levels do not take into account existing noise barriers.
[2] Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table A.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table O shows that for the year 2022 conditions, the proposed project's permanent noise increases to the nearby sensitive receptors from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the year 2022 conditions. Impacts would be less than significant.

Onsite Noise Sources

The proposed project would consist of the development of a gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant and an associated parking lot. The operation of the proposed project may create an increase in onsite noise levels from noise impacts from rooftop mechanical equipment, parking lot activities, delivery truck activities, car wash activities, and gas dispensing activities.

Section 11.80.030(C) of the City's Municipal Code limits noise levels to 60 dBA between 8:00 a.m. and 10:00 p.m. and 55 dBA between 10:01 p.m. and 7:59 a.m. the following day at the nearby residential properties, located as near as 15 feet south of the project site. Section 11.80.030(C) also provides commercial noise standards, however the nearest commercial uses are located approximately 2,798 feet (0.5 miles) to the north of the project site and due to the distance, no noise impacts are anticipated to the nearby commercial uses.

The analysis provided above in Section 7.2 found that the noise levels from onsite noise sources at the nearby homes would be as high as 64 dBA. This was based on the worst-case scenario of the simultaneous occurrence of rooftop equipment, truck loading, parking lot activities, delivery truck activities, car wash activities, and gas dispensing activities. The analysis in Section 7.2 also found that the proposed project's operational noise level at the nearest offsite workers would exceed both the City's daytime standard of 60 dBA and nighttime standard of 55 dBA for residential uses. This would be considered a significant impact.

Mitigation Measure 1 is provided that would require the proposed carwash to be equipped with automatic doors at the entrance and exit of the carwash, which will be required to be closed prior to the running of the car wash. Additionally, all vacuum and blower motors would be required to be located within the carwash building and the operational hours of the car wash shall be limited to between 8:00 a.m. and 10:00 p.m..

The analysis provided above in Section 7.2 found that with the application of Mitigation Measure 1, the noise levels at the nearby residential receptors would be reduced to within both the City's daytime noise standard of 60 dBA Leq and the nighttime standard of 55 dBA Leq. With implementation of Mitigation Measure 1, the proposed project would not create a substantial permanent increase in ambient noise levels from onsite sources. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1 provided above in Section 7.2.

Level of Significance After Mitigation

Less than significant impact.

7.5 Temporary Noise Level Increase

The proposed project may create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above noise levels existing without the proposed project. The construction activities for the proposed project are anticipated to include site preparation and grading of the 2.5-acre project site, building construction of the gas station, convenience store, carwash, sit-down restaurant, and quick serve restaurant, paving of the onsite driveways and parking areas, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptor to the project site is the single-family home located adjacent to the southern edge of the project site at 15104 La Casa Drive. There are also single-family homes located approximately 75 feet south of the project site on the south side of Via Sonata and multi-family homes located approximately 110 feet north of the project site on the north side of John F. Kennedy Drive.

The construction noise impacts to the nearby sensitive receptors has been previously analyzed above in Section 7.2, which found that that the greatest noise impacts at the nearby home would occur at the home adjacent to the southern edge of the project site during the site preparation and grading phases of construction, with a noise level as high as 87 dBA, which is within the City's noise threshold of 90 dBA. Section 7.2 also shows that none of the construction phases would exceed the City's noise standard. The City noise standards were developed based on a standard where a high probability hearing loss would occur as determined by the Center for Disease Control and Prevention and OSHA and represent the City's standard for determining what constitutes a substantial temporary increase in ambient noise levels. Therefore, through adherence to the limitation of construction activities to between 7:00 a.m. and 8:00 p.m. as detailed in Section 11.80.030(D)(7) of the City's Municipal Code, the proposed project would not create a substantial temporary or periodic increase in ambient noise levels. Impact would be less than significant.

Level of Significance

Less than significant impact.

7.6 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is the Perris Valley Airport, located approximately 10 miles southwest of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this airport and the site observations during the noise measurements found that although aircraft noise is occasionally audible at the project site, the noise created by the aircraft is not loud enough to measurably increase the ambient noise levels, which is primarily created by John F. Kennedy Drive and Moreno Beach Drive. Impacts would be less than significant.

Level of Significance

Less than significant impact.

8.0 REFERENCES

California Department of Transportation, *2015 Annual Average Daily Truck Traffic on the California State Highway System*, 2016.

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation- and Construction-Induced Vibration Guidance Manual*, September 2013.

City of Moreno Valley, *City of Moreno Valley General Plan*, July 11, 2006.

City of Moreno Valley, *City of Moreno Valley Municipal Code*, May 2014.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* May 2006.

K2 Traffic Engineering, Inc., *Focused Traffic Impact Study, New 76 Gas Station and Restaurants at SWC of Moreno Beach Drive and John F. Kennedy Drive, Moreno Valley*, December 20, 2017.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide,* January, 2006.

Vista Environmental, *Air Quality and Greenhouse Gas Emissions Impact Analysis 76 Gas Station and Restaurants Project, City of Moreno Valley,* January 2, 2018.

APPENDIX A

Study Area Photo Index

Noise Measurement Site A - looking north

Noise Measurement Site A - looking northeast

Noise Measurement Site A - looking east

Noise Measurement Site A - looking southeast

Noise Measurement Site A - looking south

Noise Measurement Site A - looking southwest

Noise Measurement Site A - looking west

Noise Measurement Site A - looking northwest

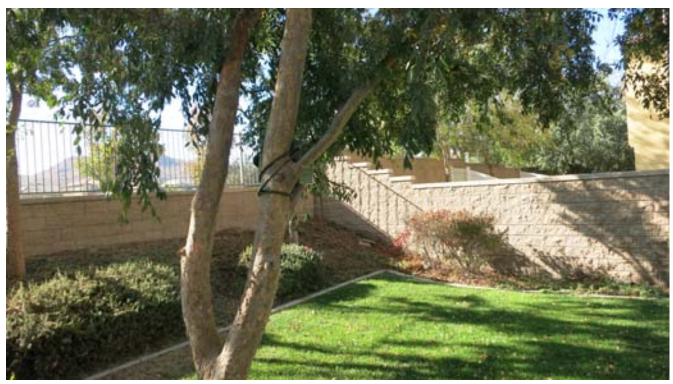
Noise Measurement Site B - looking north

Noise Measurement Site B - looking northeast

Noise Measurement Site B - looking east

Noise Measurement Site B - looking southeast

Noise Measurement Site B - looking south



Noise Measurement Site B - looking southwest

Noise Measurement Site B - looking west

Noise Measurement Site B - looking northwest

APPENDIX B

Field Noise Measurement Printouts

Site A - On Light Pole South of Project Site

Date Time=12/12/17 10:08:00 AM
Sampling Time=3 Weighting=A
Record Num= 29000 Weighting=Slow CNEL(24hr)= 59.7
Leq 56.8 SEL Value=106.5 Ldn(24hr)= 59.6
MAX 87.9 Min Leq1hr = 42.7 1:20 AM
MIN 29.4 Max Leq1hr = 68.5 12:17 PM

Site B - On Tree North of Project Site

Date Time=12/12/17 10:17:00 AM
Sampling Time=3 Freq Weighting=A
Record Num= 28800 Weighting=Slow CNEL(24hr)= 58.0
Leq 53.1 SEL Value=102.6 Ldn(24hr)= 57.6
MAX 79.8 Min Leq1hr = 44.8 2:32 AM
MIN 36.6 Max Leq1hr = 57.0 2:47 PM

Site A - On Light Pole South of Project Site					Site B - On Tree North of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
52.8	10:08:00		52.8	52.8	57	10:17:00		57	5
65.6	10:08:03		65.6	65.6	60.8	10:17:03		60.8	60.
67.2	10:08:06		67.2	67.2	61.5	10:17:06		61.5	61.
62	10:08:09		62	62	62.9	10:17:09		62.9	62.
60.4	10:08:12		60.4	60.4	63.7	10:17:12		63.7	63.
50.9	10:08:15		50.9	50.9	61	10:17:15		61	6
58	10:08:18		58	58	68.5	10:17:18		68.5	68.
66.9	10:08:21		66.9	66.9	62.9	10:17:21		62.9	62.
60	10:08:24		60	60	64.9	10:17:24		64.9	64.
55.8	10:08:27		55.8	55.8	59.1	10:17:27		59.1	59.
58.4	10:08:30		58.4	58.4	54.2	10:17:30		54.2	54.
64.1	10:08:33		64.1	64.1	56.9	10:17:33		56.9	56.
58.5	10:08:36		58.5	58.5	59.2	10:17:36		59.2	59.
66.4	10:08:39		66.4	66.4	57.4	10:17:39		57.4	57.
59.1	10:08:42		59.1	59.1	64	10:17:42		64	6
58.2	10:08:45		58.2	58.2	54.4	10:17:45		54.4	54.
55	10:08:48		55	55	55.1	10:17:48		55.1	55.
63.5	10:08:51		63.5	63.5	62.4	10:17:51		62.4	62.
62.2	10:08:54		62.2	62.2	64.8	10:17:54		64.8	64.
68.5	10:08:57		68.5	68.5	52.1	10:17:57		52.1	52.
63.4	10:09:00		63.4	63.4	51.2	10:18:00		51.2	51.
65.7	10:09:03		65.7	65.7	68.5	10:18:03		68.5	68.
60.2	10:09:06		60.2	60.2	55.1	10:18:06		55.1	55.
69.7	10:09:09		69.7	69.7	53.7	10:18:09		53.7	53.
67.6	10:09:12		67.6	67.6	55.7	10:18:12		55.7	55.
61.1	10:09:15		61.1	61.1	58.4	10:18:15		58.4	58.
68.5	10:09:18		68.5	68.5	62.4	10:18:18		62.4	62.
61.3	10:09:21		61.3	61.3	52.9	10:18:21		52.9	52.
63.2	10:09:24		63.2	63.2	60.4	10:18:24		60.4	60.
64.7	10:09:27		64.7	64.7	53.7	10:18:27		53.7	53.
64.4	10:09:30		64.4	64.4	68.8	10:18:30		68.8	68.
67.5	10:09:33		67.5	67.5	57.7	10:18:33		57.7	57.
63.4	10:09:36		63.4	63.4	53.9	10:18:36		53.9	53.
59.4	10:09:39		59.4	59.4	64.4	10:18:39		64.4	64.
59.9	10:09:42		59.9	59.9	55.5	10:18:42		55.5	55.
59.5	10:09:45		59.5	59.5	48	10:18:45		48	4
64.5	10:09:48		64.5	64.5	52	10:18:48		52	5
60.8	10:09:51		60.8	60.8	53.8	10:18:51		53.8	53.
63.3	10:09:54		63.3	63.3	55.7	10:18:54		55.7	55.
60	10:09:57		60	60	49.9	10:18:57		49.9	49.
58.7	10:10:00		58.7	58.7	57.2	10:19:00		57.2	57.
62.4	10:10:03		62.4	62.4	51.3	10:19:03		51.3	51.
65.9	10:10:06		65.9	65.9	56	10:19:06		56	5
65.9	10:10:09		65.9	65.9	59.3	10:19:09		59.3	59.
61.4	10:10:12		61.4	61.4	58.5	10:19:12		58.5	58.
60	10:10:15		60	60	56.7	10:19:15		56.7	56.
59.9	10:10:18		59.9	59.9	50.5	10:19:18		50.5	50.
58.6	10:10:21		58.6	58.6	54.3	10:19:21		54.3	54.
56.6	10:10:24		56.6	56.6	58.5	10:19:24		58.5	58.
54.4	10:10:27		54.4	54.4	55.3	10:19:27		55.3	55.
62.2	10:10:30		62.2	62.2	53.5	10:19:30		53.5	53.
68.2	10:10:33		68.2	68.2	52.1	10:19:33		52.1	52.
60.4	10:10:36		60.4	60.4	50.4	10:19:36		50.4	50.
56.1	10:10:39		56.1	56.1	50.7	10:19:39		50.7	50.
57.1	10:10:42		57.1	57.1	53.1	10:19:42		53.1	53.
67.2	10:10:45		67.2	67.2	50.1	10:19:45		50.1	50.
68.1	10:10:48		68.1	68.1	47.7	10:19:48		47.7	47.
60.4	10:10:51		60.4	60.4	49.1	10:19:51		49.1	49.
54.7	10:10:54		54.7	54.7	46.1	10:19:54		46.1	46.
59.3	10:10:57		59.3	59.3	46	10:19:57		46	4
47.8	10:11:00		47.8	47.8	45.6	10:20:00		45.6	45.
50.2	10:11:03		50.2	50.2	44.2	10:20:03		44.2	44.
63	10:11:06		63	63	43.9	10:20:06		43.9	43.
45.9	10:11:09		45.9	45.9	48.7	10:20:09		48.7	48.
45.2	10:11:12		45.2	45.2	52.6	10:20:12		52.6	52.
41.6	10:11:15		41.6	41.6	59.5	10:20:15		59.5	59.
40.2	10:11:18		40.2	40.2	51.9	10:20:18		51.9	51.
38.8	10:11:21		38.8	38.8	49.8	10:20:21		49.8	49.
41.4	10:11:24		41.4	41.4	54.8	10:20:24		54.8	54.
46.2	10:11:27		46.2	46.2	47.9	10:20:27		47.9	47.
41.9	10:11:30		41.9	41.9	45.7	10:20:30		45.7	45.
37.9	10:11:33		37.9	37.9	42.8	10:20:33		42.8	42.
38.4	10:11:36		38.4	38.4	42.4	10:20:36		42.4	42.
40.8	10:11:39		40.8	40.8	42	10:20:39		42	4
41.2	10:11:42		41.2	41.2	43.4	10:20:42		43.4	43.
42.1	10:11:45		42.1	42.1	46.2	10:20:45		46.2	46.
39.4	10:11:48		39.4	39.4	52.9	10:20:48		52.9	52.
42	10:11:51		42	42	50.5	10:20:51		50.5	50.
40.3	10:11:54		40.3	40.3	55.1	10:20:54		55.1	55.
42.5	10:11:57		42.5	42.5	49.4	10:20:57		49.4	49.4

Site A - On Light Pole South of Project Site					Site B - On Tree North of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
45.9	10:12:00		45.9	45.9	48.1	10:21:00		48.1	48.
46.8	10:12:03		46.8	46.8	56.1	10:21:03		56.1	56.
44.4	10:12:06		44.4	44.4	58.9	10:21:06		58.9	58.
39.2	10:12:09		39.2	39.2	51.3	10:21:09		51.3	51.
38.4	10:12:12		38.4	38.4	50.2	10:21:12		50.2	50.
43.5	10:12:15		43.5	43.5	43.6	10:21:15		43.6	43.
42.7	10:12:18		42.7	42.7	44.1	10:21:18		44.1	44.
39.2	10:12:21		39.2	39.2	47.5	10:21:21		47.5	47.
39.3	10:12:24		39.3	39.3	51.5	10:21:24		51.5	51.
42.9	10:12:27		42.9	42.9	52.9	10:21:27		52.9	52.
42.2	10:12:30		42.2	42.2	48.5	10:21:30		48.5	48.
41.3	10:12:33		41.3	41.3	48.3	10:21:33		48.3	48.
40.4	10:12:36		40.4	40.4	47.4	10:21:36		47.4	47.
46.4	10:12:39		46.4	46.4	48.3	10:21:39		48.3	48.
42.9	10:12:42		42.9	42.9	52.3	10:21:42		52.3	52.
41.8	10:12:45		41.8	41.8	56.1	10:21:45		56.1	56.
55.8	10:12:48		55.8	55.8	53	10:21:48		53	5
41.9	10:12:51		41.9	41.9	50.2	10:21:51		50.2	50.
60.1	10:12:54		60.1	60.1	51.5	10:21:54		51.5	51.
49.8	10:12:57		49.8	49.8	52.1	10:21:57		52.1	52.
51.5	10:13:00		51.5	51.5	50	10:22:00		50	5
45.2	10:13:03		45.2	45.2	48.9	10:22:03		48.9	48.
46.1	10:13:06		46.1	46.1	54.1	10:22:06		54.1	54.
45	10:13:09		45	45	52.6	10:22:09		52.6	52.
44.9	10:13:12		44.9	44.9	47.4	10:22:12		47.4	47.
46.3	10:13:15		46.3	46.3	51.5	10:22:15		51.5	51.
46.8	10:13:18		46.8	46.8	48.8	10:22:18		48.8	48.
45.9	10:13:21		45.9	45.9	45.7	10:22:21		45.7	45.
48.9	10:13:24		48.9	48.9	44.7	10:22:24		44.7	44.
51.2	10:13:27		51.2	51.2	45.3	10:22:27		45.3	45.
47.3	10:13:30		47.3	47.3	45.7	10:22:30		45.7	45.
43.1	10:13:33		43.1	43.1	42.1	10:22:33		42.1	42.
39.2	10:13:36		39.2	39.2	40.9	10:22:36		40.9	40.
38.3	10:13:39		38.3	38.3	41.6	10:22:39		41.6	41.
39	10:13:42		39	39	42.7	10:22:42		42.7	42.
38.7	10:13:45		38.7	38.7	44.2	10:22:45		44.2	44.
41.4	10:13:48		41.4	41.4	46.2	10:22:48		46.2	46.
45.3	10:13:51		45.3	45.3	48.4	10:22:51		48.4	48.
41.8	10:13:54		41.8	41.8	48.7	10:22:54		48.7	48.
39.1	10:13:57		39.1	39.1	49.2	10:22:57		49.2	49.
40.6	10:14:00		40.6	40.6	54.9	10:23:00		54.9	54.
39.9	10:14:03		39.9	39.9	54.1	10:23:03		54.1	54.
40.6	10:14:06		40.6	40.6	53.8	10:23:06		53.8	53.
42.6	10:14:09		42.6	42.6	50.1	10:23:09		50.1	50.
43.8	10:14:12		43.8	43.8	51	10:23:12		51	5
44.1	10:14:15		44.1	44.1	48.8	10:23:15		48.8	48.
45.6	10:14:18		45.6	45.6	53.4	10:23:18		53.4	53.
48.3	10:14:21		48.3	48.3	48.7	10:23:21		48.7	48.
48.8	10:14:24		48.8	48.8	47.9	10:23:24		47.9	47.
45.3	10:14:27		45.3	45.3	47.5	10:23:27		47.5	47.
43.1	10:14:30		43.1	43.1	47.8	10:23:30		47.8	47.
41.9	10:14:33		41.9	41.9	52	10:23:33		52	5
42	10:14:36		42	42	53.4	10:23:36		53.4	53.
39.4	10:14:39		39.4	39.4	52.6	10:23:39		52.6	52.
39.7	10:14:42		39.7	39.7	53.9	10:23:42		53.9	53.
38.6	10:14:45		38.6	38.6	52.4	10:23:45		52.4	52.
38.3	10:14:48		38.3	38.3	54	10:23:48		54	5
40.1	10:14:51		40.1	40.1	55.9	10:23:51		55.9	55.
40.6	10:14:54		40.6	40.6	54.4	10:23:54		54.4	54.
40.7	10:14:57		40.7	40.7	55.6	10:23:57		55.6	55.
45.4	10:15:00		45.4	45.4	56.5	10:24:00		56.5	56.
46.4	10:15:03		46.4	46.4	55.8	10:24:03		55.8	55.
48.8	10:15:06		48.8	48.8	58	10:24:06		58	5
49.1	10:15:09		49.1	49.1	50.9	10:24:09		50.9	50.
44.3	10:15:12		44.3	44.3	47.8	10:24:12		47.8	47.
44.4	10:15:15		44.4	44.4	47.2	10:24:15		47.2	47.
46.2	10:15:18		46.2	46.2	51.7	10:24:18		51.7	51.
50.1	10:15:21		50.1	50.1	51.6	10:24:21		51.6	51.
53	10:15:24		53	53	53.7	10:24:24		53.7	53.
53.3	10:15:27		53.3	53.3	51	10:24:27		51	5
56.8	10:15:30		56.8	56.8	52.8	10:24:30		52.8	52.
65.5	10:15:33		65.5	65.5	51.6	10:24:33		51.6	51.
60.4	10:15:36		60.4	60.4	48.5	10:24:36		48.5	48.
62.8	10:15:39		62.8	62.8	45.6	10:24:39		45.6	45.
57.7	10:15:42		57.7	57.7	44.5	10:24:42		44.5	44.
51.1	10:15:45		51.1	51.1	44.3	10:24:45		44.3	44.
49.2	10:15:48		49.2	49.2	44	10:24:48		44	4
48.2	10:15:51		48.2	48.2	48	10:24:51		48	4
47.8	10:15:54		47.8	47.8	51.5	10:24:54		51.5	51.
45.6	10:15:57		45.6	45.6	54.1	10:24:57		54.1	54.
45.5	10:16:00		45.5	45.5	54	10:25:00		54	5
46.5	10:16:03		46.5	46.5	55.8	10:25:03		55.8	55.
47.1	10:16:06		47.1	47.1	54.2	10:25:06		54.2	54.
46.2	10:16:09		46.2	46.2	56.3	10:25:09		56.3	56.
41.8	10:16:12		41.8	41.8	55.6	10:25:12		55.6	55.
40.6	10:16:15		40.6	40.6	49.8	10:25:15		49.8	49.
44.1	10:16:18		44.1	44.1	48.6	10:25:18		48.6	48.
46.3	10:16:21		46.3	46.3	45.8	10:25:21		45.8	45.
46.3	10:16:24		46.3	46.3	46.2	10:25:24		46.2	46.
49.2	10:16:27		49.2	49.2	46.4	10:25:27		46.4	46.
49.2	10:16:30		49.2	49.2	46	10:25:30		46	46

Site A - On Light Pole South of Project Site					Site B - On Tree North of Project Site				
SPL	**Time**	**Leq (1 hour Avg.)**	**Ldn**	**CNEL**	**SPL**	**Time**	**Leq (1 hour Avg.)**	**Ldn**	**CNEL**
45.6	10:16:33		45.6	45.6	48.4	10:25:33		48.4	48.4
43.6	10:16:36		43.6	43.6	49.3	10:25:36		49.3	49.3
40.5	10:16:39		40.5	40.5	46.4	10:25:39		46.4	46.4
39.7	10:16:42		39.7	39.7	49.5	10:25:42		49.5	49.5
42.5	10:16:45		42.5	42.5	57.3	10:25:45		57.3	57.3
45.6	10:16:48		45.6	45.6	51.5	10:25:48		51.5	51.5
52.5	10:16:51		52.5	52.5	47	10:25:51		47	47
44.2	10:16:54		44.2	44.2	45	10:25:54		45	45
44.4	10:16:57		44.4	44.4	45.3	10:25:57		45.3	45.3
42.7	10:17:00		42.7	42.7	45.6	10:26:00		45.6	45.6
41.9	10:17:03		41.9	41.9	45.4	10:26:03		45.4	45.4
38.8	10:17:06		38.8	38.8	45.4	10:26:06		45.4	45.4
37.9	10:17:09		37.9	37.9	46.1	10:26:09		46.1	46.1
37	10:17:12		37	37	48.2	10:26:12		48.2	48.2
36.7	10:17:15		36.7	36.7	52.1	10:26:15		52.1	52.1
37.6	10:17:18		37.6	37.6	55	10:26:18		55	55
40	10:17:21		40	40	55.7	10:26:21		55.7	55.7
40.5	10:17:24		40.5	40.5	56.3	10:26:24		56.3	56.3
38.6	10:17:27		38.6	38.6	61.1	10:26:27		61.1	61.1
39.2	10:17:30		39.2	39.2	58	10:26:30		58	58
39.1	10:17:33		39.1	39.1	55.6	10:26:33		55.6	55.6
38.8	10:17:36		38.8	38.8	51.1	10:26:36		51.1	51.1
37.7	10:17:39		37.7	37.7	52.1	10:26:39		52.1	52.1
38	10:17:42		38	38	46.8	10:26:42		46.8	46.8
41.8	10:17:45		41.8	41.8	47.5	10:26:45		47.5	47.5
44.7	10:17:48		44.7	44.7	50.3	10:26:48		50.3	50.3
45.8	10:17:51		45.8	45.8	48	10:26:51		48	48
45	10:17:54		45	45	43.7	10:26:54		43.7	43.7
44.3	10:17:57		44.3	44.3	43.3	10:26:57		43.3	43.3
43.3	10:18:00		43.3	43.3	43.9	10:27:00		43.9	43.9
43.5	10:18:03		43.5	43.5	45.3	10:27:03		45.3	45.3
39.4	10:18:06		39.4	39.4	46.3	10:27:06		46.3	46.3
38.6	10:18:09		38.6	38.6	45.7	10:27:09		45.7	45.7
37.2	10:18:12		37.2	37.2	44.3	10:27:12		44.3	44.3
39.7	10:18:15		39.7	39.7	50.2	10:27:15		50.2	50.2
39.2	10:18:18		39.2	39.2	54.5	10:27:18		54.5	54.5
48.8	10:18:21		48.8	48.8	53.8	10:27:21		53.8	53.8
47.7	10:18:24		47.7	47.7	54.9	10:27:24		54.9	54.9
46.2	10:18:27		46.2	46.2	55.6	10:27:27		55.6	55.6
43.9	10:18:30		43.9	43.9	54.7	10:27:30		54.7	54.7
41.3	10:18:33		41.3	41.3	57.4	10:27:33		57.4	57.4
41.2	10:18:36		41.2	41.2	55.9	10:27:36		55.9	55.9
41.9	10:18:39		41.9	41.9	51.2	10:27:39		51.2	51.2
41.3	10:18:42		41.3	41.3	47.6	10:27:42		47.6	47.6
41.5	10:18:45		41.5	41.5	43.9	10:27:45		43.9	43.9
39.3	10:18:48		39.3	39.3	42.6	10:27:48		42.6	42.6
38.2	10:18:51		38.2	38.2	42.4	10:27:51		42.4	42.4
37	10:18:54		37	37	46.7	10:27:54		46.7	46.7
36.5	10:18:57		36.5	36.5	51.6	10:27:57		51.6	51.6
40.2	10:19:00		40.2	40.2	52.7	10:28:00		52.7	52.7
44.2	10:19:03		44.2	44.2	47.3	10:28:03		47.3	47.3
44.5	10:19:06		44.5	44.5	45.7	10:28:06		45.7	45.7
43.9	10:19:09		43.9	43.9	45.4	10:28:09		45.4	45.4
39.6	10:19:12		39.6	39.6	44.5	10:28:12		44.5	44.5
42.9	10:19:15		42.9	42.9	46.7	10:28:15		46.7	46.7
48.3	10:19:18		48.3	48.3	53.5	10:28:18		53.5	53.5
48.4	10:19:21		48.4	48.4	53.9	10:28:21		53.9	53.9
45.1	10:19:24		45.1	45.1	51.8	10:28:24		51.8	51.8
44.3	10:19:27		44.3	44.3	47.1	10:28:27		47.1	47.1
43.5	10:19:30		43.5	43.5	45.9	10:28:30		45.9	45.9
45.2	10:19:33		45.2	45.2	45	10:28:33		45	45
46.4	10:19:36		46.4	46.4	44.4	10:28:36		44.4	44.4
44.3	10:19:39		44.3	44.3	44.6	10:28:39		44.6	44.6
40.8	10:19:42		40.8	40.8	46.9	10:28:42		46.9	46.9
39.4	10:19:45		39.4	39.4	44.6	10:28:45		44.6	44.6
42.3	10:19:48		42.3	42.3	44.3	10:28:48		44.3	44.3
41.5	10:19:51		41.5	41.5	43.5	10:28:51		43.5	43.5
39.7	10:19:54		39.7	39.7	45	10:28:54		45	45
39.1	10:19:57		39.1	39.1	45.6	10:28:57		45.6	45.6
39	10:20:00		39	39	49.4	10:29:00		49.4	49.4
40	10:20:03		40	40	52.7	10:29:03		52.7	52.7
40.3	10:20:06		40.3	40.3	53.7	10:29:06		53.7	53.7
39.6	10:20:09		39.6	39.6	53	10:29:09		53	53
39.3	10:20:12		39.3	39.3	49.8	10:29:12		49.8	49.8
37.8	10:20:15		37.8	37.8	52.4	10:29:15		52.4	52.4
41.6	10:20:18		41.6	41.6	52	10:29:18		52	52
43.2	10:20:21		43.2	43.2	48.9	10:29:21		48.9	48.9
44.8	10:20:24		44.8	44.8	47.4	10:29:24		47.4	47.4
41.9	10:20:27		41.9	41.9	47.7	10:29:27		47.7	47.7
40.8	10:20:30		40.8	40.8	46.4	10:29:30		46.4	46.4
41.6	10:20:33		41.6	41.6	47.1	10:29:33		47.1	47.1
41.6	10:20:36		41.6	41.6	45.6	10:29:36		45.6	45.6
40	10:20:39		40	40	43.9	10:29:39		43.9	43.9
37.3	10:20:42		37.3	37.3	43.8	10:29:42		43.8	43.8
39.1	10:20:45		39.1	39.1	50.6	10:29:45		50.6	50.6
38.8	10:20:48		38.8	38.8	53.1	10:29:48		53.1	53.1
41.8	10:20:51		41.8	41.8	58	10:29:51		58	58
38.9	10:20:54		38.9	38.9	53.4	10:29:54		53.4	53.4
40.3	10:20:57		40.3	40.3	61.1	10:29:57		61.1	61.1
39.9	10:21:00		39.9	39.9	65.4	10:30:00		65.4	65.4
41.3	10:21:03		41.3	41.3	59.7	10:30:03		59.7	59.7

Site A - On Light Pole South of Project Site					Site B - On Tree North of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
43.7	10:21:06		43.7	43.7	55.6	10:30:06		55.6	55.
42.3	10:21:09		42.3	42.3	50.7	10:30:09		50.7	50.
44.9	10:21:12		44.9	44.9	48	10:30:12		48	4
45.6	10:21:15		45.6	45.6	48.9	10:30:15		48.9	48.
46.2	10:21:18		46.2	46.2	45.9	10:30:18		45.9	45.
42.6	10:21:21		42.6	42.6	45.3	10:30:21		45.3	45.
40.3	10:21:24		40.3	40.3	46.7	10:30:24		46.7	46.
37.4	10:21:27		37.4	37.4	48.5	10:30:27		48.5	48.
39.1	10:21:30		39.1	39.1	47.7	10:30:30		47.7	47.
41.2	10:21:33		41.2	41.2	46	10:30:33		46	4
40.6	10:21:36		40.6	40.6	44.6	10:30:36		44.6	44.
48	10:21:39		48	48	47	10:30:39		47	4
48.3	10:21:42		48.3	48.3	59.6	10:30:42		59.6	59.
46.4	10:21:45		46.4	46.4	57	10:30:45		57	5
44.6	10:21:48		44.6	44.6	52.2	10:30:48		52.2	52.
46.5	10:21:51		46.5	46.5	48.2	10:30:51		48.2	48.
45.1	10:21:54		45.1	45.1	47.8	10:30:54		47.8	47.
44	10:21:57		44	44	45.7	10:30:57		45.7	45.
46.1	10:22:00		46.1	46.1	43.6	10:31:00		43.6	43.
46	10:22:03		46	46	51	10:31:03		51	5
43.2	10:22:06		43.2	43.2	53	10:31:06		53	5
43.1	10:22:09		43.1	43.1	51.2	10:31:09		51.2	51.
39	10:22:12		39	39	55.8	10:31:12		55.8	55.
41.1	10:22:15		41.1	41.1	48	10:31:15		48	4
49.1	10:22:18		49.1	49.1	46	10:31:18		46	4
45.1	10:22:21		45.1	45.1	45.2	10:31:21		45.2	45.
44.1	10:22:24		44.1	44.1	48.1	10:31:24		48.1	48.
45	10:22:27		45	45	48.7	10:31:27		48.7	48.
48.2	10:22:30		48.2	48.2	47	10:31:30		47	4
46.2	10:22:33		46.2	46.2	45.7	10:31:33		45.7	45.
49.7	10:22:36		49.7	49.7	45.9	10:31:36		45.9	45.
42.4	10:22:39		42.4	42.4	44.7	10:31:39		44.7	44.
46.8	10:22:42		46.8	46.8	45.5	10:31:42		45.5	45.
41.2	10:22:45		41.2	41.2	49	10:31:45		49	4
41.7	10:22:48		41.7	41.7	51.5	10:31:48		51.5	51.
42	10:22:51		42	42	55.2	10:31:51		55.2	55.
54.2	10:22:54		54.2	54.2	55.3	10:31:54		55.3	55.
40.8	10:22:57		40.8	40.8	56.3	10:31:57		56.3	56.
39	10:23:00		39	39	60	10:32:00		60	6
39.2	10:23:03		39.2	39.2	52.4	10:32:03		52.4	52.
41.5	10:23:06		41.5	41.5	46.4	10:32:06		46.4	46.
44.6	10:23:09		44.6	44.6	46.2	10:32:09		46.2	46.
43.9	10:23:12		43.9	43.9	45.4	10:32:12		45.4	45.
42	10:23:15		42	42	44.9	10:32:15		44.9	44.
54.4	10:23:18		54.4	54.4	49.5	10:32:18		49.5	49.
56.9	10:23:21		56.9	56.9	56.2	10:32:21		56.2	56.
54.2	10:23:24		54.2	54.2	48.4	10:32:24		48.4	48.
50.6	10:23:27		50.6	50.6	44.9	10:32:27		44.9	44.
44.3	10:23:30		44.3	44.3	43.7	10:32:30		43.7	43.
39.6	10:23:33		39.6	39.6	46.1	10:32:33		46.1	46.
41.3	10:23:36		41.3	41.3	47.6	10:32:36		47.6	47.
42.8	10:23:39		42.8	42.8	46	10:32:39		46	4
43.3	10:23:42		43.3	43.3	47.6	10:32:42		47.6	47.
41.1	10:23:45		41.1	41.1	54.4	10:32:45		54.4	54.
42.1	10:23:48		42.1	42.1	48.8	10:32:48		48.8	48.
42.5	10:23:51		42.5	42.5	45	10:32:51		45	4
43.2	10:23:54		43.2	43.2	43.8	10:32:54		43.8	43.
43.3	10:23:57		43.3	43.3	46.2	10:32:57		46.2	46.
42.8	10:24:00		42.8	42.8	48.3	10:33:00		48.3	48.
44	10:24:03		44	44	51.2	10:33:03		51.2	51.
46	10:24:06		46	46	49.9	10:33:06		49.9	49.
46.2	10:24:09		46.2	46.2	47.2	10:33:09		47.2	47.
44.7	10:24:12		44.7	44.7	50.9	10:33:12		50.9	50.
45.5	10:24:15		45.5	45.5	51.2	10:33:15		51.2	51.
47	10:24:18		47	47	55.1	10:33:18		55.1	55.
45.9	10:24:21		45.9	45.9	62.2	10:33:21		62.2	62.
43.9	10:24:24		43.9	43.9	57.4	10:33:24		57.4	57.
49.7	10:24:27		49.7	49.7	57.8	10:33:27		57.8	57.
50.9	10:24:30		50.9	50.9	57.7	10:33:30		57.7	57.
48.5	10:24:33		48.5	48.5	53.8	10:33:33		53.8	53.
49.5	10:24:36		49.5	49.5	54.3	10:33:36		54.3	54.
56.1	10:24:39		56.1	56.1	55.7	10:33:39		55.7	55.
51.5	10:24:42		51.5	51.5	47.4	10:33:42		47.4	47.
51.7	10:24:45		51.7	51.7	44.2	10:33:45		44.2	44.
51.7	10:24:48		51.7	51.7	46.4	10:33:48		46.4	46.
49	10:24:51		49	49	45.7	10:33:51		45.7	45.
47.9	10:24:54		47.9	47.9	44.7	10:33:54		44.7	44.
45.4	10:24:57		45.4	45.4	44.6	10:33:57		44.6	44.
46.7	10:25:00		46.7	46.7	49.3	10:34:00		49.3	49.
47.2	10:25:03		47.2	47.2	47.1	10:34:03		47.1	47.
48.4	10:25:06		48.4	48.4	48.2	10:34:06		48.2	48.
48.1	10:25:09		48.1	48.1	47.2	10:34:09		47.2	47.
47.9	10:25:12		47.9	47.9	48	10:34:12		48	4
49.1	10:25:15		49.1	49.1	55	10:34:15		55	5
47.4	10:25:18		47.4	47.4	48	10:34:18		48	4
49.6	10:25:21		49.6	49.6	45.6	10:34:21		45.6	45.
46.7	10:25:24		46.7	46.7	51	10:34:24		51	5
43.1	10:25:27		43.1	43.1	52.3	10:34:27		52.3	52.
39.4	10:25:30		39.4	39.4	45	10:34:30		45	4
38.1	10:25:33		38.1	38.1	43.5	10:34:33		43.5	43.
38.8	10:25:36		38.8	38.8	47.5	10:34:36		47.5	47.5

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

Site A - On Light Pole South of Project Site					Site B - On Tree North of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
42.4	10:25:39		42.4	42.4	52.9	10:34:39		52.9	52.
38.5	10:25:42		38.5	38.5	44.4	10:34:42		44.4	44.
37.1	10:25:45		37.1	37.1	40.5	10:34:45		40.5	40.
36.9	10:25:48		36.9	36.9	41.1	10:34:48		41.1	41.
37.4	10:25:51		37.4	37.4	41.2	10:34:51		41.2	41.
39.2	10:25:54		39.2	39.2	42.4	10:34:54		42.4	42.
42.3	10:25:57		42.3	42.3	44.7	10:34:57		44.7	44.
42.7	10:26:00		42.7	42.7	44.8	10:35:00		44.8	44.
40.2	10:26:03		40.2	40.2	45.6	10:35:03		45.6	45.
37	10:26:06		37	37	47.2	10:35:06		47.2	47.
36.7	10:26:09		36.7	36.7	52.6	10:35:09		52.6	52.
36.2	10:26:12		36.2	36.2	51.2	10:35:12		51.2	51.
36.5	10:26:15		36.5	36.5	46.1	10:35:15		46.1	46.
36.8	10:26:18		36.8	36.8	46	10:35:18		46	4
40.2	10:26:21		40.2	40.2	50.2	10:35:21		50.2	50.
47.3	10:26:24		47.3	47.3	51.6	10:35:24		51.6	51.
52.2	10:26:27		52.2	52.2	49.4	10:35:27		49.4	49.
53.2	10:26:30		53.2	53.2	52.2	10:35:30		52.2	52.
48.6	10:26:33		48.6	48.6	54.2	10:35:33		54.2	54.
53.4	10:26:36		53.4	53.4	49.2	10:35:36		49.2	49.
49.4	10:26:39		49.4	49.4	47.5	10:35:39		47.5	47.
44.5	10:26:42		44.5	44.5	46.6	10:35:42		46.6	46.
42.2	10:26:45		42.2	42.2	46.7	10:35:45		46.7	46.
42.9	10:26:48		42.9	42.9	46.3	10:35:48		46.3	46.
42.6	10:26:51		42.6	42.6	44.2	10:35:51		44.2	44.
43.7	10:26:54		43.7	43.7	44.9	10:35:54		44.9	44.
41.6	10:26:57		41.6	41.6	47.5	10:35:57		47.5	47.
39.4	10:27:00		39.4	39.4	50.8	10:36:00		50.8	50.
39.2	10:27:03		39.2	39.2	47.2	10:36:03		47.2	47.
39.7	10:27:06		39.7	39.7	49.8	10:36:06		49.8	49.
39	10:27:09		39	39	46.5	10:36:09		46.5	46.
37.3	10:27:12		37.3	37.3	44.1	10:36:12		44.1	44.
36.6	10:27:15		36.6	36.6	43.2	10:36:15		43.2	43.
36.3	10:27:18		36.3	36.3	44.7	10:36:18		44.7	44.
36.5	10:27:21		36.5	36.5	44	10:36:21		44	4
38	10:27:24		38	38	44.5	10:36:24		44.5	44.
49.4	10:27:27		49.4	49.4	44.7	10:36:27		44.7	44.
46.2	10:27:30		46.2	46.2	52.8	10:36:30		52.8	52.
47.6	10:27:33		47.6	47.6	52.8	10:36:33		52.8	52.
47.6	10:27:36		47.6	47.6	49.8	10:36:36		49.8	49.
46.7	10:27:39		46.7	46.7	48.1	10:36:39		48.1	48.
46.1	10:27:42		46.1	46.1	50.6	10:36:42		50.6	50.
44.6	10:27:45		44.6	44.6	52.4	10:36:45		52.4	52.
45.1	10:27:48		45.1	45.1	50.1	10:36:48		50.1	50.
43.3	10:27:51		43.3	43.3	48.6	10:36:51		48.6	48.
39.7	10:27:54		39.7	39.7	51.5	10:36:54		51.5	51.
37.9	10:27:57		37.9	37.9	49.6	10:36:57		49.6	49.
40.6	10:28:00		40.6	40.6	46.2	10:37:00		46.2	46.
43.8	10:28:03		43.8	43.8	46.6	10:37:03		46.6	46.
42.4	10:28:06		42.4	42.4	48.1	10:37:06		48.1	48.
41.2	10:28:09		41.2	41.2	48.6	10:37:09		48.6	48.
41.2	10:28:12		41.2	41.2	47.2	10:37:12		47.2	47.
42.5	10:28:15		42.5	42.5	46.7	10:37:15		46.7	46.
42.8	10:28:18		42.8	42.8	44.8	10:37:18		44.8	44.
39	10:28:21		39	39	46.9	10:37:21		46.9	46.
38.1	10:28:24		38.1	38.1	48.1	10:37:24		48.1	48.
39.8	10:28:27		39.8	39.8	47.2	10:37:27		47.2	47.
42.8	10:28:30		42.8	42.8	46.4	10:37:30		46.4	46.
46.6	10:28:33		46.6	46.6	46.3	10:37:33		46.3	46.
44.9	10:28:36		44.9	44.9	48.7	10:37:36		48.7	48.
42.5	10:28:39		42.5	42.5	49.6	10:37:39		49.6	49.
39.5	10:28:42		39.5	39.5	50.2	10:37:42		50.2	50.
36.9	10:28:45		36.9	36.9	50.8	10:37:45		50.8	50.
36.3	10:28:48		36.3	36.3	52.2	10:37:48		52.2	52.
36.7	10:28:51		36.7	36.7	58.6	10:37:51		58.6	58.
37.1	10:28:54		37.1	37.1	57.1	10:37:54		57.1	57.
37.6	10:28:57		37.6	37.6	59.2	10:37:57		59.2	59.
38	10:29:00		38	38	54.1	10:38:00		54.1	54.
37.8	10:29:03		37.8	37.8	57.5	10:38:03		57.5	57.
41.4	10:29:06		41.4	41.4	49.8	10:38:06		49.8	49.
39.9	10:29:09		39.9	39.9	47.5	10:38:09		47.5	47.
40.7	10:29:12		40.7	40.7	48.1	10:38:12		48.1	48.
42.2	10:29:15		42.2	42.2	48.3	10:38:15		48.3	48.
41.3	10:29:18		41.3	41.3	48.4	10:38:18		48.4	48.
41.2	10:29:21		41.2	41.2	49.2	10:38:21		49.2	49.
41.6	10:29:24		41.6	41.6	54.8	10:38:24		54.8	54.
42.5	10:29:27		42.5	42.5	47.9	10:38:27		47.9	47.
44.4	10:29:30		44.4	44.4	45.6	10:38:30		45.6	45.
41.6	10:29:33		41.6	41.6	51.1	10:38:33		51.1	51.
41.3	10:29:36		41.3	41.3	52.7	10:38:36		52.7	52.
44.6	10:29:39		44.6	44.6	46.1	10:38:39		46.1	46.
45	10:29:42		45	45	43.5	10:38:42		43.5	43.
46.2	10:29:45		46.2	46.2	44.1	10:38:45		44.1	44.
49.7	10:29:48		49.7	49.7	47.5	10:38:48		47.5	47.
42.5	10:29:51		42.5	42.5	56	10:38:51		56	5
41.6	10:29:54		41.6	41.6	60.2	10:38:54		60.2	60.
40.4	10:29:57		40.4	40.4	60.5	10:38:57		60.5	60.
44.6	10:30:00		44.6	44.6	59.4	10:39:00		59.4	59.
48.5	10:30:03		48.5	48.5	49.7	10:39:03		49.7	49.
55.1	10:30:06		55.1	55.1	47.2	10:39:06		47.2	47.
53.4	10:30:09		53.4	53.4	48.6	10:39:09		48.6	48.6

Site A - On Light Pole South of Project Site					Site B - On Tree North of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
56	10:30:12		56	56	52.2	10:39:12		52.2	52.
57.8	10:30:15		57.8	57.8	51.2	10:39:15		51.2	51.
50.3	10:30:18		50.3	50.3	54	10:39:18		54	5
42.5	10:30:21		42.5	42.5	53.3	10:39:21		53.3	53.
39.8	10:30:24		39.8	39.8	49.6	10:39:24		49.6	49.
40.3	10:30:27		40.3	40.3	54.3	10:39:27		54.3	54.
38.1	10:30:30		38.1	38.1	47.8	10:39:30		47.8	47.
37.4	10:30:33		37.4	37.4	48.8	10:39:33		48.8	48.
37.5	10:30:36		37.5	37.5	51.2	10:39:36		51.2	51.
39.2	10:30:39		39.2	39.2	51	10:39:39		51	5
39.8	10:30:42		39.8	39.8	50.6	10:39:42		50.6	50.
39.5	10:30:45		39.5	39.5	44.9	10:39:45		44.9	44.
38.5	10:30:48		38.5	38.5	47.5	10:39:48		47.5	47.
44.2	10:30:51		44.2	44.2	55.7	10:39:51		55.7	55.
46.1	10:30:54		46.1	46.1	48.9	10:39:54		48.9	48.
48.2	10:30:57		48.2	48.2	50.1	10:39:57		50.1	50.
49.6	10:31:00		49.6	49.6	52.8	10:40:00		52.8	52.
47.3	10:31:03		47.3	47.3	51.2	10:40:03		51.2	51.
45.6	10:31:06		45.6	45.6	54	10:40:06		54	5
39	10:31:09		39	39	55.3	10:40:09		55.3	55.
40	10:31:12		40	40	55.9	10:40:12		55.9	55.
42.5	10:31:15		42.5	42.5	53	10:40:15		53	5
42.9	10:31:18		42.9	42.9	56.2	10:40:18		56.2	56.
42.2	10:31:21		42.2	42.2	55.5	10:40:21		55.5	55.
42.4	10:31:24		42.4	42.4	56	10:40:24		56	5
40.6	10:31:27		40.6	40.6	48.9	10:40:27		48.9	48.
37.8	10:31:30		37.8	37.8	50.1	10:40:30		50.1	50.
40.6	10:31:33		40.6	40.6	48.3	10:40:33		48.3	48.
43.8	10:31:36		43.8	43.8	48.3	10:40:36		48.3	48.
41.1	10:31:39		41.1	41.1	48.3	10:40:39		48.3	48.
39.2	10:31:42		39.2	39.2	47.7	10:40:42		47.7	47.
39.1	10:31:45		39.1	39.1	48.1	10:40:45		48.1	48.
39.4	10:31:48		39.4	39.4	47.5	10:40:48		47.5	47.
39.2	10:31:51		39.2	39.2	48.2	10:40:51		48.2	48.
39.9	10:31:54		39.9	39.9	54.7	10:40:54		54.7	54.
42.8	10:31:57		42.8	42.8	56.3	10:40:57		56.3	56.
44.1	10:32:00		44.1	44.1	51.1	10:41:00		51.1	51.
44.1	10:32:03		44.1	44.1	46.8	10:41:03		46.8	46.
51.4	10:32:06		51.4	51.4	44.5	10:41:06		44.5	44.
46.7	10:32:09		46.7	46.7	46.8	10:41:09		46.8	46.
41.3	10:32:12		41.3	41.3	47.9	10:41:12		47.9	47.
41.6	10:32:15		41.6	41.6	51.5	10:41:15		51.5	51.
43.5	10:32:18		43.5	43.5	51.3	10:41:18		51.3	51.
38.8	10:32:21		38.8	38.8	49.6	10:41:21		49.6	49.
36.4	10:32:24		36.4	36.4	48.3	10:41:24		48.3	48.
36.4	10:32:27		36.4	36.4	50.2	10:41:27		50.2	50.
38.4	10:32:30		38.4	38.4	50.5	10:41:30		50.5	50.
40.1	10:32:33		40.1	40.1	48	10:41:33		48	4
39.4	10:32:36		39.4	39.4	47.7	10:41:36		47.7	47.
38	10:32:39		38	38	49.8	10:41:39		49.8	49.
41.3	10:32:42		41.3	41.3	50	10:41:42		50	5
49	10:32:45		49	49	49	10:41:45		49	4
49.4	10:32:48		49.4	49.4	53	10:41:48		53	5
52.5	10:32:51		52.5	52.5	46.8	10:41:51		46.8	46.
66.8	10:32:54		66.8	66.8	45.4	10:41:54		45.4	45.
61.8	10:32:57		61.8	61.8	43.6	10:41:57		43.6	43.
48.1	10:33:00		48.1	48.1	43.8	10:42:00		43.8	43.
42.9	10:33:03		42.9	42.9	45.1	10:42:03		45.1	45.
44.2	10:33:06		44.2	44.2	45.9	10:42:06		45.9	45.
43.6	10:33:09		43.6	43.6	47	10:42:09		47	4
40.5	10:33:12		40.5	40.5	46.3	10:42:12		46.3	46.
42.7	10:33:15		42.7	42.7	47	10:42:15		47	4
44.1	10:33:18		44.1	44.1	49.7	10:42:18		49.7	49.
42.8	10:33:21		42.8	42.8	47.5	10:42:21		47.5	47.
41.6	10:33:24		41.6	41.6	47.8	10:42:24		47.8	47.
40.4	10:33:27		40.4	40.4	46.4	10:42:27		46.4	46.
43	10:33:30		43	43	53.8	10:42:30		53.8	53.
49.7	10:33:33		49.7	49.7	48.4	10:42:33		48.4	48.
49.9	10:33:36		49.9	49.9	46.2	10:42:36		46.2	46.
48.9	10:33:39		48.9	48.9	47.8	10:42:39		47.8	47.
46.3	10:33:42		46.3	46.3	50.3	10:42:42		50.3	50.
44.4	10:33:45		44.4	44.4	50	10:42:45		50	5
43.3	10:33:48		43.3	43.3	45.4	10:42:48		45.4	45.
42.5	10:33:51		42.5	42.5	43.4	10:42:51		43.4	43.
39.7	10:33:54		39.7	39.7	41.9	10:42:54		41.9	41.
37.9	10:33:57		37.9	37.9	43.7	10:42:57		43.7	43.
39.5	10:34:00		39.5	39.5	46	10:43:00		46	4
42.3	10:34:03		42.3	42.3	47.1	10:43:03		47.1	47.
43	10:34:06		43	43	48	10:43:06		48	4
43.7	10:34:09		43.7	43.7	50.8	10:43:09		50.8	50.
42.3	10:34:12		42.3	42.3	56.5	10:43:12		56.5	56.
50.1	10:34:15		50.1	50.1	52.5	10:43:15		52.5	52.
56.2	10:34:18		56.2	56.2	50.7	10:43:18		50.7	50.
65.3	10:34:21		65.3	65.3	54.6	10:43:21		54.6	54.
61	10:34:24		61	61	47.5	10:43:24		47.5	47.
54.3	10:34:27		54.3	54.3	45	10:43:27		45	4
48.8	10:34:30		48.8	48.8	49.9	10:43:30		49.9	49.
47.4	10:34:33		47.4	47.4	47.2	10:43:33		47.2	47.
45.7	10:34:36		45.7	45.7	46.3	10:43:36		46.3	46.
44	10:34:39		44	44	46.2	10:43:39		46.2	46.
39.5	10:34:42		39.5	39.5	46.3	10:43:42		46.3	46.
41.4	10:34:45		41.4	41.4	49.2	10:43:45		49.2	49.
39.4	10:34:48		39.4	39.4	52.5	10:43:48		52.5	52.
39.5	10:34:51		39.5	39.5	53.1	10:43:51		53.1	53.
40.6	10:34:54		40.6	40.6	46.8	10:43:54		46.8	46.
47.6	10:34:57		47.6	47.6	44.2	10:43:57		44.2	44.
50.1	10:35:00		50.1	50.1	45.3	10:44:00		45.3	45.
54.9	10:35:03		54.9	54.9	48.2	10:44:03		48.2	48.
63.6	10:35:06		63.6	63.6	45.8	10:44:06		45.8	45.
66.8	10:35:09		66.8	66.8	48.6	10:44:09		48.6	48.
56.5	10:35:12		56.5	56.5	48.1	10:44:12		48.1	48.
46.8	10:35:15		46.8	46.8	43.8	10:44:15		43.8	43.8

Site A - On Light Pole South of Project Site					Site B - On Tree North of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
41.3	10:35:18		41.3	41.3	44.6	10:44:18		44.6	44.
41.2	10:35:21		41.2	41.2	48.3	10:44:21		48.3	48.
41.8	10:35:24		41.8	41.8	51.5	10:44:24		51.5	51.
43	10:35:27		43	43	50.2	10:44:27		50.2	50.
43.7	10:35:30		43.7	43.7	53.3	10:44:30		53.3	53.
40.3	10:35:33		40.3	40.3	50.6	10:44:33		50.6	50.
38.2	10:35:36		38.2	38.2	48.2	10:44:36		48.2	48.
39.3	10:35:39		39.3	39.3	47	10:44:39		47	4
42.9	10:35:42		42.9	42.9	48.7	10:44:42		48.7	48.
45	10:35:45		45	45	46.8	10:44:45		46.8	46.
47.4	10:35:48		47.4	47.4	47.3	10:44:48		47.3	47.
41.7	10:35:51		41.7	41.7	46.5	10:44:51		46.5	46.
39	10:35:54		39	39	50.3	10:44:54		50.3	50.
38.7	10:35:57		38.7	38.7	54.5	10:44:57		54.5	54.
37.4	10:36:00		37.4	37.4	58.1	10:45:00		58.1	58.
35.6	10:36:03		35.6	35.6	57.1	10:45:03		57.1	57.
39	10:36:06		39	39	55.7	10:45:06		55.7	55.
39.4	10:36:09		39.4	39.4	50.7	10:45:09		50.7	50.
41.4	10:36:12		41.4	41.4	54.6	10:45:12		54.6	54.
41.7	10:36:15		41.7	41.7	54.4	10:45:15		54.4	54.4
39.9	10:36:18		39.9	39.9	53.8	10:45:18		53.8	53.
38.3	10:36:21		38.3	38.3	52	10:45:21		52	5
37.1	10:36:24		37.1	37.1	48.2	10:45:24		48.2	48.
40.8	10:36:27		40.8	40.8	47.3	10:45:27		47.3	47.
62.3	10:36:30		62.3	62.3	52.5	10:45:30		52.5	52.
44.2	10:36:33		44.2	44.2	50.7	10:45:33		50.7	50.
38.6	10:36:36		38.6	38.6	50.9	10:45:36		50.9	50.
40.1	10:36:39		40.1	40.1	49.8	10:45:39		49.8	49.
41.2	10:36:42		41.2	41.2	46.5	10:45:42		46.5	46.
45.6	10:36:45		45.6	45.6	45.4	10:45:45		45.4	45.4
44.8	10:36:48		44.8	44.8	44.5	10:45:48		44.5	44.
41.8	10:36:51		41.8	41.8	46	10:45:51		46	4
42	10:36:54		42	42	50.3	10:45:54		50.3	50.
46.8	10:36:57		46.8	46.8	52	10:45:57		52	5
43.6	10:37:00		43.6	43.6	44.3	10:46:00		44.3	44.
41.1	10:37:03		41.1	41.1	46	10:46:03		46	4
39.9	10:37:06		39.9	39.9	54.9	10:46:06		54.9	54.
38.8	10:37:09		38.8	38.8	57.4	10:46:09		57.4	57.4
40.4	10:37:12		40.4	40.4	56.7	10:46:12		56.7	56.
38.3	10:37:15		38.3	38.3	53	10:46:15		53	5
39	10:37:18		39	39	47.1	10:46:18		47.1	47.
40	10:37:21		40	40	43.9	10:46:21		43.9	43.
39.6	10:37:24		39.6	39.6	45.8	10:46:24		45.8	45.
39.8	10:37:27		39.8	39.8	46.6	10:46:27		46.6	46.
38.6	10:37:30		38.6	38.6	46.7	10:46:30		46.7	46.
40.2	10:37:33		40.2	40.2	46.5	10:46:33		46.5	46.
40.9	10:37:36		40.9	40.9	46.5	10:46:36		46.5	46.
38.5	10:37:39		38.5	38.5	49.2	10:46:39		49.2	49.
41.2	10:37:42		41.2	41.2	51	10:46:42		51	5
47.3	10:37:45		47.3	47.3	50.8	10:46:45		50.8	50.
43.5	10:37:48		43.5	43.5	53.6	10:46:48		53.6	53.
42.3	10:37:51		42.3	42.3	59.6	10:46:51		59.6	59.
42.1	10:37:54		42.1	42.1	53.2	10:46:54		53.2	53.
42.8	10:37:57		42.8	42.8	51.9	10:46:57		51.9	51.
47	10:38:00	52.6	47	47	52.7	10:47:00	52.7	52.7	52.
48.1	10:38:03	52.6	48.1	48.1	52	10:47:03	52.7	52	5
49.3	10:38:06	52.5	49.3	49.3	48.7	10:47:06	52.7	48.7	48.
48.1	10:38:09	52.4	48.1	48.1	44	10:47:09	52.7	44	4
45.9	10:38:12	52.4	45.9	45.9	42.5	10:47:12	52.6	42.5	42.
44.3	10:38:15	52.4	44.3	44.3	45.6	10:47:15	52.6	45.6	45.
44.5	10:38:18	52.4	44.5	44.5	45.3	10:47:18	52.6	45.3	45.
41.7	10:38:21	52.4	41.7	41.7	46.9	10:47:21	52.4	46.9	46.
41.2	10:38:24	52.3	41.2	41.2	47.8	10:47:24	52.4	47.8	47.
40.4	10:38:27	52.2	40.4	40.4	44.5	10:47:27	52.3	44.5	44.
39.1	10:38:30	52.2	39.1	39.1	48.1	10:47:30	52.3	48.1	48.
44.2	10:38:33	52.2	44.2	44.2	50.4	10:47:33	52.3	50.4	50.4
43.9	10:38:36	52.2	43.9	43.9	47.6	10:47:36	52.3	47.6	47.
41.7	10:38:39	52.2	41.7	41.7	48.2	10:47:39	52.3	48.2	48.
45.6	10:38:42	52.1	45.6	45.6	45	10:47:42	52.3	45	4
45	10:38:45	52.1	45	45	53.7	10:47:45	52.2	53.7	53.
41.1	10:38:48	52.1	41.1	41.1	52.9	10:47:48	52.2	52.9	52.
39.1	10:38:51	52.1	39.1	39.1	51.3	10:47:51	52.2	51.3	51.
47.8	10:38:54	52.0	47.8	47.8	56.3	10:47:54	52.2	56.3	56.
57.2	10:38:57	52.0	57.2	57.2	54.5	10:47:57	52.1	54.5	54.
54.9	10:39:00	51.8	54.9	54.9	52	10:48:00	52.1	52	5
53.2	10:39:03	51.8	53.2	53.2	50.7	10:48:03	52.1	50.7	50.
52	10:39:06	51.7	52	52	52.9	10:48:06	52.0	52.9	52.
54.1	10:39:09	51.7	54.1	54.1	47.3	10:48:09	52.0	47.3	47.
47.3	10:39:12	51.4	47.3	47.3	43.4	10:48:12	51.9	43.4	43.4
44.7	10:39:15	51.3	44.7	44.7	42.7	10:48:15	51.9	42.7	42.
42.6	10:39:18	51.3	42.6	42.6	43.9	10:48:18	51.9	43.9	43.
41	10:39:21	51.1	41	41	45.4	10:48:21	51.9	45.4	45.4
41.3	10:39:24	51.0	41.3	41.3	46.8	10:48:24	51.9	46.8	46.
43.1	10:39:27	51.0	43.1	43.1	47.7	10:48:27	51.9	47.7	47.
44.7	10:39:30	50.9	44.7	44.7	55.3	10:48:30	51.9	55.3	55.
42.5	10:39:33	50.8	42.5	42.5	48.7	10:48:33	51.7	48.7	48.
44.4	10:39:36	50.6	44.4	44.4	52.4	10:48:36	51.7	52.4	52.4
44.9	10:39:39	50.6	44.9	44.9	54	10:48:39	51.7	54	5
43.9	10:39:42	50.5	43.9	43.9	54.6	10:48:42	51.6	54.6	54.
40.1	10:39:45	50.5	40.1	40.1	53.2	10:48:45	51.6	53.2	53.
41.7	10:39:48	50.5	41.7	41.7	47.3	10:48:48	51.6	47.3	47.
37.9	10:39:51	50.4	37.9	37.9	45.1	10:48:51	51.6	45.1	45.
38.9	10:39:54	50.3	38.9	38.9	49.7	10:48:54	51.6	49.7	49.
39	10:39:57	50.3	39	39	58.1	10:48:57	51.6	58.1	58.
41.3	10:40:00	50.2	41.3	41.3	55.4	10:49:00	51.6	55.4	55.4
43.7	10:40:03	50.2	43.7	43.7	50.9	10:49:03	51.5	50.9	50.
44.7	10:40:06	50.1	44.7	44.7	46	10:49:06	51.5	46	4
45.3	10:40:09	50.0	45.3	45.3	47.2	10:49:09	51.5	47.2	47.
44	10:40:12	49.9	44	44	53	10:49:12	51.5	53	5
45.4	10:40:15	49.8	45.4	45.4	55.1	10:49:15	51.5	55.1	55.
47.2	10:40:18	49.8	47.2	47.2	48	10:49:18	51.5	48	4
45.7	10:40:21	49.7	45.7	45.7	44.2	10:49:21	51.5	44.2	44.
43.8	10:40:24	49.7	43.8	43.8	42.5	10:49:24	51.5	42.5	42.
45.2	10:40:27	49.7	45.2	45.2	42.4	10:49:27	51.5	42.4	42.4
46	10:40:30	49.7	46	46	44.2	10:49:30	51.5	44.2	44.
44.8	10:40:33	49.6	44.8	44.8	50.3	10:49:33	51.5	50.3	50.
43.9	10:40:36	49.4	43.9	43.9	55	10:49:36	51.5	55	5
42.9	10:40:39	49.3	42.9	42.9	49.9	10:49:39	51.5	49.9	49.9
41.9	10:40:42	49.3	41.9	41.9	48	10:49:42	51.5	48	48

APPENDIX C

RCNM Model Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/13/2017
Case Description: MV Gas Station - Site Prep

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes on S Side (	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		75	0
Scraper	No	40		83.6	125	0
Tractor	No	40	84		175	0

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		81.5	77.5	N/A	N/A	N/A	N/A
Scraper		75.6	71.6	N/A	N/A	N/A	N/A
Tractor		73.1	69.1	N/A	N/A	N/A	N/A
	Total	**82**	**79**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Home Adjacent to	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		15	5
Scraper	No	40		83.6	65	5
Tractor	No	40.0	84		115	5

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		90.5	86.5	N/A	N/A	N/A	N/A
Scraper		76.3	72.3	N/A	N/A	N/A	N/A
Tractor		71.8	67.8	N/A	N/A	N/A	N/A
	Total	**91**	**87**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on N Side	Residential	53.1	53.1	53.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		110	5
Scraper	No	40		83.6	160	5
Tractor	No	40	84		210	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		73.2	69.2	N/A	N/A	N/A	N/A
Scraper		68.5	64.5	N/A	N/A	N/A	N/A
Tractor		66.5	62.6	N/A	N/A	N/A	N/A
	Total	**73**	**71**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/13/2017
Case Description: MV Gas Station - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on S Side of Via	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		75	0
Dozer	No	40		81.7	125	0
Tractor	No	40	84		175	0
Tractor	No	40	84		225	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		81.5	77.5	N/A	N/A	N/A	N/A
Dozer		73.7	69.7	N/A	N/A	N/A	N/A
Tractor		73.1	69.1	N/A	N/A	N/A	N/A
Tractor		70.9	67.0	N/A	N/A	N/A	N/A
	Total	**82**	**79**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Home Adjacent to S Sic	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40.0	85		15	5
Dozer	No	40		81.7	65	5
Tractor	No	40	84		115	5
Tractor	No	40	84		165	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		90.5	86.5	N/A	N/A	N/A	N/A
Dozer		74.4	70.4	N/A	N/A	N/A	N/A
Tractor		71.8	67.8	N/A	N/A	N/A	N/A
Tractor		68.6	64.7	N/A	N/A	N/A	N/A
	Total	**91**	**87**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on N Side of Jo	Residential	53.1	53.1	53.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		110	5
Dozer	No	40		81.7	160	5
Tractor	No	40	84		210	5
Tractor	No	40	84		260	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		73.2	69.2	N/A	N/A	N/A	N/A
Dozer		66.6	62.6	N/A	N/A	N/A	N/A
Tractor		66.5	62.6	N/A	N/A	N/A	N/A
Tractor		64.7	60.7	N/A	N/A	N/A	N/A
	Total	**73**	**71**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/13/2017
Case Description: MV Gas Station - Building Construction

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes on S Side of '	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	133	0
Gradall	No	40		83.4	183	0
Gradall	No	40		83.4	233	0
Generator	No	50		80.6	283	0
Welder / Torch	No	40		74	333	0
Welder / Torch	No	40		74	383	0
Welder / Torch	No	40		74	433	0
Tractor	No	40	84		483	0

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	72.1	64.1	N/A	N/A	N/A	N/A
Gradall	72.1	68.2	N/A	N/A	N/A	N/A
Gradall	70.0	66.1	N/A	N/A	N/A	N/A
Generator	65.6	62.6	N/A	N/A	N/A	N/A
Welder / Torch	57.5	53.6	N/A	N/A	N/A	N/A
Welder / Torch	56.3	52.3	N/A	N/A	N/A	N/A
Welder / Torch	55.2	51.3	N/A	N/A	N/A	N/A
Tractor	64.3	60.3	N/A	N/A	N/A	N/A
Total	**72**	**72**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Home Adjacent to S	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	145	5
Gradall	No	40		83.4	195	5
Gradall	No	40		83.4	245	5
Generator	No	50		80.6	295	5
Welder / Torch	No	40		74	345	5
Welder / Torch	No	40		74	395	5
Welder / Torch	No	40		74	445	5
Tractor	No	40	84		495	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Crane		66.3	58.3	N/A	N/A	N/A	N/A
Gradall		66.6	62.6	N/A	N/A	N/A	N/A
Gradall		64.6	60.6	N/A	N/A	N/A	N/A
Generator		60.2	57.2	N/A	N/A	N/A	N/A
Welder / Torch		52.2	48.2	N/A	N/A	N/A	N/A
Welder / Torch		51.0	47.1	N/A	N/A	N/A	N/A
Welder / Torch		50.0	46.0	N/A	N/A	N/A	N/A
Tractor		59.1	55.1	N/A	N/A	N/A	N/A
	Total	**67**	**67**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on N Side of	Residential	53.1	53.1	53.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	185	5
Gradall	No	40		83.4	235	5
Gradall	No	40		83.4	285	5
Generator	No	50		80.6	335	5
Welder / Torch	No	40		74	385	5
Welder / Torch	No	40		74	435	5
Welder / Torch	No	40		74	485	5
Tractor	No	40	84		535	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Crane		64.2	56.2	N/A	N/A	N/A	N/A
Gradall		65.0	61.0	N/A	N/A	N/A	N/A
Gradall		63.3	59.3	N/A	N/A	N/A	N/A
Generator		59.1	56.1	N/A	N/A	N/A	N/A
Welder / Torch		51.3	47.3	N/A	N/A	N/A	N/A
Welder / Torch		50.2	46.2	N/A	N/A	N/A	N/A
Welder / Torch		49.3	45.3	N/A	N/A	N/A	N/A
Tractor		58.4	54.4	N/A	N/A	N/A	N/A
	Total	**65**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/13/2017
Case Description: MV Gas Station - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on S Side of Vi	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	95	0
Paver	No	50		77.2	145	0
Paver	No	50		77.2	195	0
Roller	No	20		80	245	0
Roller	No	20		80	295	0
Tractor	No	40	84		345	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Concrete Mixer Truck		73.2	69.2	N/A	N/A	N/A	N/A
Paver		68.0	65.0	N/A	N/A	N/A	N/A
Paver		65.4	62.4	N/A	N/A	N/A	N/A
Roller		66.2	59.2	N/A	N/A	N/A	N/A
Roller		64.6	57.6	N/A	N/A	N/A	N/A
Tractor		67.2	63.2	N/A	N/A	N/A	N/A
	Total	**73**	**72**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Home Adjacent to S Si	Residential	57	57	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	30	5
Paver	No	50		77.2	80	5
Paver	No	50		77.2	130	5
Roller	No	20		80	180	5
Roller	No	20		80	230	5
Tractor	No	40	84		280	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Concrete Mixer Truck		78.2	74.3	N/A	N/A	N/A	N/A
Paver		68.1	65.1	N/A	N/A	N/A	N/A
Paver		63.9	60.9	N/A	N/A	N/A	N/A
Roller		63.9	56.9	N/A	N/A	N/A	N/A
Roller		61.7	54.8	N/A	N/A	N/A	N/A
Tractor		64.0	60.1	N/A	N/A	N/A	N/A
	Total	**78**	**75**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on N Side of J‹	Residential	53.1	53.1	53.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	110	5
Paver	No	50		77.2	160	5
Paver	No	50		77.2	210	5
Roller	No	20		80	260	5
Roller	No	20		80	310	5
Tractor	No	40	84		360	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Concrete Mixer Truck		67.0	63.0	N/A	N/A	N/A	N/A
Paver		62.1	59.1	N/A	N/A	N/A	N/A
Paver		59.8	56.7	N/A	N/A	N/A	N/A
Roller		60.7	53.7	N/A	N/A	N/A	N/A
Roller		59.2	52.2	N/A	N/A	N/A	N/A
Tractor		61.9	57.9	N/A	N/A	N/A	N/A
	Total	**67**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/13/2017
Case Description: MV Gas Station - Painting

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on S Side of	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	133	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)		69.2	65.2	N/A	N/A	N/A	N/A
	Total	**69**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Home Adjacent to S	Residential	56.8	56.8	56.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	145	5

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)		63.4	59.4	N/A	N/A	N/A	N/A
	Total	**63**	**59**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes on N Side of	Residential	53.1	53.1	53.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	185	5

		Results					
		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		61.3	57.3	N/A	N/A	N/A	N/A
	Total	**61**	**57**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

Operational Reference Noise Measurements

General Information

Serial Number	02509
Model	831
Firmware Version	2.112
Filename	831_Data.005
User	GT
Job Description	Northwest Fresno Walmart Relocation
Location	Rooftop HVAC Unit
Measurement Description	
Start Time	Saturday, 2013 July 27 18:31:43
Stop Time	Saturday, 2013 July 27 18:41:44
Duration	00:10:01.1
Run Time	00:10:01.1
Pause	00:00:00.0
Pre Calibration	Saturday, 2013 July 27 17:53:07
Post Calibration	None
Calibration Deviation	---

Note

Located 10 feet southeast of rooftop HVAC Unit 14 located on western side of roof
94 F, 30% Hu., 29.45 in Hg, no wind, partly cloudy

Overall Data

LAeq		66.6	dB
LASmax	2013 Jul 27 18:33:16	67.6	dB
LApeak (max)	2013 Jul 27 18:32:17	81.6	dB
LASmin	2013 Jul 27 18:41:08	65.8	dB
LCeq		75.8	dB
LAeq		66.6	dB
LCeq - LAeq		9.2	dB
LAIeq		67.2	dB
LAeq		66.6	dB
LAIeq - LAeq		0.6	dB
Ldn		66.6	dB
LDay 07:00-23:00		66.6	dB
LNight 23:00-07:00		---	dB
Lden		66.6	dB
LDay 07:00-19:00		66.6	dB
LEvening 19:00-23:00		---	dB
LNight 23:00-07:00		---	dB
LAE		94.4	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		0	
OBA Overload Duration		0.0	s

Statistics

LAS5.00	67.0	dBA
LAS10.00	66.9	dBA
LAS33.30	66.7	dBA
LAS50.00	66.6	dBA
LAS66.60	66.5	dBA
LAS90.00	66.3	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	1 / 601.1	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamp	PRM831	
Integration Method	Linear	
OBA Range	Normal	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	Z Weighting	
OBA Max Spectrum	Bin Max	
Gain	+0	dB
Under Range Limit	26.2	dB
Under Range Peak	75.8	dB
Noise Floor	17.1	dB
Overload	143.4	dB

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LZeq	70.9	64.4	61.4	74.2	68.2	64.9	66.3	61.7	55.1	49.9	44.3	44.0
LZSmax	83.8	78.9	70.0	78.4	72.3	66.1	67.8	63.1	56.9	53.2	46.7	45.4
LZSmin	53.2	56.5	56.7	67.7	66.1	63.5	65.0	60.7	53.9	48.4	43.2	43.7

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LZeq	68.1	65.7	63.2	61.0	58.0	59.3	56.0	57.8	55.8	69.7	72.0	59.3
LZSmax	82.3	79.5	78.7	77.2	72.8	72.3	67.9	63.5	64.0	74.2	76.1	72.0
LZSmin	41.9	46.3	48.8	48.7	46.5	49.7	50.1	51.8	41.2	63.9	67.9	54.5

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25
LZeq	61.6	63.7	64.5	59.0	58.7	60.9	63.2	60.8	59.9	59.2	56.1	54.6
LZSmax	71.3	68.0	67.3	61.6	61.7	64.1	65.5	64.2	62.0	60.7	57.6	58.6
LZSmin	52.9	60.0	57.2	45.1	56.0	58.9	61.1	58.4	58.4	57.1	54.9	53.3

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LZeq	52.0	49.8	48.4	46.4	45.4	42.8	41.1	38.6	38.5	38.4	39.0	40.2
LZSmax	54.4	52.3	51.2	50.2	49.7	45.7	45.4	41.6	40.4	40.4	41.4	41.3
LZSmin	50.9	48.4	46.9	45.0	43.7	41.4	39.6	37.5	37.9	38.0	38.7	39.9

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	27 Jul 2013 17:53:07	-25.9
PRM831	27 Jul 2013 13:36:08	-25.6
PRM831	28 Apr 2013 15:34:24	-25.9
PRM831	23 Apr 2013 10:17:33	-25.0
PRM831	27 Feb 2013 19:15:30	-25.7
PRM831	24 Jan 2013 12:00:16	-25.6
PRM831	15 Jan 2013 07:50:44	-26.2
PRM831	04 Jan 2013 13:47:46	-26.5

General Information

Serial Number	02509
Model	831
Firmware Version	2.112
Filename	831_Data.002
User	GT
Job Description	Northwest Fresno Walmart Relocation
Location	Northwest Fresno Walmart
Measurement Description	
Start Time	Saturday, 2013 July 27 15:49:15
Stop Time	Saturday, 2013 July 27 16:09:15
Duration	00:20:00.6
Run Time	00:20:00.6
Pause	00:00:00.0
Pre Calibration	Saturday, 2013 July 27 13:36:08
Post Calibration	None
Calibration Deviation	---

Note

Located at the eastern portion of the southern parking lot and approx 140 feet south of the front door
96 F, 35% Humidity, 29.48 in Hg, 3 mph wind, partly cloudy

Overall Data

LAeq		63.1	dB
LASmax	2013 Jul 27 15:59:44	79.2	dB
LApeak (max)	2013 Jul 27 16:06:25	102.2	dB
LASmin	2013 Jul 27 15:50:20	49.6	dB
LCeq		74.0	dB
LAeq		63.1	dB
LCeq - LAeq		10.9	dB
LAIeq		67.4	dB
LAeq		63.1	dB
LAIeq - LAeq		4.3	dB
Ldn		63.1	dB
LDay 07:00-23:00		63.1	dB
LNight 23:00-07:00		---	dB
Lden		63.1	dB
LDay 07:00-19:00		63.1	dB
LEvening 19:00-23:00		---	dB
LNight 23:00-07:00		---	dB
LAE		93.9	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		0	
OBA Overload Duration		0.0	s

Statistics

LAS5.00	66.7	dBA
LAS10.00	66.3	dBA
LAS33.30	62.8	dBA
LAS50.00	61.7	dBA
LAS66.60	57.7	dBA
LAS90.00	52.8	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	17 / 347.8	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamp	PRM831	
Integration Method	Linear	
OBA Range	Normal	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	Z Weighting	
OBA Max Spectrum	Bin Max	
Gain	+0	dB
Under Range Limit	26.1	dB
Under Range Peak	75.6	dB
Noise Floor	17.0	dB
Overload	143.1	dB

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LZeq	66.7	66.1	71.1	71.6	64.9	59.5	59.6	58.3	56.2	51.8	46.8	44.6
LZSmax	82.6	84.9	82.2	89.3	77.1	67.1	72.4	76.6	76.6	69.0	67.7	63.1
LZSmin	46.5	55.4	53.6	59.0	55.2	49.9	45.5	43.6	40.9	37.7	39.6	42.8

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LZeq	63.6	61.5	59.8	58.7	60.7	63.4	67.2	66.6	65.3	65.7	67.5	67.2
LZSmax	80.9	76.9	73.6	75.5	79.8	83.7	80.9	76.8	78.9	83.8	87.4	88.8
LZSmin	37.3	40.3	43.7	45.3	48.2	51.5	55.9	60.4	54.9	53.2	57.5	47.0
Freq. (Hz):	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**	**630**	**800**	**1k**	**1.25**
LZeq	61.7	61.0	54.9	52.9	57.0	53.2	57.3	54.1	52.1	54.5	53.3	52.7
LZSmax	76.0	71.0	69.8	65.8	64.6	65.6	67.0	71.0	67.1	65.9	72.9	73.0
LZSmin	52.1	48.8	46.7	42.4	46.2	44.6	43.2	38.5	38.6	39.0	39.4	38.2
Freq. (Hz):	**1.6k**	**2k**	**2.5k**	**3.15k**	**4k**	**5k**	**6.3k**	**8k**	**10k**	**12.5k**	**16k**	**20k**
LZeq	52.5	50.9	50.7	49.0	46.4	44.5	43.0	41.7	41.1	40.0	39.6	40.0
LZSmax	75.9	69.6	63.7	63.8	64.4	64.7	63.3	62.7	62.7	60.8	57.9	52.5
LZSmin	37.2	35.4	34.6	33.1	32.6	32.8	33.6	34.7	35.9	36.7	37.7	39.4

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	27 Jul 2013 13:36:08	-25.6
PRM831	28 Apr 2013 15:34:24	-25.9
PRM831	23 Apr 2013 10:17:33	-25.0
PRM831	27 Feb 2013 19:15:30	-25.7
PRM831	24 Jan 2013 12:00:16	-25.6
PRM831	15 Jan 2013 07:50:44	-26.2
PRM831	04 Jan 2013 13:47:46	-26.5

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\15.slmdl
Model/Serial Number: 824 / A3176
Firmware/Software Revs: 4.283 / 3.120
Name:
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup/Setup Descr: slm&rta.ssa / SLM & Real-Time Analyzer
Location: 30' N of vendor truck loading area for Fresno Walmart
Note1: Approx 70' S of Locust Ave CL
Note2: 52F, 29.57 in Hg, 67% Humid., no wind, clear sky

Overall Any Data
Start Time: 19-May-2011 07:05:53
Elapsed Time: 00:08:30.5

	A Weight	C Weight	Flat
Leq:	54.8 dBA	65.1 dBC	66.1 dBF
SEL:	81.9 dBA	92.2 dBC	93.2 dBF
Peak:	85.2 dBA	85.8 dBC	86.0 dBF
	19-May-2011 07:09:58	19-May-2011 07:09:52	19-May-2011 07:09:52
Lmax (slow):	67.9 dBA	73.2 dBC	73.8 dBF
	19-May-2011 07:09:50	19-May-2011 07:13:57	19-May-2011 07:13:57
Lmin (slow):	43.7 dBA	60.0 dBC	61.6 dBF
	19-May-2011 07:11:17	19-May-2011 07:06:52	19-May-2011 07:06:51
Lmax (fast):	70.7 dBA	75.5 dBC	75.7 dBF
	19-May-2011 07:09:58	19-May-2011 07:11:34	19-May-2011 07:11:34
Lmin (fast):	43.1 dBA	57.8 dBC	58.9 dBF
	19-May-2011 07:11:17	19-May-2011 07:09:10	19-May-2011 07:09:10
Lmax (impulse):	72.1 dBA	76.8 dBC	77.1 dBF
	19-May-2011 07:09:58	19-May-2011 07:11:34	19-May-2011 07:11:34
Lmin (impulse):	43.6 dBA	61.1 dBC	62.4 dBF
	19-May-2011 07:11:17	19-May-2011 07:06:51	19-May-2011 07:09:10

Spectra

Date	Time	Run Time
19-May-2011	07:05:53	00:08:30.5

Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1	Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1
12.5	50.2		56.3		35.5		630	46.5		61.4		31.0	
16.0	50.9	55.5	56.1	61.5	37.1	41.8	800	45.4		60.8		30.5	
20.0	51.0		57.6		38.0		1000	44.5	49.3	56.1	63.9	31.7	35.6
25.0	55.8		57.5		41.1		1250	43.5		59.4		30.2	
31.5	57.7	61.6	57.1	63.3	46.2	49.9	1600	42.6		56.3		28.1	
40.0	56.7		60.3		46.3		2000	41.1	46.1	56.4	61.9	24.9	30.4
50.0	56.8		57.9		44.0		2500	40.0		58.4		21.7	
63.0	55.7	61.0	56.5	62.1	45.9	49.1	3150	40.2		60.8		19.4	
80.0	56.2		57.4		42.2		4000	39.5	43.8	58.6	63.4	18.7	24.1
100	55.6		55.1		42.3		5000	36.7		54.4		19.7	
125	54.3	59.2	59.0	63.8	40.7	45.7	6300	32.8		50.2		21.5	
160	52.8		61.0		39.4		8000	30.2	35.2	57.7	58.5	21.2	25.9
200	51.1		57.3		35.5		10000	25.4		41.5		20.5	
250	51.4	55.2	70.6	71.0	34.6	39.0	12500	22.9		32.2		19.4	
315	48.2		58.2		32.0		16000	20.8	26.5	27.4	33.9	19.1	24.4
400	47.0		59.0		30.1		20000	21.2		23.8		20.3	
500	47.0	51.6	64.3	66.9	30.4	35.3							

Ln Start Level: 15 dB

L1.00	0.0 dBA	L50.00	0.0 dBA	L95.00	0.0 dBA
L5.00	0.0 dBA	L90.00	0.0 dBA	L99.00	0.0 dBA

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
SPL Exceedance level 2: 120 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105 dB Exceeded: 0 times
Peak-2 Exceedance Level: 100 dB Exceeded: 0 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\15.slmdl
Model/Serial Number: 824 / A3176

Current Any Data
Start Time: 19-May-2011 07:05:53
Elapsed Time: 00:08:30.5

	A Weight	C Weight	Flat
Leq:	54.8 dBA	65.1 dBC	66.1 dBF
SEL:	81.9 dBA	92.2 dBC	93.2 dBF
Peak:	85.2 dBA	85.8 dBC	86.0 dBF
	19-May-2011 07:09:58	19-May-2011 07:09:52	19-May-2011 07:09:52
Lmax (slow):	67.9 dBA	73.2 dBC	73.8 dBF
	19-May-2011 07:09:50	19-May-2011 07:13:57	19-May-2011 07:13:57
Lmin (slow):	43.7 dBA	60.0 dBC	61.6 dBF
	19-May-2011 07:11:17	19-May-2011 07:06:52	19-May-2011 07:06:51
Lmax (fast):	70.7 dBA	75.5 dBC	75.7 dBF
	19-May-2011 07:09:58	19-May-2011 07:11:34	19-May-2011 07:11:34
Lmin (fast):	43.1 dBA	57.8 dBC	58.9 dBF
	19-May-2011 07:11:17	19-May-2011 07:09:10	19-May-2011 07:09:10
Lmax (impulse):	72.1 dBA	76.8 dBC	77.1 dBF
	19-May-2011 07:09:58	19-May-2011 07:11:34	19-May-2011 07:11:34
Lmin (impulse):	43.6 dBA	61.1 dBC	62.4 dBF
	19-May-2011 07:11:17	19-May-2011 07:06:51	19-May-2011 07:09:10

Calibrated:	18-May-2011 13:09:02	Offset:	-48.2 dB
Checked:	19-May-2011 06:46:08	Level:	113.9 dB
Calibrator	not set	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Disabled	Number Interval Records:	0
History Records:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\6.slmdl
Model/Serial Number: 824 / A3176
Firmware/Software Revs: 4.283 / 3.120
Name:
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup/Setup Descr: slm&rta.ssa / SLM & Real-Time Analyzer
Location: At Palm Bluff Car Wash North of project site
Note1: Approx 30' S of carwash exit and 25' S of vacuum unit behind 6' wall
Note2: 70F, 29.43 in Hg, 27% Humid., 4 mph wind, partly cloudy

Overall Any Data
Start Time: 18-May-2011 14:50:49
Elapsed Time: 00:13:00.3

	A Weight	C Weight	Flat
Leq:	76.2 dBA	79.5 dBC	80.1 dBF
SEL:	105.1 dBA	108.5 dBC	109.0 dBF
Peak:	101.0 dBA	99.8 dBC	100.8 dBF
	18-May-2011 14:53:38	18-May-2011 14:59:24	18-May-2011 14:59:11
Lmax (slow):	84.0 dBA	86.9 dBC	87.3 dBF
	18-May-2011 14:59:24	18-May-2011 14:59:24	18-May-2011 14:51:14
Lmin (slow):	67.8 dBA	73.7 dBC	74.1 dBF
	18-May-2011 14:56:54	18-May-2011 14:55:00	18-May-2011 14:55:00
Lmax (fast):	87.1 dBA	90.9 dBC	90.9 dBF
	18-May-2011 14:58:47	18-May-2011 14:58:47	18-May-2011 14:58:47
Lmin (fast):	67.6 dBA	72.9 dBC	73.3 dBF
	18-May-2011 14:56:53	18-May-2011 14:54:54	18-May-2011 14:54:54
Lmax (impulse):	88.8 dBA	92.7 dBC	92.7 dBF
	18-May-2011 14:58:47	18-May-2011 14:58:47	18-May-2011 14:58:47
Lmin (impulse):	67.7 dBA	74.0 dBC	74.3 dBF
	18-May-2011 14:56:52	18-May-2011 15:02:56	18-May-2011 14:54:54

Spectra

Date	Time	Run Time
18-May-2011	14:50:49	00:13:00.3

Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1	Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1
12.5	65.8		61.0		35.9		630	68.1		76.4		58.3	
16.0	63.6	68.9	63.6	67.0	39.1	44.7	800	66.5		74.3		56.2	
20.0	62.0		61.6		42.4		1000	66.5	71.1	74.1	79.0	57.9	61.1
25.0	60.4		67.3		41.6		1250	66.0		74.3		54.3	
31.5	63.3	66.3	69.7	72.7	46.4	50.3	1600	67.3		75.6		53.9	
40.0	60.1		65.9		47.0		2000	63.8	69.8	71.8	77.9	52.4	57.4
50.0	60.9		67.2		48.8		2500	62.6		70.1		51.0	
63.0	71.0	73.1	76.8	79.9	63.4	64.5	3150	59.5		68.4		48.5	
80.0	68.2		76.6		57.4		4000	57.9	62.9	67.4	72.0	47.3	52.6
100	66.7		73.3		54.8		5000	56.3		65.2		47.5	
125	65.1	70.4	77.3	79.9	56.3	59.8	6300	54.7		63.1		45.8	
160	64.8		73.5		53.5		8000	52.7	57.6	60.6	65.6	44.4	49.1
200	63.6		73.8		50.0		10000	49.6		56.6		41.9	
250	66.3	70.4	74.9	79.8	56.7	59.6	12500	46.2		52.3		38.7	
315	66.5		76.1		55.3		16000	41.9	47.8	47.0	53.6	34.2	40.3
400	66.5		73.9		56.7		20000	35.3		39.2		27.4	
500	70.8	73.6	82.3	83.8	56.2	61.9							

Ln Start Level: 15 dB

L1.00	0.0 dBA	L50.00	0.0 dBA	L95.00	0.0 dBA
L5.00	0.0 dBA	L90.00	0.0 dBA	L99.00	0.0 dBA

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
SPL Exceedance level 2: 120 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105 dB Exceeded: 0 times
Peak-2 Exceedance Level: 100 dB Exceeded: 1 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\6.slmdl
Model/Serial Number: 824 / A3176

Current Any Data
Start Time: 18-May-2011 14:50:49
Elapsed Time: 00:13:00.3

	A Weight	C Weight	Flat
Leq:	76.2 dBA	79.5 dBC	80.1 dBF
SEL:	105.1 dBA	108.5 dBC	109.0 dBF
Peak:	101.0 dBA	99.8 dBC	100.8 dBF
	18-May-2011 14:53:38	18-May-2011 14:59:24	18-May-2011 14:59:11
Lmax (slow):	84.0 dBA	86.9 dBC	87.3 dBF
	18-May-2011 14:59:24	18-May-2011 14:59:24	18-May-2011 14:51:14
Lmin (slow):	67.8 dBA	73.7 dBC	74.1 dBF
	18-May-2011 14:56:54	18-May-2011 14:55:00	18-May-2011 14:55:00
Lmax (fast):	87.1 dBA	90.9 dBC	90.9 dBF
	18-May-2011 14:58:47	18-May-2011 14:58:47	18-May-2011 14:58:47
Lmin (fast):	67.6 dBA	72.9 dBC	73.3 dBF
	18-May-2011 14:56:53	18-May-2011 14:54:54	18-May-2011 14:54:54
Lmax (impulse):	88.8 dBA	92.7 dBC	92.7 dBF
	18-May-2011 14:58:47	18-May-2011 14:58:47	18-May-2011 14:58:47
Lmin (impulse):	67.7 dBA	74.0 dBC	74.3 dBF
	18-May-2011 14:56:52	18-May-2011 15:02:56	18-May-2011 14:54:54

Calibrated: 18-May-2011 13:09:02 Offset: -48.2 dB
Checked: 19-May-2011 06:46:08 Level: 113.9 dB
Calibrator not set Level: 114.0 dB
Cal Records Count: 0

Interval Records: Disabled Number Interval Records: 0
History Records: Disabled Number History Records: 0
Run/Stop Records: Number Run/Stop Records: 2

Attachment: Noise Impact Analysis (3058 : Moreno Beach Commercial Center)

SLM & RTA Summary
Translated: 17-Dec-2009 17:03:09

File Translated: Z:\Vista Env\2007\070704 - Redlands Walmart\Noise Measurements\Car Wash\17Dec13s.slmdl
Model Number: 824
Serial Number: A3176
Firmware Rev: 4.283
Software Version: 3.120
Name:
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup: SLM&RTA.ssa
Setup Descr: SLM & Real-Time Analyzer
Location: 10 ft from car wash exit
Note 1: Chevron at 6320 Sand Cyn Rd, Irvine
Note 2: 72 deg Fahren,, 29.70 in HG, 42% humidity, no wind, partly cloudy

Overall Any Data
Start Time: 17-Dec-2009 13:46:34
Elapsed Time: 00:03:38.8

	A Weight	C Weight	Flat
Leq:	73.1 dBA	78.3 dBC	78.7 dBF
SEL:	96.5 dBA	101.7 dBC	102.1 dBF
Peak:	96.3 dBA	96.5 dBC	96.7 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:48:41	17-Dec-2009 13:48:41
Lmax (slow):	79.9 dBA	85.0 dBC	85.6 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:46:46	17-Dec-2009 13:46:46
Lmin (slow):	55.9 dBA	65.1 dBC	66.2 dBF
	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22
Lmax (fast):	83.7 dBA	87.8 dBC	88.4 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:46:45	17-Dec-2009 13:46:45
Lmin (fast):	55.6 dBA	64.0 dBC	64.9 dBF
	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22
Lmax (impulse):	85.6 dBA	88.6 dBC	89.2 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:46:45	17-Dec-2009 13:46:45
Lmin (impulse):	55.8 dBA	65.8 dBC	67.2 dBF
	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22

Spectra
Start Time: 17-Dec-2009 13:46:34 Run Time: 00:03:38.8

Freq	Leq 1/3	Leq 1/1	Max 1/3	Max 1/1	Min 1/3	Min 1/1
12.5 Hz	59.5		69.0		36.5	
16.0 Hz	60.2	64.6	65.2	71.5	37.9	44.4
20.0 Hz	59.9		64.7		42.2	
25.0 Hz	62.9		64.8		46.0	
31.5 Hz	62.4	68.8	70.7	74.4	48.7	53.2
40.0 Hz	65.9		71.1		49.8	
50.0 Hz	63.8		73.0		48.1	
63.0 Hz	69.7	72.8	71.2	77.4	51.3	54.9
80.0 Hz	68.6		73.4		50.4	
100 Hz	67.1		75.3		45.6	
125 Hz	67.6	71.7	74.6	79.1	52.2	54.1
160 Hz	65.8		72.5		47.2	
200 Hz	66.6		72.5		46.0	
250 Hz	64.0	70.1	68.1	78.4	42.2	48.9
315 Hz	65.0		76.6		43.3	
400 Hz	64.6		73.5		43.9	
500 Hz	64.6	69.8	73.7	78.5	44.0	48.8

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630 Hz	65.9		74.1		44.1	
800 Hz	67.9		75.0		44.3	
1000 Hz	62.3	69.6	67.9	77.5	41.8	47.1
1250 Hz	61.1		72.6		39.9	
1600 Hz	60.7		75.5		38.7	
2000 Hz	59.2	64.6	67.4	76.7	38.4	43.2
2500 Hz	59.3		67.7		38.3	
3150 Hz	59.5		67.0		38.5	
4000 Hz	54.8	61.1	61.5	68.2	35.0	40.7
5000 Hz	49.7		52.9		31.7	
6300 Hz	45.5		47.4		28.1	
8000 Hz	43.3	48.7	44.8	49.9	25.2	30.6
10000 Hz	42.3		41.2		22.2	
12500 Hz	42.4		34.3		20.0	
16000 Hz	41.0	45.4	32.2	37.0	19.5	24.9
20000 Hz	36.6		28.2		20.9	

Ln Start Level: 15 dB

L (1.00)	0.0
L (5.00)	0.0
L (50.00)	0.0
L (90.00)	0.0
L (95.00)	0.0
L (99.00)	0.0

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
SPL Exceedance Level 2: 120.0 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105.0 dB Exceeded: 0 times
Peak-2 Exceedance Level: 100.0 dB Exceeded: 0 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

Current Any Data
Start Time: 17-Dec-2009 13:46:34
Elapsed Time: 00:03:38.8

	A Weight	C Weight	Flat
Leq:	73.1 dBA	78.3 dBC	78.7 dBF
SEL:	96.5 dBA	101.7 dBC	102.1 dBF
Peak:	96.3 dBA	96.5 dBC	96.7 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:48:41	17-Dec-2009 13:48:41
Lmax (slow):	79.9 dBA	85.0 dBC	85.6 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:46:46	17-Dec-2009 13:46:46
Lmin (slow):	55.9 dBA	65.1 dBC	66.2 dBF
	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22
Lmax (fast):	83.7 dBA	87.8 dBC	88.4 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:46:45	17-Dec-2009 13:46:45
Lmin (fast):	55.6 dBA	64.0 dBC	64.9 dBF
	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22
Lmax (impulse):	85.6 dBA	88.6 dBC	89.2 dBF
	17-Dec-2009 13:48:52	17-Dec-2009 13:46:45	17-Dec-2009 13:46:45
Lmin (impulse):	55.8 dBA	65.8 dBC	67.2 dBF
	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22	17-Dec-2009 13:47:22

Calibrated: 17-Dec-2009 13:46:06 Offset: -47.9 dB
Checked: 17-Dec-2009 13:46:06 Level: 94.0 dB

Calibrator	not set	Level:	94.0 dB
Cal Records Count:	0		
Interval Records:	Disabled	Number Interval Records:	0
Time History:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2

SLM & RTA Summary
Translated: 17-Aug-2010 14:31:20

File Translated: V:\Vista Env\2010\10021-Atascadero Walmart\Noise Measurements\1.slmdl
Model Number: 824
Serial Number: A3176
Firmware Rev: 4.283
Software Version: 3.120
Name:
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup: SLM&RTA.ssa
Setup Descr: SLM & Real-Time Analyzer
Location: Southern edge of gas station property
Note 1: 100' west of El Camino Real CL and 150' south of Del Rio Rd CL
Note 2: 78 F 28.97 HG 32% Humid. 2 MPH wind and clear sky

Overall Any Data
Start Time: 14-Aug-2010 12:03:04
Elapsed Time: 00:15:00.6

	A Weight	C Weight	Flat
Leq:	61.7 dBA	74.5 dBC	75.3 dBF
SEL:	91.2 dBA	104.0 dBC	104.8 dBF
Peak:	105.2 dBA	108.2 dBC	110.1 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmax (slow):	73.4 dBA	88.4 dBC	90.8 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmin (slow):	49.4 dBA	63.1 dBC	64.6 dBF
	14-Aug-2010 12:04:03	14-Aug-2010 12:04:03	14-Aug-2010 12:04:03
Lmax (fast):	81.1 dBA	96.0 dBC	98.4 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmin (fast):	48.5 dBA	61.4 dBC	62.8 dBF
	14-Aug-2010 12:04:02	14-Aug-2010 12:04:02	14-Aug-2010 12:04:02
Lmax (impulse):	84.8 dBA	99.1 dBC	101.5 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmin (impulse):	48.7 dBA	63.7 dBC	65.4 dBF
	14-Aug-2010 12:04:02	14-Aug-2010 12:04:03	14-Aug-2010 12:04:03

Spectra
Start Time: 14-Aug-2010 12:03:04 Run Time: 00:15:00.6

Freq	Leq 1/3	Leq 1/1	Max 1/3	Max 1/1	Min 1/3	Min 1/1
12.5 Hz	55.3		72.2		36.3	
16.0 Hz	57.4	63.9	79.4	90.6	38.4	43.4
20.0 Hz	62.0		90.2		40.3	
25.0 Hz	65.1		93.7		43.9	
31.5 Hz	64.2	69.1	89.6	95.4	44.9	49.1
40.0 Hz	63.7		83.4		44.1	
50.0 Hz	67.7		88.2		46.6	
63.0 Hz	65.9	71.2	84.2	90.1	45.9	51.5
80.0 Hz	65.3		79.8		47.5	
100 Hz	65.0		76.4		46.3	
125 Hz	66.0	70.0	76.5	80.7	45.4	50.7
160 Hz	64.4		74.6		46.1	
200 Hz	59.6		70.5		41.9	
250 Hz	58.7	63.0	66.2	76.1	43.2	46.8
315 Hz	55.6		74.0		40.8	
400 Hz	53.6		75.8		39.0	
500 Hz	52.9	57.7	75.4	79.0	38.5	43.8
630 Hz	52.1		67.7		39.4	
800 Hz	52.5		68.9		40.2	
1000 Hz	51.8	56.3	69.8	73.4	39.2	43.6
1250 Hz	49.9		66.4		36.4	
1600 Hz	48.1		63.6		34.8	

1

2000 Hz	46.5	51.5	64.3	68.5	30.1	36.6
2500 Hz	45.1		63.2		27.3	
3150 Hz	44.3		62.5		25.2	
4000 Hz	42.5	47.6	58.5	64.6	22.9	28.2
5000 Hz	40.9		56.1		21.5	
6300 Hz	38.5		52.4		20.1	
8000 Hz	36.0	41.0	51.0	55.9	18.9	23.9
10000 Hz	31.8		49.3		18.3	
12500 Hz	27.9		46.0		18.0	
16000 Hz	24.5	30.9	36.7	46.6	19.1	24.2
20000 Hz	25.3		31.5		20.7	

Ln Start Level: 15 dB

L (1.00) 0.0
L (5.00) 0.0
L (50.00) 0.0
L (90.00) 0.0
L (95.00) 0.0
L (99.00) 0.0

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
SPL Exceedance Level 2: 120.0 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105.0 dB Exceeded: 1 times
Peak-2 Exceedance Level: 100.0 dB Exceeded: 1 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

Current Any Data
Start Time: 14-Aug-2010 12:03:04
Elapsed Time: 00:15:00.6

	A Weight	C Weight	Flat
Leq:	61.7 dBA	74.5 dBC	75.3 dBF
SEL:	91.2 dBA	104.0 dBC	104.8 dBF
Peak:	105.2 dBA	108.2 dBC	110.1 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmax (slow):	73.4 dBA	88.4 dBC	90.8 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmin (slow):	49.4 dBA	63.1 dBC	64.6 dBF
	14-Aug-2010 12:04:03	14-Aug-2010 12:04:03	14-Aug-2010 12:04:03
Lmax (fast):	81.1 dBA	96.0 dBC	98.4 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmin (fast):	48.5 dBA	61.4 dBC	62.8 dBF
	14-Aug-2010 12:04:02	14-Aug-2010 12:04:02	14-Aug-2010 12:04:02
Lmax (impulse):	84.8 dBA	99.1 dBC	101.5 dBF
	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24	14-Aug-2010 12:09:24
Lmin (impulse):	48.7 dBA	63.7 dBC	65.4 dBF
	14-Aug-2010 12:04:02	14-Aug-2010 12:04:03	14-Aug-2010 12:04:03

Calibrated: 14-Aug-2010 12:02:00 Offset: -47.3 dB
Checked: 14-Aug-2010 12:02:00 Level: 93.3 dB
Calibrator not set Level: 114.0 dB
Cal Records Count: 0

Interval Records: Disabled Number Interval Records: 0
Time History: Disabled Number History Records: 0
Run/Stop Records: Number Run/Stop Records: 2

APPENDIX E

FHWA Model Traffic Noise Contour Calculations

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2 (Arterial)				Vehicle Mix 3 (SR-60)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evenin	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	61.95%	12.70%	14.85%	89.50%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	2.68%	0.48%	1.35%	4.52%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	3.28%	0.31%	2.39%	5.99%

Road Name: John F. Kennedy Drive **Segment: West of Via Entrada**
Average Daily Traffic: 1400 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-9.65	-2.55	-1.20	51.71	49.34	48.05	41.99	50.42	51.05	70 dBA:	**4**	**5**
Medium Trucks	74.83	-24.51	-2.55	-1.20	46.56	27.35	19.57	28.78	34.94	34.97	65 dBA:	**9**	**10**
Heavy Trucks	80.05	-22.30	-2.55	-1.20	54.00	37.01	29.23	38.44	44.59	44.62	60 dBA:	**20**	**22**
				Total:	**56.48**	**49.61**	**48.11**	**43.72**	**51.53**	**52.03**	55 dBA:	**44**	**48**

Road Name: John F. Kennedy Drive **Segment: East of Via Entrada**
Average Daily Traffic: 1900 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-8.32	-2.55	-1.20	53.04	50.67	49.37	43.32	51.75	52.38	70 dBA:	**5**	**6**
Medium Trucks	74.83	-23.19	-2.55	-1.20	47.89	28.68	20.90	30.11	36.26	36.30	65 dBA:	**12**	**13**
Heavy Trucks	80.05	-20.97	-2.55	-1.20	55.33	38.34	30.55	39.76	45.92	45.95	60 dBA:	**25**	**27**
				Total:	**57.81**	**50.94**	**49.44**	**45.05**	**52.85**	**53.36**	55 dBA:	**54**	**58**

Road Name: John F. Kennedy Drive **Segment: West of Moreno Beach Drive**
Average Daily Traffic: 2100 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.89	-2.55	-1.20	53.47	51.10	49.81	43.75	52.18	52.82	70 dBA:	**6**	**6**
Medium Trucks	74.83	-22.75	-2.55	-1.20	48.32	29.12	21.33	30.54	36.70	36.73	65 dBA:	**12**	**13**
Heavy Trucks	80.05	-20.53	-2.55	-1.20	55.76	38.77	30.99	40.20	46.35	46.39	60 dBA:	**27**	**29**
				Total:	**58.24**	**51.37**	**49.87**	**45.48**	**53.29**	**53.79**	55 dBA:	**58**	**62**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS | **Project: 76 Gas Station & Restaurants**
Site Conditions: Soft

Road Name: John F. Kennedy Drive | **Segment: East of Moreno Beach Drive**
Average Daily Traffic: 8300 Vehicles | Vehicle Speed: 45 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-3.01	-2.07	-1.20	63.06	60.69	59.40	53.34	61.78	62.41	70 dBA:	**22**	**24**
Medium Trucks	77.62	-17.88	-2.07	-1.20	56.47	37.27	29.48	38.69	44.85	44.88	65 dBA:	**48**	**52**
Heavy Trucks	82.14	-15.66	-2.07	-1.20	63.21	46.22	38.44	47.65	53.80	53.84	60 dBA:	**103**	**112**
				Total:	**66.59**	**60.86**	**59.44**	**54.50**	**62.49**	**63.04**	55 dBA:	**221**	**240**

Road Name: John F. Kennedy Drive | **Segment: East of Championship Drive**
Average Daily Traffic: 6300 Vehicles | Vehicle Speed: 45 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.75 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-4.21	-6.26	-1.20	57.67	55.30	54.01	47.95	56.39	57.02	70 dBA:	**18**	**20**
Medium Trucks	77.62	-19.07	-6.26	-1.20	51.08	31.88	24.09	33.30	39.46	39.49	65 dBA:	**39**	**42**
Heavy Trucks	82.14	-16.85	-6.26	-1.20	57.82	40.83	33.05	42.26	48.41	48.45	60 dBA:	**83**	**91**
				Total:	**61.20**	**55.47**	**54.05**	**49.11**	**57.10**	**57.65**	55 dBA:	**180**	**195**

Road Name: Moreno Beach Drive | **Segment: North of Cactus Avenue**
Average Daily Traffic: 13100 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.48	-3.92	-1.20	64.52	62.15	60.85	54.80	63.23	63.86	70 dBA:	**39**	**42**
Medium Trucks	78.79	-16.35	-3.92	-1.20	57.32	38.12	30.33	39.54	45.70	45.73	65 dBA:	**84**	**91**
Heavy Trucks	83.02	-14.13	-3.92	-1.20	63.77	46.78	39.00	48.21	54.36	54.39	60 dBA:	**180**	**196**
				Total:	**67.60**	**62.29**	**60.88**	**55.76**	**63.83**	**64.39**	55 dBA:	**388**	**422**

Road Name: Moreno Beach Drive | **Segment: North of John F. Kennedy Drive**
Average Daily Traffic: 11700 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.98	-3.92	-1.20	64.03	61.65	60.36	54.31	62.74	63.37	70 dBA:	**36**	**39**
Medium Trucks	78.79	-16.84	-3.92	-1.20	56.83	37.63	29.84	39.05	45.21	45.24	65 dBA:	**77**	**84**
Heavy Trucks	83.02	-14.62	-3.92	-1.20	63.28	46.29	38.51	47.72	53.87	53.90	60 dBA:	**167**	**182**
				Total:	**67.11**	**61.80**	**60.39**	**55.27**	**63.34**	**63.89**	55 dBA:	**360**	**392**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: **Moreno Beach Drive** **Segment:** **South of John F. Kennedy Drive**
Average Daily Traffic: 14400 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.07	-3.92	-1.20	64.93	62.56	61.26	55.21	63.64	64.27	70 dBA:	**41**	**45**
Medium Trucks	78.79	-15.94	-3.92	-1.20	57.74	38.53	30.75	39.95	46.11	46.14	65 dBA:	**89**	**97**
Heavy Trucks	83.02	-13.72	-3.92	-1.20	64.18	47.19	39.41	48.62	54.77	54.81	60 dBA:	**192**	**209**
				Total:	**68.01**	**62.70**	**61.30**	**56.17**	**64.24**	**64.80**	55 dBA:	**413**	**450**

Road Name: **Iris Avenue** **Segment:** **West of Via Del Lago**
Average Daily Traffic: 13700 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.29	-3.92	-1.20	64.71	62.34	61.05	54.99	63.42	64.05	70 dBA:	**40**	**44**
Medium Trucks	78.79	-16.16	-3.92	-1.20	57.52	38.31	30.53	39.74	45.89	45.93	65 dBA:	**86**	**94**
Heavy Trucks	83.02	-13.94	-3.92	-1.20	63.96	46.97	39.19	48.40	54.56	54.59	60 dBA:	**185**	**202**
				Total:	**67.79**	**62.48**	**61.08**	**55.96**	**64.02**	**64.58**	55 dBA:	**399**	**435**

Road Name: **Cactus Avenue** **Segment:** **West of Moreno Beach Drive**
Average Daily Traffic: 7100 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 77.95 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-4.14	-3.00	-1.20	62.78	60.41	59.11	53.06	61.49	62.12	70 dBA:	**24**	**26**
Medium Trucks	78.79	-19.01	-3.00	-1.20	55.59	36.38	28.60	37.80	43.96	43.99	65 dBA:	**51**	**56**
Heavy Trucks	83.02	-16.79	-3.00	-1.20	62.03	45.04	37.26	46.47	52.62	52.66	60 dBA:	**110**	**120**
				Total:	**65.86**	**60.55**	**59.15**	**54.03**	**62.09**	**62.65**	55 dBA:	**237**	**259**

Road Name: **Cactus Avenue** **Segment:** **East of Moreno Beach Drive**
Average Daily Traffic: 3500 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-7.22	-0.98	-1.20	61.72	59.35	58.05	52.00	60.43	61.06	70 dBA:	**15**	**16**
Medium Trucks	78.79	-22.08	-0.98	-1.20	54.53	35.32	27.54	36.75	42.90	42.93	65 dBA:	**33**	**36**
Heavy Trucks	83.02	-19.86	-0.98	-1.20	60.97	43.98	36.20	45.41	51.56	51.60	60 dBA:	**70**	**77**
				Total:	**64.80**	**59.49**	**58.09**	**52.97**	**61.03**	**61.59**	55 dBA:	**151**	**165**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: Cactus Avenue **Segment: East of Redlands Avenue**
Average Daily Traffic: 400 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 77.95 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-16.64	-3.00	-1.20	50.29	47.92	46.62	40.57	49.00	49.63	70 dBA:	**3**	**4**
Medium Trucks	78.79	-31.50	-3.00	-1.20	43.09	23.89	16.10	25.31	31.47	31.50	65 dBA:	**8**	**8**
Heavy Trucks	83.02	-29.28	-3.00	-1.20	49.54	32.55	24.77	33.98	40.13	40.16	60 dBA:	**16**	**18**
				Total:	**53.37**	**48.06**	**46.65**	**41.53**	**49.60**	**50.16**	55 dBA:	**35**	**38**

Road Name: Oliver Street **Segment: North of John F. Kennedy Drive**
Average Daily Traffic: 2200 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.68	-2.07	-1.20	54.15	51.78	50.49	44.43	52.87	53.50	70 dBA:	**6**	**6**
Medium Trucks	74.83	-22.55	-2.07	-1.20	49.01	29.80	22.02	31.22	37.38	37.41	65 dBA:	**13**	**14**
Heavy Trucks	80.05	-20.33	-2.07	-1.20	56.44	39.45	31.67	40.88	47.03	47.07	60 dBA:	**28**	**30**
				Total:	**58.92**	**52.05**	**50.55**	**46.16**	**53.97**	**54.47**	55 dBA:	**60**	**65**

Road Name: Oliver Street **Segment: South of John F. Kennedy Drive**
Average Daily Traffic: 1800 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-8.56	-2.07	-1.20	53.28	50.91	49.62	43.56	51.99	52.62	70 dBA:	**5**	**6**
Medium Trucks	74.83	-23.42	-2.07	-1.20	48.13	28.93	21.14	30.35	36.51	36.54	65 dBA:	**11**	**12**
Heavy Trucks	80.05	-21.20	-2.07	-1.20	55.57	38.58	30.80	40.01	46.16	46.20	60 dBA:	**24**	**26**
				Total:	**58.05**	**51.18**	**49.68**	**45.29**	**53.10**	**53.60**	55 dBA:	**52**	**56**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2 (Arterial)				Vehicle Mix 3 (SR-60)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evenin	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	61.95%	12.70%	14.85%	89.50%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	2.68%	0.48%	1.35%	4.52%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	3.28%	0.31%	2.39%	5.99%

Road Name: John F. Kennedy Drive **Segment: West of Via Entrada**
Average Daily Traffic: 1500 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-9.35	-2.55	-1.20	52.01	49.64	48.35	42.29	50.72	51.35	70 dBA:	**5**	**5**
Medium Trucks	74.83	-24.21	-2.55	-1.20	46.86	27.65	19.87	29.08	35.24	35.27	65 dBA:	**10**	**11**
Heavy Trucks	80.05	-22.00	-2.55	-1.20	54.30	37.31	29.53	38.74	44.89	44.92	60 dBA:	**21**	**23**
				Total:	**56.78**	**49.91**	**48.41**	**44.02**	**51.83**	**52.33**	55 dBA:	**46**	**50**

Road Name: John F. Kennedy Drive **Segment: East of Via Entrada**
Average Daily Traffic: 2100 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.89	-2.55	-1.20	53.47	51.10	49.81	43.75	52.18	52.82	70 dBA:	**6**	**6**
Medium Trucks	74.83	-22.75	-2.55	-1.20	48.32	29.12	21.33	30.54	36.70	36.73	65 dBA:	**12**	**13**
Heavy Trucks	80.05	-20.53	-2.55	-1.20	55.76	38.77	30.99	40.20	46.35	46.39	60 dBA:	**27**	**29**
				Total:	**58.24**	**51.37**	**49.87**	**45.48**	**53.29**	**53.79**	55 dBA:	**58**	**62**

Road Name: John F. Kennedy Drive **Segment: West of Moreno Beach Drive**
Average Daily Traffic: 3300 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-5.92	-2.55	-1.20	55.44	53.06	51.77	45.72	54.15	54.78	70 dBA:	**8**	**8**
Medium Trucks	74.83	-20.79	-2.55	-1.20	50.29	31.08	23.30	32.51	38.66	38.69	65 dBA:	**17**	**18**
Heavy Trucks	80.05	-18.57	-2.55	-1.20	57.72	40.73	32.95	42.16	48.31	48.35	60 dBA:	**36**	**39**
				Total:	**60.21**	**53.34**	**51.83**	**47.44**	**55.25**	**55.75**	55 dBA:	**78**	**84**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: John F. Kennedy Drive **Segment: East of Moreno Beach Drive**

Average Daily Traffic: 8900 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-2.71	-2.07	-1.20	63.37	60.99	59.70	53.65	62.08	62.71	70 dBA:	**23**	**25**
Medium Trucks	77.62	-17.57	-2.07	-1.20	56.78	37.57	29.79	39.00	45.15	45.18	65 dBA:	**50**	**54**
Heavy Trucks	82.14	-15.35	-2.07	-1.20	63.52	46.53	38.74	47.95	54.11	54.14	60 dBA:	**108**	**117**
				Total:	**66.90**	**61.17**	**59.74**	**54.80**	**62.80**	**63.34**	55 dBA:	**232**	**252**

Road Name: John F. Kennedy Drive **Segment: East of Championship Drive**

Average Daily Traffic: 6400 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.75 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-4.14	-6.26	-1.20	57.74	55.37	54.08	48.02	56.45	57.08	70 dBA:	**18**	**20**
Medium Trucks	77.62	-19.00	-6.26	-1.20	51.15	31.94	24.16	33.37	39.53	39.56	65 dBA:	**39**	**43**
Heavy Trucks	82.14	-16.79	-6.26	-1.20	57.89	40.90	33.12	42.33	48.48	48.52	60 dBA:	**84**	**92**
				Total:	**61.27**	**55.54**	**54.12**	**49.17**	**57.17**	**57.72**	55 dBA:	**181**	**197**

Road Name: Moreno Beach Drive **Segment: North of Cactus Avenue**

Average Daily Traffic: 13300 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.42	-3.92	-1.20	64.58	62.21	60.92	54.86	63.30	63.93	70 dBA:	**39**	**43**
Medium Trucks	78.79	-16.29	-3.92	-1.20	57.39	38.18	30.40	39.61	45.76	45.80	65 dBA:	**84**	**92**
Heavy Trucks	83.02	-14.07	-3.92	-1.20	63.84	46.85	39.06	48.27	54.43	54.46	60 dBA:	**182**	**198**
				Total:	**67.66**	**62.35**	**60.95**	**55.83**	**63.89**	**64.45**	55 dBA:	**392**	**427**

Road Name: Moreno Beach Drive **Segment: North of John F. Kennedy Drive**

Average Daily Traffic: 12800 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.59	-3.92	-1.20	64.42	62.04	60.75	54.70	63.13	63.76	70 dBA:	**38**	**42**
Medium Trucks	78.79	-16.45	-3.92	-1.20	57.22	38.02	30.23	39.44	45.60	45.63	65 dBA:	**82**	**90**
Heavy Trucks	83.02	-14.23	-3.92	-1.20	63.67	46.68	38.90	48.11	54.26	54.29	60 dBA:	**177**	**193**
				Total:	**67.50**	**62.19**	**60.78**	**55.66**	**63.73**	**64.28**	55 dBA:	**382**	**416**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: Moreno Beach Drive **Segment: South of John F. Kennedy Drive**

Average Daily Traffic: 15200 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-0.84	-3.92	-1.20	65.16	62.79	61.50	55.44	63.88	64.51	70 dBA:	**43**	**47**
Medium Trucks	78.79	-15.71	-3.92	-1.20	57.97	38.76	30.98	40.19	46.34	46.38	65 dBA:	**92**	**100**
Heavy Trucks	83.02	-13.49	-3.92	-1.20	64.42	47.43	39.64	48.85	55.01	55.04	60 dBA:	**199**	**216**
				Total:	**68.24**	**62.93**	**61.53**	**56.41**	**64.47**	**65.03**	55 dBA:	**428**	**466**

Road Name: Iris Avenue **Segment: West of Via Del Lago**

Average Daily Traffic: 13800 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.26	-3.92	-1.20	64.74	62.37	61.08	55.02	63.46	64.09	70 dBA:	**40**	**44**
Medium Trucks	78.79	-16.13	-3.92	-1.20	57.55	38.34	30.56	39.77	45.92	45.96	65 dBA:	**86**	**94**
Heavy Trucks	83.02	-13.91	-3.92	-1.20	64.00	47.01	39.22	48.43	54.59	54.62	60 dBA:	**186**	**203**
				Total:	**67.82**	**62.51**	**61.11**	**55.99**	**64.05**	**64.61**	55 dBA:	**401**	**437**

Road Name: Cactus Avenue **Segment: West of Moreno Beach Drive**

Average Daily Traffic: 7200 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 77.95 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-4.08	-3.00	-1.20	62.84	60.47	59.17	53.12	61.55	62.18	70 dBA:	**24**	**26**
Medium Trucks	78.79	-18.95	-3.00	-1.20	55.65	36.44	28.66	37.87	44.02	44.05	65 dBA:	**52**	**56**
Heavy Trucks	83.02	-16.73	-3.00	-1.20	62.09	45.10	37.32	46.53	52.68	52.72	60 dBA:	**111**	**121**
				Total:	**65.92**	**60.61**	**59.21**	**54.09**	**62.15**	**62.71**	55 dBA:	**240**	**261**

Road Name: Cactus Avenue **Segment: East of Moreno Beach Drive**

Average Daily Traffic: 3600 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-7.09	-0.98	-1.20	61.84	59.47	58.18	52.12	60.55	61.18	70 dBA:	**15**	**17**
Medium Trucks	78.79	-21.96	-0.98	-1.20	54.65	35.44	27.66	36.87	43.02	43.06	65 dBA:	**33**	**36**
Heavy Trucks	83.02	-19.74	-0.98	-1.20	61.09	44.10	36.32	45.53	51.69	51.72	60 dBA:	**72**	**78**
				Total:	**64.92**	**59.61**	**58.21**	**53.09**	**61.15**	**61.71**	55 dBA:	**154**	**168**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: Cactus Avenue **Segment: East of Redlands Avenue**

Average Daily Traffic: 500 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 77.95 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-15.67	-3.00	-1.20	51.26	48.88	47.59	41.54	49.97	50.60	70 dBA:	**4**	**4**
Medium Trucks	78.79	-30.53	-3.00	-1.20	44.06	24.86	17.07	26.28	32.44	32.47	65 dBA:	**9**	**10**
Heavy Trucks	83.02	-28.32	-3.00	-1.20	50.51	33.52	25.74	34.95	41.10	41.13	60 dBA:	**19**	**20**
				Total:	**54.34**	**49.03**	**47.62**	**42.50**	**50.57**	**51.12**	55 dBA:	**41**	**44**

Road Name: Oliver Street **Segment: North of John F. Kennedy Drive**

Average Daily Traffic: 2300 Vehicles | Vehicle Speed: 35 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.49	-2.07	-1.20	54.35	51.97	50.68	44.63	53.06	53.69	70 dBA:	**6**	**7**
Medium Trucks	74.83	-22.36	-2.07	-1.20	49.20	29.99	22.21	31.42	37.57	37.60	65 dBA:	**13**	**14**
Heavy Trucks	80.05	-20.14	-2.07	-1.20	56.63	39.64	31.86	41.07	47.23	47.26	60 dBA:	**29**	**31**
				Total:	**59.12**	**52.25**	**50.74**	**46.36**	**54.16**	**54.67**	55 dBA:	**62**	**66**

Road Name: Oliver Street **Segment: South of John F. Kennedy Drive**

Average Daily Traffic: 1800 Vehicles | Vehicle Speed: 35 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-8.56	-2.07	-1.20	53.28	50.91	49.62	43.56	51.99	52.62	70 dBA:	**5**	**6**
Medium Trucks	74.83	-23.42	-2.07	-1.20	48.13	28.93	21.14	30.35	36.51	36.54	65 dBA:	**11**	**12**
Heavy Trucks	80.05	-21.20	-2.07	-1.20	55.57	38.58	30.80	40.01	46.16	46.20	60 dBA:	**24**	**26**
				Total:	**58.05**	**51.18**	**49.68**	**45.29**	**53.10**	**53.60**	55 dBA:	**52**	**56**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITHOUT PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2 (Arterial)				Vehicle Mix 3 (SR-60)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evenin	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	61.95%	12.70%	14.85%	89.50%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	2.68%	0.48%	1.35%	4.52%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	3.28%	0.31%	2.39%	5.99%

Road Name: John F. Kennedy Drive **Segment: West of Via Entrada**

Average Daily Traffic: 1500 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-9.35	-2.55	-1.20	52.01	49.64	48.35	42.29	50.72	51.35	70 dBA:	**5**	**5**
Medium Trucks	74.83	-24.21	-2.55	-1.20	46.86	27.65	19.87	29.08	35.24	35.27	65 dBA:	**10**	**11**
Heavy Trucks	80.05	-22.00	-2.55	-1.20	54.30	37.31	29.53	38.74	44.89	44.92	60 dBA:	**21**	**23**
				Total:	**56.78**	**49.91**	**48.41**	**44.02**	**51.83**	**52.33**	55 dBA:	**46**	**50**

Road Name: John F. Kennedy Drive **Segment: East of Via Entrada**

Average Daily Traffic: 2100 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.89	-2.55	-1.20	53.47	51.10	49.81	43.75	52.18	52.82	70 dBA:	**6**	**6**
Medium Trucks	74.83	-22.75	-2.55	-1.20	48.32	29.12	21.33	30.54	36.70	36.73	65 dBA:	**12**	**13**
Heavy Trucks	80.05	-20.53	-2.55	-1.20	55.76	38.77	30.99	40.20	46.35	46.39	60 dBA:	**27**	**29**
				Total:	**58.24**	**51.37**	**49.87**	**45.48**	**53.29**	**53.79**	55 dBA:	**58**	**62**

Road Name: John F. Kennedy Drive **Segment: West of Moreno Beach Drive**

Average Daily Traffic: 2400 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.31	-2.55	-1.20	54.05	51.68	50.39	44.33	52.76	53.39	70 dBA:	**6**	**7**
Medium Trucks	74.83	-22.17	-2.55	-1.20	48.90	29.70	21.91	31.12	37.28	37.31	65 dBA:	**14**	**15**
Heavy Trucks	80.05	-19.95	-2.55	-1.20	56.34	39.35	31.57	40.78	46.93	46.97	60 dBA:	**29**	**32**
				Total:	**58.82**	**51.95**	**50.45**	**46.06**	**53.87**	**54.37**	55 dBA:	**63**	**68**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITHOUT PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: John F. Kennedy Drive — **Segment: East of Moreno Beach Drive**
Average Daily Traffic: 9200 Vehicles — Vehicle Speed: 45 MPH — Vehicle Mix: 2 — Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-2.56	-2.07	-1.20	63.51	61.14	59.85	53.79	62.22	62.85	70 dBA:	**24**	**26**
Medium Trucks	77.62	-17.43	-2.07	-1.20	56.92	37.71	29.93	39.14	45.29	45.33	65 dBA:	**51**	**55**
Heavy Trucks	82.14	-15.21	-2.07	-1.20	63.66	46.67	38.89	48.10	54.25	54.28	60 dBA:	**110**	**120**
				Total:	**67.04**	**61.31**	**59.88**	**54.94**	**62.94**	**63.49**	55 dBA:	**237**	**258**

Road Name: John F. Kennedy Drive — **Segment: East of Championship Drive**
Average Daily Traffic: 7000 Vehicles — Vehicle Speed: 45 MPH — Vehicle Mix: 2 — Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.75 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-3.75	-6.26	-1.20	58.13	55.76	54.47	48.41	56.84	57.47	70 dBA:	**19**	**21**
Medium Trucks	77.62	-18.62	-6.26	-1.20	51.54	32.33	24.55	33.76	39.91	39.95	65 dBA:	**41**	**45**
Heavy Trucks	82.14	-16.40	-6.26	-1.20	58.28	41.29	33.51	42.72	48.87	48.91	60 dBA:	**89**	**97**
				Total:	**61.66**	**55.93**	**54.50**	**49.56**	**57.56**	**58.11**	55 dBA:	**193**	**209**

Road Name: Moreno Beach Drive — **Segment: North of Cactus Avenue**
Average Daily Traffic: 14500 Vehicles — Vehicle Speed: 50 MPH — Vehicle Mix: 2 — Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.04	-3.92	-1.20	64.96	62.59	61.29	55.24	63.67	64.30	70 dBA:	**41**	**45**
Medium Trucks	78.79	-15.91	-3.92	-1.20	57.77	38.56	30.78	39.98	46.14	46.17	65 dBA:	**89**	**97**
Heavy Trucks	83.02	-13.69	-3.92	-1.20	64.21	47.22	39.44	48.65	54.80	54.84	60 dBA:	**193**	**210**
				Total:	**68.04**	**62.73**	**61.33**	**56.20**	**64.27**	**64.83**	55 dBA:	**415**	**452**

Road Name: Moreno Beach Drive — **Segment: North of John F. Kennedy Drive**
Average Daily Traffic: 13100 Vehicles — Vehicle Speed: 50 MPH — Vehicle Mix: 2 — Roadway Classification: Divided Major Arterial

NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.48	-3.92	-1.20	64.52	62.15	60.85	54.80	63.23	63.86	70 dBA:	**39**	**42**
Medium Trucks	78.79	-16.35	-3.92	-1.20	57.32	38.12	30.33	39.54	45.70	45.73	65 dBA:	**84**	**91**
Heavy Trucks	83.02	-14.13	-3.92	-1.20	63.77	46.78	39.00	48.21	54.36	54.39	60 dBA:	**180**	**196**
				Total:	**67.60**	**62.29**	**60.88**	**55.76**	**63.83**	**64.39**	55 dBA:	**388**	**422**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITHOUT PROJECT CONDITIONS | **Project: 76 Gas Station & Restaurants**
Site Conditions: Soft

Road Name: Moreno Beach Drive | **Segment: South of John F. Kennedy Drive**
Average Daily Traffic: 15900 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE				(Equiv. Lane Dist: 89.8 ft)						**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-0.64	-3.92	-1.20	65.36	62.99	61.69	55.64	64.07	64.70	70 dBA:	**44**	**48**
Medium Trucks	78.79	-15.51	-3.92	-1.20	58.17	38.96	31.18	40.38	46.54	46.57	65 dBA:	**95**	**104**
Heavy Trucks	83.02	-13.29	-3.92	-1.20	64.61	47.62	39.84	49.05	55.20	55.24	60 dBA:	**205**	**223**
				Total:	**68.44**	**63.13**	**61.73**	**56.60**	**64.67**	**65.23**	55 dBA:	**441**	**481**

Road Name: Iris Avenue | **Segment: West of Via Del Lago**
Average Daily Traffic: 15100 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE				(Equiv. Lane Dist: 89.8 ft)						**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-0.87	-3.92	-1.20	65.13	62.76	61.47	55.41	63.85	64.48	70 dBA:	**43**	**46**
Medium Trucks	78.79	-15.73	-3.92	-1.20	57.94	38.73	30.95	40.16	46.31	46.35	65 dBA:	**92**	**100**
Heavy Trucks	83.02	-13.52	-3.92	-1.20	64.39	47.40	39.62	48.82	54.98	55.01	60 dBA:	**198**	**216**
				Total:	**68.22**	**62.90**	**61.50**	**56.38**	**64.44**	**65.00**	55 dBA:	**426**	**464**

Road Name: Cactus Avenue | **Segment: West of Moreno Beach Drive**
Average Daily Traffic: 7800 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE				(Equiv. Lane Dist: 77.95 ft)						**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-3.74	-3.00	-1.20	63.19	60.82	59.52	53.47	61.90	62.53	70 dBA:	**25**	**28**
Medium Trucks	78.79	-18.60	-3.00	-1.20	55.99	36.79	29.01	38.21	44.37	44.40	65 dBA:	**54**	**59**
Heavy Trucks	83.02	-16.38	-3.00	-1.20	62.44	45.45	37.67	46.88	53.03	53.07	60 dBA:	**117**	**128**
				Total:	**66.27**	**60.96**	**59.55**	**54.43**	**62.50**	**63.06**	55 dBA:	**253**	**276**

Road Name: Cactus Avenue | **Segment: East of Moreno Beach Drive**
Average Daily Traffic: 3900 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE				(Equiv. Lane Dist: 57.24 ft)						**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-6.75	-0.98	-1.20	62.19	59.82	58.52	52.47	60.90	61.53	70 dBA:	**16**	**18**
Medium Trucks	78.79	-21.61	-0.98	-1.20	55.00	35.79	28.01	37.21	43.37	43.40	65 dBA:	**35**	**38**
Heavy Trucks	83.02	-19.39	-0.98	-1.20	61.44	44.45	36.67	45.88	52.03	52.07	60 dBA:	**76**	**82**
				Total:	**65.27**	**59.96**	**58.56**	**53.44**	**61.50**	**62.06**	55 dBA:	**163**	**177**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITHOUT PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: Cactus Avenue **Segment: East of Redlands Avenue**
Average Daily Traffic: 500 Vehicles | Vehicle Speed: 50 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 77.95 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-15.67	-3.00	-1.20	51.26	48.88	47.59	41.54	49.97	50.60	70 dBA:	**4**	**4**
Medium Trucks	78.79	-30.53	-3.00	-1.20	44.06	24.86	17.07	26.28	32.44	32.47	65 dBA:	**9**	**10**
Heavy Trucks	83.02	-28.32	-3.00	-1.20	50.51	33.52	25.74	34.95	41.10	41.13	60 dBA:	**19**	**20**
				Total:	**54.34**	**49.03**	**47.62**	**42.50**	**50.57**	**51.12**	55 dBA:	**41**	**44**

Road Name: Oliver Street **Segment: North of John F. Kennedy Drive**
Average Daily Traffic: 2400 Vehicles | Vehicle Speed: 35 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.31	-2.07	-1.20	54.53	52.16	50.87	44.81	53.24	53.87	70 dBA:	**6**	**7**
Medium Trucks	74.83	-22.17	-2.07	-1.20	49.38	30.17	22.39	31.60	37.76	37.79	65 dBA:	**14**	**15**
Heavy Trucks	80.05	-19.95	-2.07	-1.20	56.82	39.83	32.05	41.26	47.41	47.44	60 dBA:	**29**	**32**
				Total:	**59.30**	**52.43**	**50.93**	**46.54**	**54.35**	**54.85**	55 dBA:	**63**	**68**

Road Name: Oliver Street **Segment: South of John F. Kennedy Drive**
Average Daily Traffic: 1900 Vehicles | Vehicle Speed: 35 MPH | Vehicle Mix: 2 | Roadway Classification: Minor Arterial

NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)

	Noise Adjustments				Unmitigated Noise Levels						Centerline Distance to Noise Contour (in feet)		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-8.32	-2.07	-1.20	53.52	51.14	49.85	43.80	52.23	52.86	70 dBA:	**5**	**6**
Medium Trucks	74.83	-23.19	-2.07	-1.20	48.37	29.16	21.38	30.59	36.74	36.78	65 dBA:	**12**	**13**
Heavy Trucks	80.05	-20.97	-2.07	-1.20	55.80	38.82	31.03	40.24	46.40	46.43	60 dBA:	**25**	**27**
				Total:	**58.29**	**51.42**	**49.91**	**45.53**	**53.33**	**53.84**	55 dBA:	**54**	**59**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2 (Arterial)				Vehicle Mix 3 (SR-60)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evenin	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	61.95%	12.70%	14.85%	89.50%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	2.68%	0.48%	1.35%	4.52%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	3.28%	0.31%	2.39%	5.99%

Road Name: John F. Kennedy Drive **Segment: West of Via Entrada**
Average Daily Traffic: 1700 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-8.80	-2.55	-1.20	52.55	50.18	48.89	42.83	51.27	51.90	70 dBA:	**5**	**5**
Medium Trucks	74.83	-23.67	-2.55	-1.20	47.41	28.20	20.42	29.62	35.78	35.81	65 dBA:	**11**	**12**
Heavy Trucks	80.05	-21.45	-2.55	-1.20	54.84	37.85	30.07	39.28	45.43	45.47	60 dBA:	**23**	**25**
				Total:	**57.32**	**50.46**	**48.95**	**44.56**	**52.37**	**52.87**	55 dBA:	**50**	**54**

Road Name: John F. Kennedy Drive **Segment: East of Via Entrada**
Average Daily Traffic: 2300 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-7.49	-2.55	-1.20	53.87	51.50	50.20	44.15	52.58	53.21	70 dBA:	**6**	**7**
Medium Trucks	74.83	-22.36	-2.55	-1.20	48.72	29.51	21.73	30.94	37.09	37.13	65 dBA:	**13**	**14**
Heavy Trucks	80.05	-20.14	-2.55	-1.20	56.16	39.17	31.38	40.59	46.75	46.78	60 dBA:	**28**	**31**
				Total:	**58.64**	**51.77**	**50.26**	**45.88**	**53.68**	**54.19**	55 dBA:	**61**	**66**

Road Name: John F. Kennedy Drive **Segment: West of Moreno Beach Drive**
Average Daily Traffic: 3500 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-5.67	-2.55	-1.20	55.69	53.32	52.03	45.97	54.40	55.03	70 dBA:	**8**	**9**
Medium Trucks	74.83	-20.53	-2.55	-1.20	50.54	31.33	23.55	32.76	38.92	38.95	65 dBA:	**17**	**19**
Heavy Trucks	80.05	-18.32	-2.55	-1.20	57.98	40.99	33.21	42.42	48.57	48.60	60 dBA:	**38**	**41**
				Total:	**60.46**	**53.59**	**52.09**	**47.70**	**55.51**	**56.01**	55 dBA:	**81**	**88**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: John F. Kennedy Drive — **Segment: East of Moreno Beach Drive**
Average Daily Traffic: 9700 Vehicles — Vehicle Speed: 45 MPH — Vehicle Mix: 2 — Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)										Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-2.33	-2.07	-1.20	63.74	61.37	60.07	54.02	62.45	63.08	70 dBA:	**25**	**27**
Medium Trucks	77.62	-17.20	-2.07	-1.20	57.15	37.94	30.16	39.37	45.52	45.56	65 dBA:	**53**	**57**
Heavy Trucks	82.14	-14.98	-2.07	-1.20	63.89	46.90	39.12	48.33	54.48	54.51	60 dBA:	**114**	**124**
				Total:	**67.27**	**61.54**	**60.11**	**55.17**	**63.17**	**63.72**	55 dBA:	**245**	**267**

Road Name: John F. Kennedy Drive — **Segment: East of Championship Drive**
Average Daily Traffic: 7000 Vehicles — Vehicle Speed: 45 MPH — Vehicle Mix: 2 — Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.75 ft)										Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-3.75	-6.26	-1.20	58.13	55.76	54.47	48.41	56.84	57.47	70 dBA:	**19**	**21**
Medium Trucks	77.62	-18.62	-6.26	-1.20	51.54	32.33	24.55	33.76	39.91	39.95	65 dBA:	**41**	**45**
Heavy Trucks	82.14	-16.40	-6.26	-1.20	58.28	41.29	33.51	42.72	48.87	48.91	60 dBA:	**89**	**97**
				Total:	**61.66**	**55.93**	**54.50**	**49.56**	**57.56**	**58.11**	55 dBA:	**193**	**209**

Road Name: Moreno Beach Drive — **Segment: North of Cactus Avenue**
Average Daily Traffic: 14600 Vehicles — Vehicle Speed: 50 MPH — Vehicle Mix: 2 — Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)										Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.01	-3.92	-1.20	64.99	62.62	61.32	55.27	63.70	64.33	70 dBA:	**42**	**45**
Medium Trucks	78.79	-15.88	-3.92	-1.20	57.80	38.59	30.81	40.01	46.17	46.20	65 dBA:	**90**	**98**
Heavy Trucks	83.02	-13.66	-3.92	-1.20	64.24	47.25	39.47	48.68	54.83	54.87	60 dBA:	**193**	**211**
				Total:	**68.07**	**62.76**	**61.36**	**56.23**	**64.30**	**64.86**	55 dBA:	**417**	**454**

Road Name: Moreno Beach Drive — **Segment: North of John F. Kennedy Drive**
Average Daily Traffic: 14000 Vehicles — Vehicle Speed: 50 MPH — Vehicle Mix: 2 — Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 89.8 ft)										Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-1.20	-3.92	-1.20	64.81	62.43	61.14	55.09	63.52	64.15	70 dBA:	**41**	**44**
Medium Trucks	78.79	-16.06	-3.92	-1.20	57.61	38.40	30.62	39.83	45.99	46.02	65 dBA:	**87**	**95**
Heavy Trucks	83.02	-13.84	-3.92	-1.20	64.06	47.07	39.29	48.50	54.65	54.68	60 dBA:	**188**	**205**
				Total:	**67.89**	**62.58**	**61.17**	**56.05**	**64.12**	**64.67**	55 dBA:	**405**	**441**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: Moreno Beach Drive **Segment: South of John F. Kennedy Drive**
Average Daily Traffic: 16700 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE							(Equiv. Lane Dist: 89.8 ft)			Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-0.43	-3.92	-1.20	65.57	63.20	61.91	55.85	64.28	64.91	70 dBA:	**46**	**50**
Medium Trucks	78.79	-15.30	-3.92	-1.20	58.38	39.17	31.39	40.60	46.75	46.79	65 dBA:	**98**	**107**
Heavy Trucks	83.02	-13.08	-3.92	-1.20	64.82	47.83	40.05	49.26	55.42	55.45	60 dBA:	**212**	**230**
				Total:	**68.65**	**63.34**	**61.94**	**56.82**	**64.88**	**65.44**	55 dBA:	**456**	**497**

Road Name: Iris Avenue **Segment: West of Via Del Lago**
Average Daily Traffic: 15200 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Divided Major Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE							(Equiv. Lane Dist: 89.8 ft)			Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-0.84	-3.92	-1.20	65.16	62.79	61.50	55.44	63.88	64.51	70 dBA:	**43**	**47**
Medium Trucks	78.79	-15.71	-3.92	-1.20	57.97	38.76	30.98	40.19	46.34	46.38	65 dBA:	**92**	**100**
Heavy Trucks	83.02	-13.49	-3.92	-1.20	64.42	47.43	39.64	48.85	55.01	55.04	60 dBA:	**199**	**216**
				Total:	**68.24**	**62.93**	**61.53**	**56.41**	**64.47**	**65.03**	55 dBA:	**428**	**466**

Road Name: Cactus Avenue **Segment: West of Moreno Beach Drive**
Average Daily Traffic: 8000 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE							(Equiv. Lane Dist: 77.95 ft)			Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-3.63	-3.00	-1.20	63.30	60.93	59.63	53.58	62.01	62.64	70 dBA:	**26**	**28**
Medium Trucks	78.79	-18.49	-3.00	-1.20	56.10	36.90	29.11	38.32	44.48	44.51	65 dBA:	**55**	**60**
Heavy Trucks	83.02	-16.27	-3.00	-1.20	62.55	45.56	37.78	46.99	53.14	53.17	60 dBA:	**119**	**130**
				Total:	**66.38**	**61.07**	**59.66**	**54.54**	**62.61**	**63.17**	55 dBA:	**257**	**280**

Road Name: Cactus Avenue **Segment: East of Moreno Beach Drive**
Average Daily Traffic: 4000 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE							(Equiv. Lane Dist: 57.24 ft)			Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-6.64	-0.98	-1.20	62.30	59.93	58.63	52.58	61.01	61.64	70 dBA:	**17**	**18**
Medium Trucks	78.79	-21.50	-0.98	-1.20	55.11	35.90	28.12	37.32	43.48	43.51	65 dBA:	**36**	**39**
Heavy Trucks	83.02	-19.28	-0.98	-1.20	61.55	44.56	36.78	45.99	52.14	52.18	60 dBA:	**77**	**84**
				Total:	**65.38**	**60.07**	**58.67**	**53.55**	**61.61**	**62.17**	55 dBA:	**165**	**180**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2022 WITH PROJECT CONDITIONS

Project: 76 Gas Station & Restaurants
Site Conditions: Soft

Road Name: Cactus Avenue **Segment: East of Redlands Avenue**
Average Daily Traffic: 500 Vehicles Vehicle Speed: 50 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE							(Equiv. Lane Dist: 77.95 ft)			Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	71.12	-15.67	-3.00	-1.20	51.26	48.88	47.59	41.54	49.97	50.60	70 dBA:	**4**	**4**
Medium Trucks	78.79	-30.53	-3.00	-1.20	44.06	24.86	17.07	26.28	32.44	32.47	65 dBA:	**9**	**10**
Heavy Trucks	83.02	-28.32	-3.00	-1.20	50.51	33.52	25.74	34.95	41.10	41.13	60 dBA:	**19**	**20**
				Total:	**54.34**	**49.03**	**47.62**	**42.50**	**50.57**	**51.12**	55 dBA:	**41**	**44**

Road Name: Oliver Street **Segment: North of John F. Kennedy Drive**
Average Daily Traffic: 2600 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE							(Equiv. Lane Dist: 67.65 ft)			Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-6.96	-2.07	-1.20	54.88	52.51	51.21	45.16	53.59	54.22	70 dBA:	**7**	**7**
Medium Trucks	74.83	-21.83	-2.07	-1.20	49.73	30.52	22.74	31.95	38.10	38.14	65 dBA:	**14**	**16**
Heavy Trucks	80.05	-19.61	-2.07	-1.20	57.17	40.18	32.40	41.60	47.76	47.79	60 dBA:	**31**	**33**
				Total:	**59.65**	**52.78**	**51.28**	**46.89**	**54.69**	**55.20**	55 dBA:	**67**	**72**

Road Name: Oliver Street **Segment: South of John F. Kennedy Drive**
Average Daily Traffic: 2000 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Minor Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE							(Equiv. Lane Dist: 67.65 ft)			Centerline Distance to Noise Contour (in feet)		
	Noise Adjustments				Unmitigated Noise Levels								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	-8.10	-2.07	-1.20	53.74	51.37	50.07	44.02	52.45	53.08	70 dBA:	**6**	**6**
Medium Trucks	74.83	-22.96	-2.07	-1.20	48.59	29.38	21.60	30.81	36.96	37.00	65 dBA:	**12**	**13**
Heavy Trucks	80.05	-20.75	-2.07	-1.20	56.03	39.04	31.26	40.46	46.62	46.65	60 dBA:	**26**	**28**
				Total:	**58.51**	**51.64**	**50.14**	**45.75**	**53.55**	**54.06**	55 dBA:	**56**	**61**

FOCUSED TRAFFIC IMPACT STUDY

New 76 Gas Station and Restaurants

At SWC of Moreno Beach Drive and John F. Kennedy Drive, Moreno Valley

Date: January 30, 2018

Prepared For:

Western States Engineering, Inc.

4887 E. La Palma Ave, Ste 707

Anaheim, CA 92807

Prepared By:

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Tustin, CA 92780

(714) 832-2116

Focused Traffic Impact Study for New 76 Gas Station and Restaurants at SWC of Moreno Beach Drive and John F. Kennedy Drive, Moreno Valley

Prepared under the supervision of

Jende Kay Hsu, P.E., T. E.

Lic. # T2285

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Project is located on an unimproved land at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive in the City of Moreno Valley. The proposed development includes a new 76 gas station with 6 fuel pumps (12 fueling positions), automatic carwash, convenient store (3,400 sq. ft.), a quick-service restaurant (1,632 sq. ft.) and a sit-down restaurant (2,584 sq. ft.). With pass-by considerations, the project would generate 39 inbound and 36 outbound trips in the AM peak hour, and 58 inbound and 53 outbound trips in the PM peak hour, and 1,690 daily trips.

According to the approved scoping agreement, this study collected traffic count data and conducted level of service analysis for eight (8) intersections in project vicinity. The study reviewed various scenarios at year 2017 and year 2022 with and without project traffic. All studied intersections will maintain level of service "C" or better for both AM and PM peak hours in each of the study scenarios. The project will not result in significant traffic impact.

The study conducted queue analysis to confirm that sufficient queuing storage lengths are provided for turning movements at nearby intersections except eastbound left turn on John F. Kennedy Drive at Moreno Beach Drive. The study recommends extending eastbound left-turn lane to 145 feet of storage length at the intersection of John F. Kennedy Drive and Moreno Beach Drive, and shortening westbound left-turn lane to 100 feet of storage length at the intersection of John F. Kennedy Drive and Via Entrada.

INTRODUCTION

The purpose of this study is to evaluate traffic impact of the proposed development located at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive in the City of Moreno Valley. Vicinity map is shown in **Exhibit 1**.

Project site is currently unimproved and vacant. The proposed development includes a new 76 gas station with 6 fuel pumps (12 fueling positions), automatic carwash, convenient store (3,400 sq. ft.), a quick-service restaurant (1,632 sq. ft.) and a sit-down restaurant (2,584 sq. ft.). The proposed site plan is shown in **Exhibit 2**.

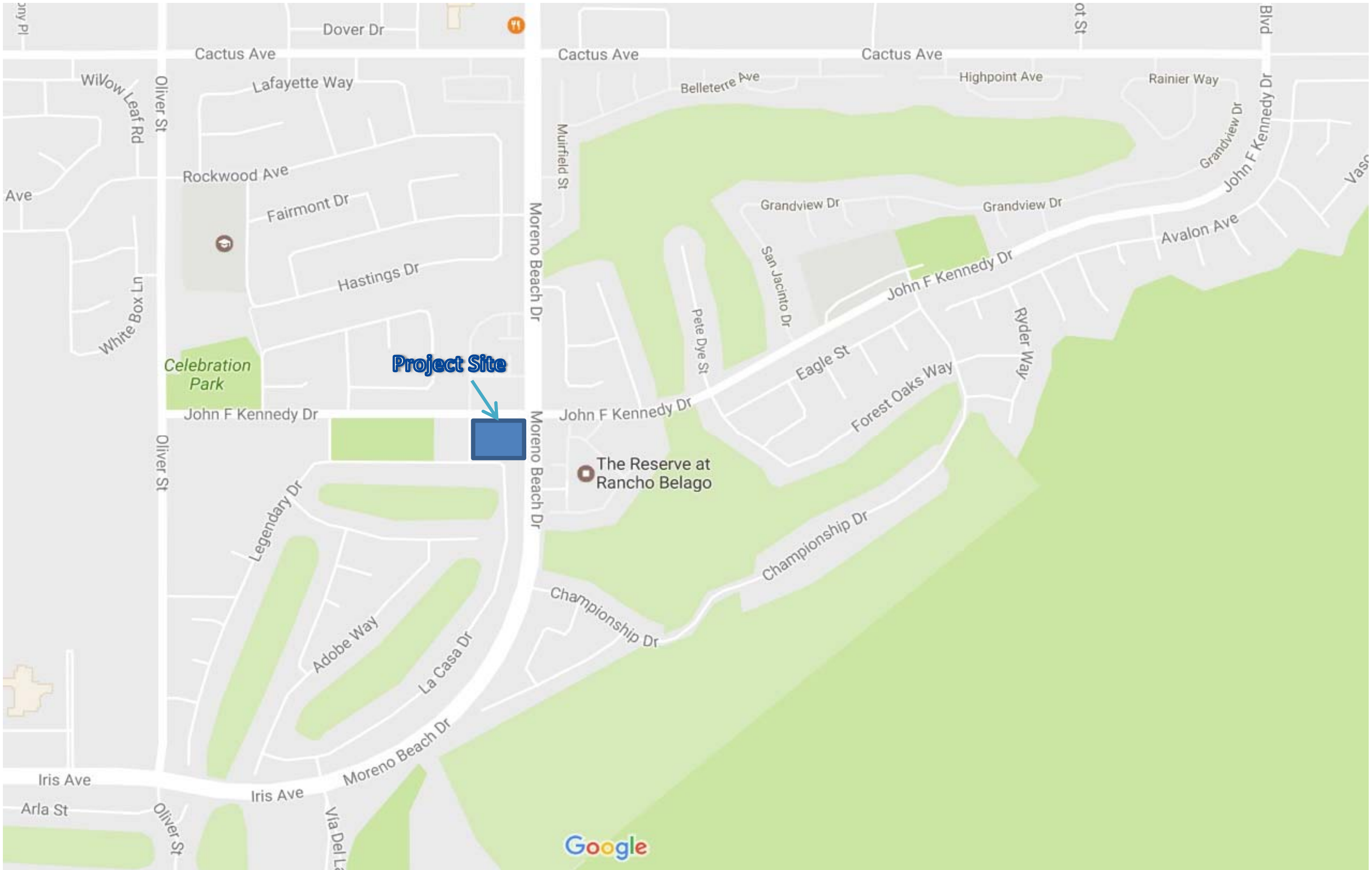


Exhibit 1. Vicinity Map
No Scale

K2 Traffic Engineering, Inc.

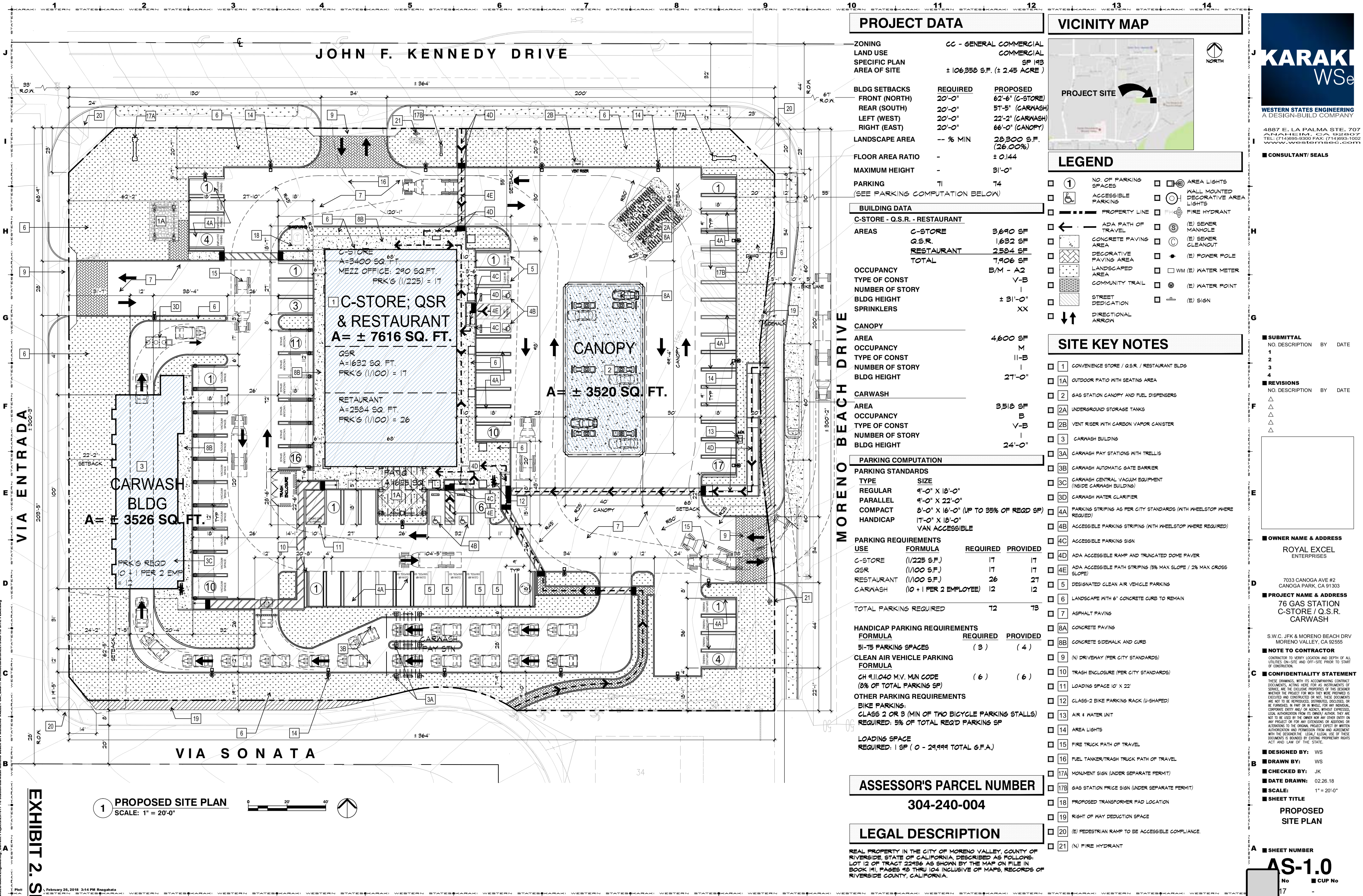


EXHIBIT 2. SITE PLAN

1.w

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

STUDY SCENARIOS

Based on the scoping agreement, **Appendix "A"**, approved by the City of Moreno Valley, this study includes the following study scenarios:

i. Existing: Year 2017

ii. Existing: Year 2017 plus Project

iii. Pre-Project Conditions: Year 2022 plus Cumulative Projects

iv. Post-Project Conditions: Year 2022 plus Cumulative Projects plus Project

v. Post-Project Conditions: Year 2022 plus Cumulative Projects plus Project with Mitigation, if necessary

This proposed development is consistent with the General Plan of the City of Moreno Valley. Long term scenarios at Horizon Year has been sought by the regional planning of the City of Moreno Valley and Riverside County, and therefore not discussed in this study.

According to the approved scoping agreement, the following intersections were included in this study:

1. John F. Kennedy Dr at Oliver St
2. John F. Kennedy Dr at Via Entranda
3. John F. Kennedy Dr at Moreno Beach Dr
4. John F. Kennedy Dr at Championship Dr
5. John F. Kennedy Dr at Cactus Ave
6. Moreno Beach Dr at Cactus Ave
7. Moreno Beach Dr at Championship Dr
8. Moreno Beach Dr/Iris Ave at Via Del Lago

EXISTING CONDITIONS

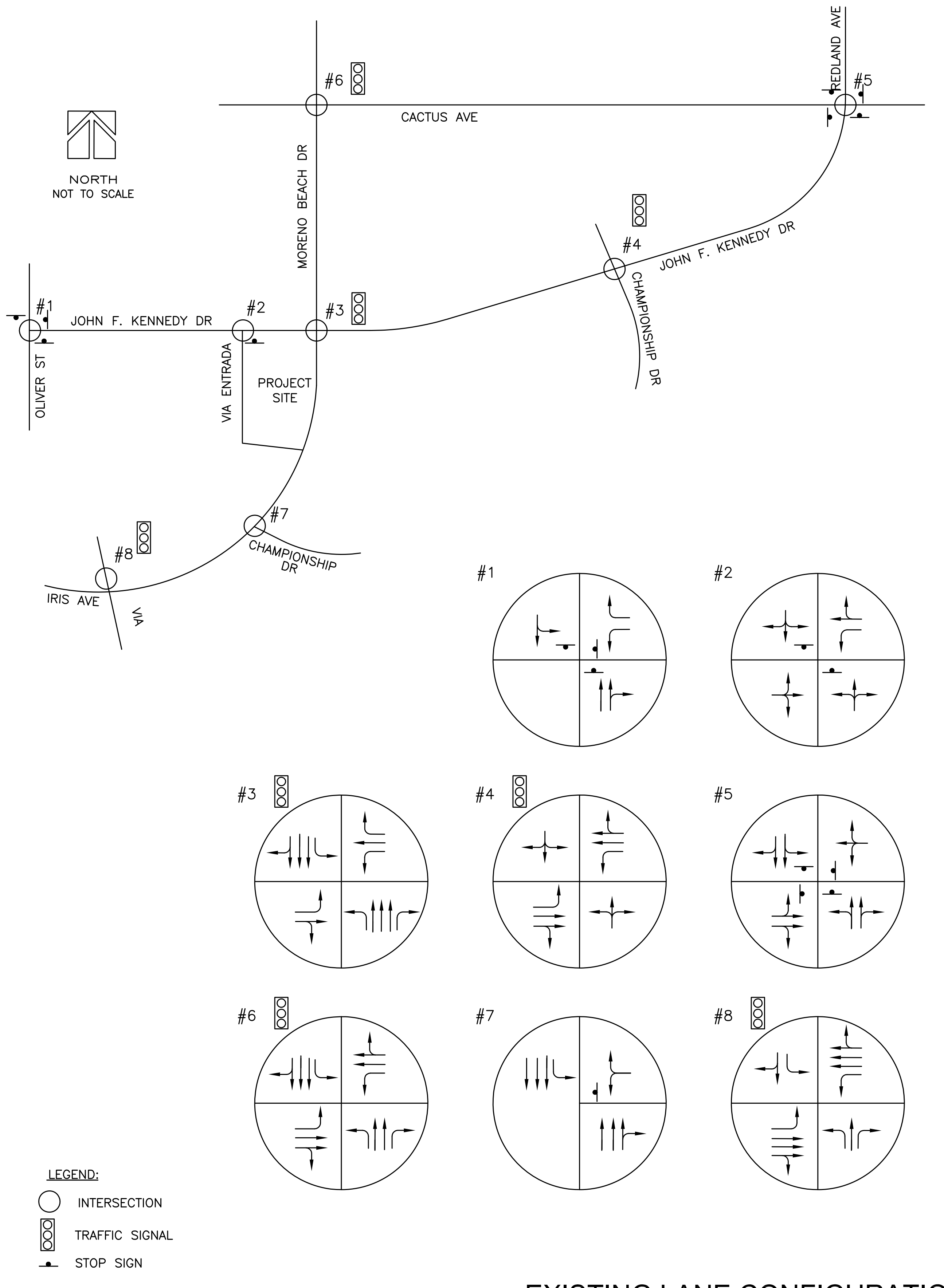
Project site is an unimproved and vacant lot situated at the southwest corner of John F. Kennedy Drive at Moreno Beach Drive. John F. Kennedy Dr. is an east-west undivided arterial with one lane in each direction in the project vicinity. Moreno Beach Drive is a north-south major highway with a median island dividing three lanes in each direction.

Traffic counts of AM and PM peak hour turning movements were collected on Wednesday, March 21, 2017. Lane configurations and traffic volumes at the study intersections are shown in **Exhibit 3 and 4**, respectively. Complete traffic data can be found in **Appendix "B"**.

The study intersections currently operate at LOS "C" or better for both AM and PM peak hours as shown in **Table 1**. The analysis worksheets can be found in **Appendix "C"**.

Table 1. Existing Conditions

		AM		PM	
No.	Intersection	LOS	Delay	LOS	Delay
1	John F. Kennedy Dr at Oliver St	A	7.4	A	8.0
2	John F. Kennedy Dr at Via Entrada	A	3.4	A	8.6
3	John F. Kennedy Dr at Moreno Beach Dr	B	13.8	C	21.0
4	John F. Kennedy Dr at Championship Dr	B	8.4	A	9.1
5	John F. Kennedy Dr at Cactus Ave	A	9.4	B	10.4
6	Moreno Beach Dr at Cactus Ave	B	12.9	C	21.4
7	Moreno Beach Dr at Championship Dr	B	12.3	B	14.5
8	Moreno Beach Dr at Via Del Lago	B	11.6	B	11.3

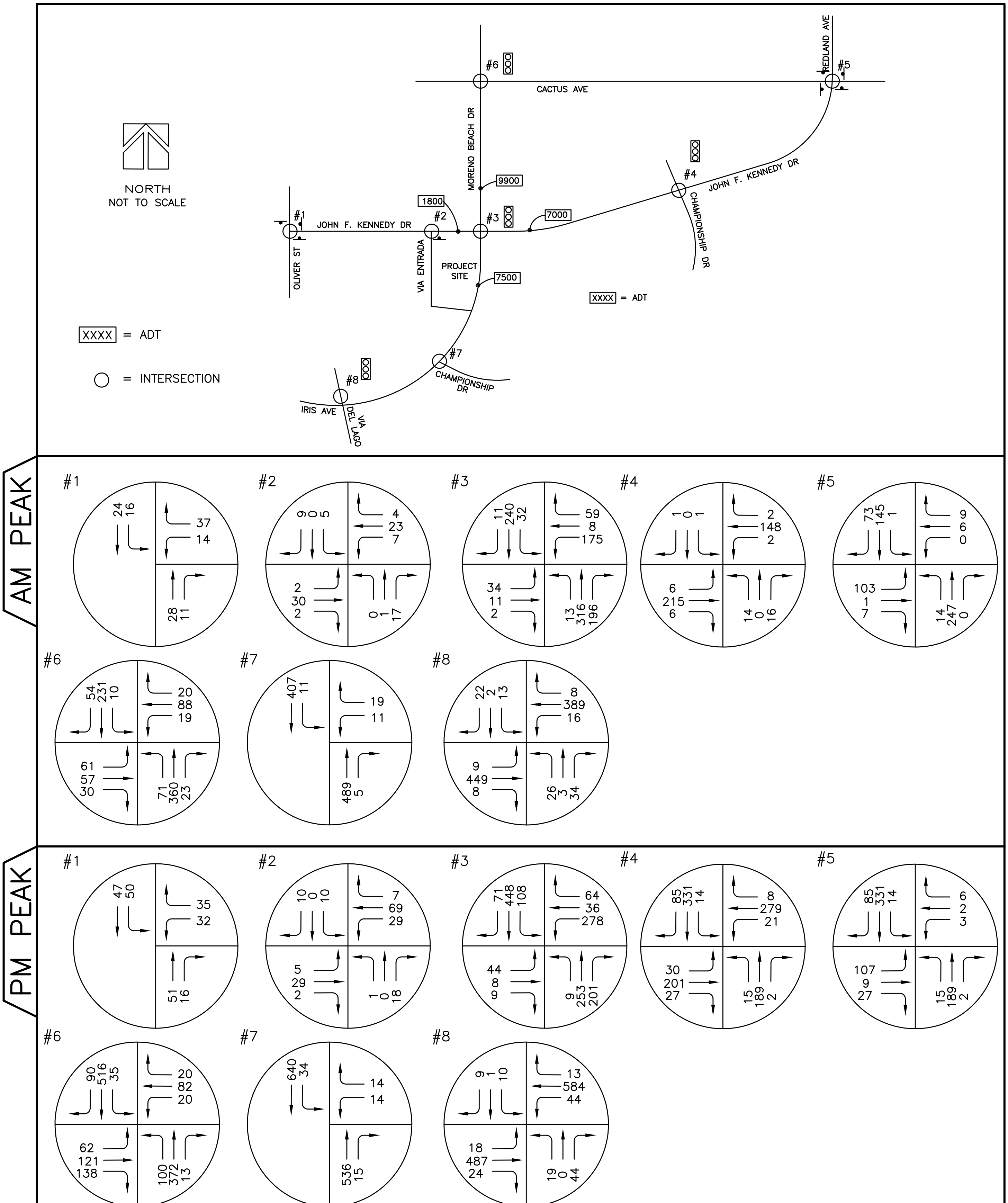


EXISTING LANE CONFIGURATION

76 GAS STATION
AT SWC OF MORENO BEACH DR AND JOHN F. KENNEDY DR

K2 TRAFFIC ENGINEERING

EXHIBIT 3



EXISTING YEAR TRAFFIC VOLUMES

NEW 7-ELEVEN GAS STATION
AT SWC OF MORENO BEACH DR AND JOHN F. KENNEDY DR

K2 TRAFFIC ENGINEERING

EXHIBIT 4

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

TRIP GENERATION

Passenger vehicle trips are estimated using the rates and methodologies outlined in *"Trip Generation"*, 10th Edition, published by the Institute of Transportation Engineers (ITE). Applicable trip generation rates are shown in **Table 3**.

Table 3. Trip Generation Rate

LAND USE (ITE CODE)	UNIT	DAILY	AM PEAK HOUR			PM PEAK HOUR		
			Rate	IN	OUT	Rate	IN	OUT
Gas Station with Convenience Market (945)	Fueling Station	205.36	12.47	51%	49%	13.99	51%	49%
High-Turnover (Sit-Down) Restaurant (932)	1000SF	112.18	9.94	55%	45%	9.77	62%	38%
Fast Casual Restaurant (930)	1000SF	315.17	2.07	67%	33%	14.13	55%	45%

Based on ITE's Trip Generation Handbook, Third Edition, the study applies pass-by rates applicable for the proposed uses. The project would generate 39 inbound and 36 outbound trips in the AM peak hour, and 58 inbound and 53 outbound trips in the PM peak hour, and 1,690 daily trips. The projected trips associated with the project are provided in **Table 4**.

Table 4. Project Trip Generation

LAND USE	UNIT	Quantity	AM Peak Total	AM Peak IN	AM Peak OUT	PM Peak Total	PM Peak IN	PM Peak OUT	Daily
Gas Station with Convenience Market (945)	Veh Fueling Station	12	149.6	76.3	73.3	167.9	85.6	82.3	2464.3
	Pass-By Trip Deduction Rate		62%	62%	62%	56%	56%	56%	59%
	Pass-By Trip Deduction		-92.8	-47.3	-45.5	-94.0	-47.9	-46.1	- 1453.9
	Total		56.9	29.0	27.9	73.9	37.7	36.2	1010.4
High-Turnover (Sit-Down) Restaurant (932)	1000 Sq. Ft.	2.6	25.8	14.2	11.6	25.4	15.7	9.7	291.7
	Pass-By Trip Deduction	43%	-11.1	-6.0	-5.0	-10.9	-6.8	-4.2	-125.4
	Total		14.7	8.2	6.6	14.5	9.0	5.5	166.3
Fast Casual Restaurant (930)	1000 Sq. Ft.	1.63	3.4	1.7	1.7	23.0	11.5	11.5	513.7
Trip Generation (before Pass-By Deduction)			**179**	92	87	**216**	113	103	3270
Trip Generation (NET)			**75**	39	36	**111**	58	53	1690

TRIP DISTRIBUTION

Trip distribution represents the directional orientation of traffic to and from the proposed project. Directional orientation is largely influenced by the geographical location of the site, among many other factors. The trip distribution pattern for the project is illustrated on **Exhibit 5**.

TRAFFIC ASSIGNMENT

The traffic assignment to and from the site has been based upon the results of trip generation, trip distribution, and access layouts. Due to close proximity of study intersections to the site, the project trips has been applied without pass-by deduction to all three study intersections as a conservative approach. **Exhibit 6** illustrates the traffic assignment of the proposed project.

EXHIBIT 5. TRIP DISTRIBUTION

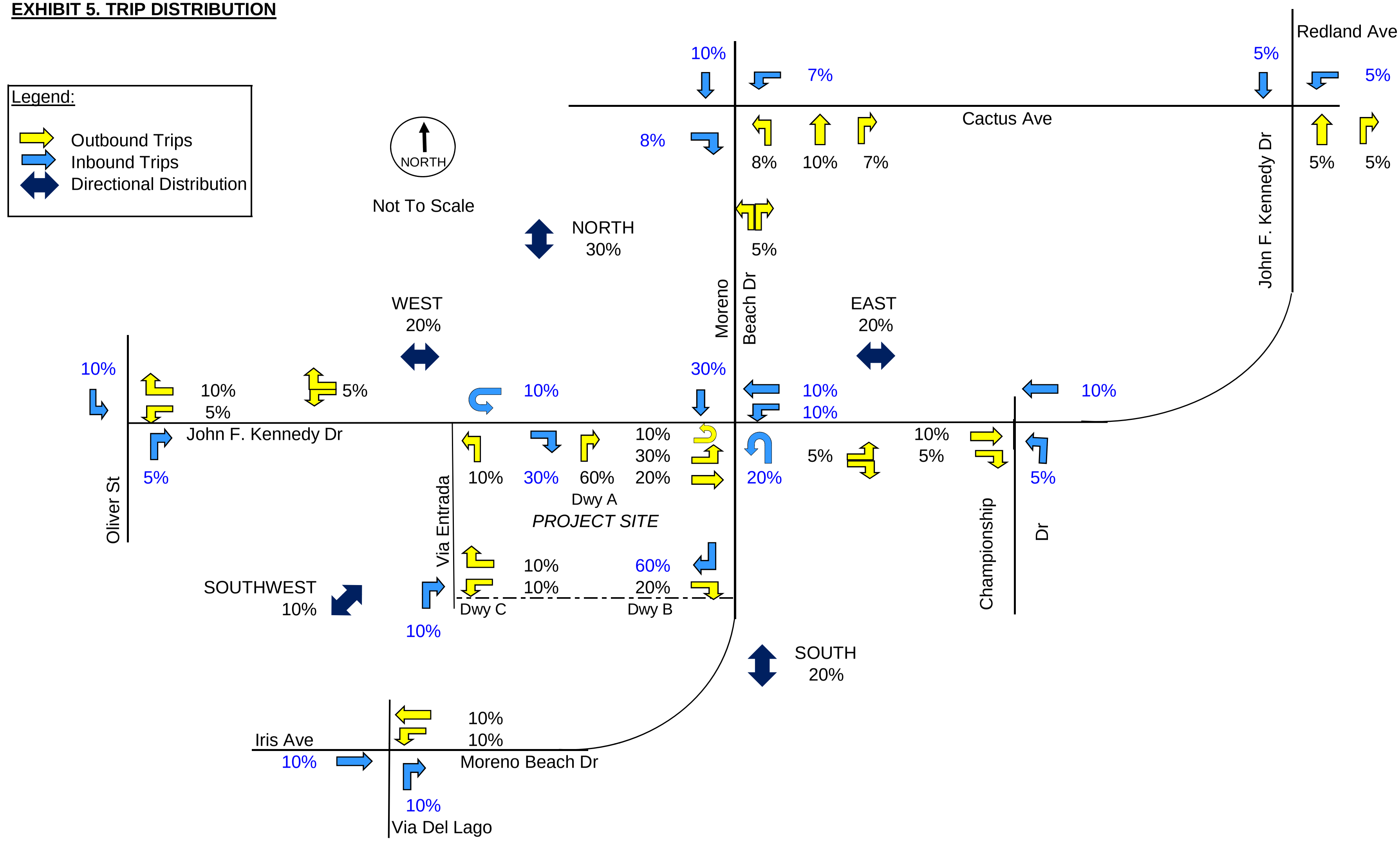
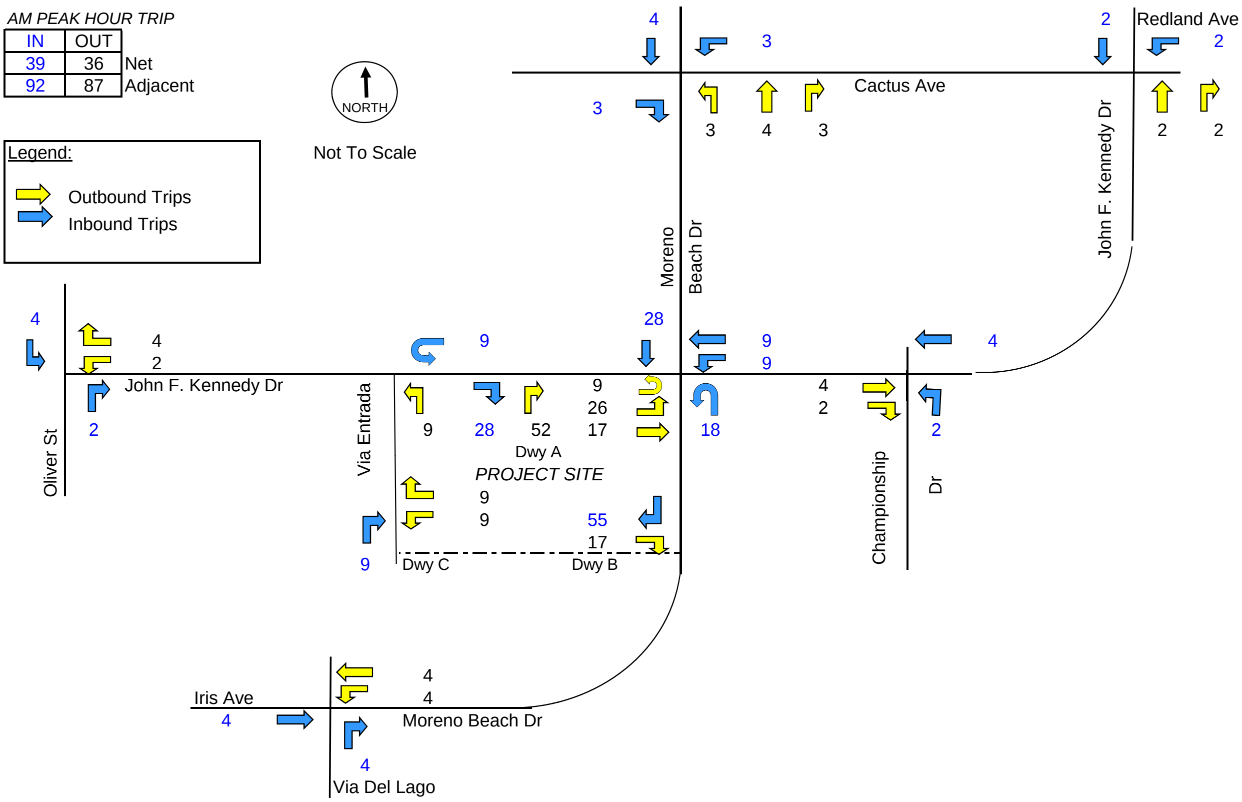


EXHIBIT 6. TRAFFIC ASSIGNMENT

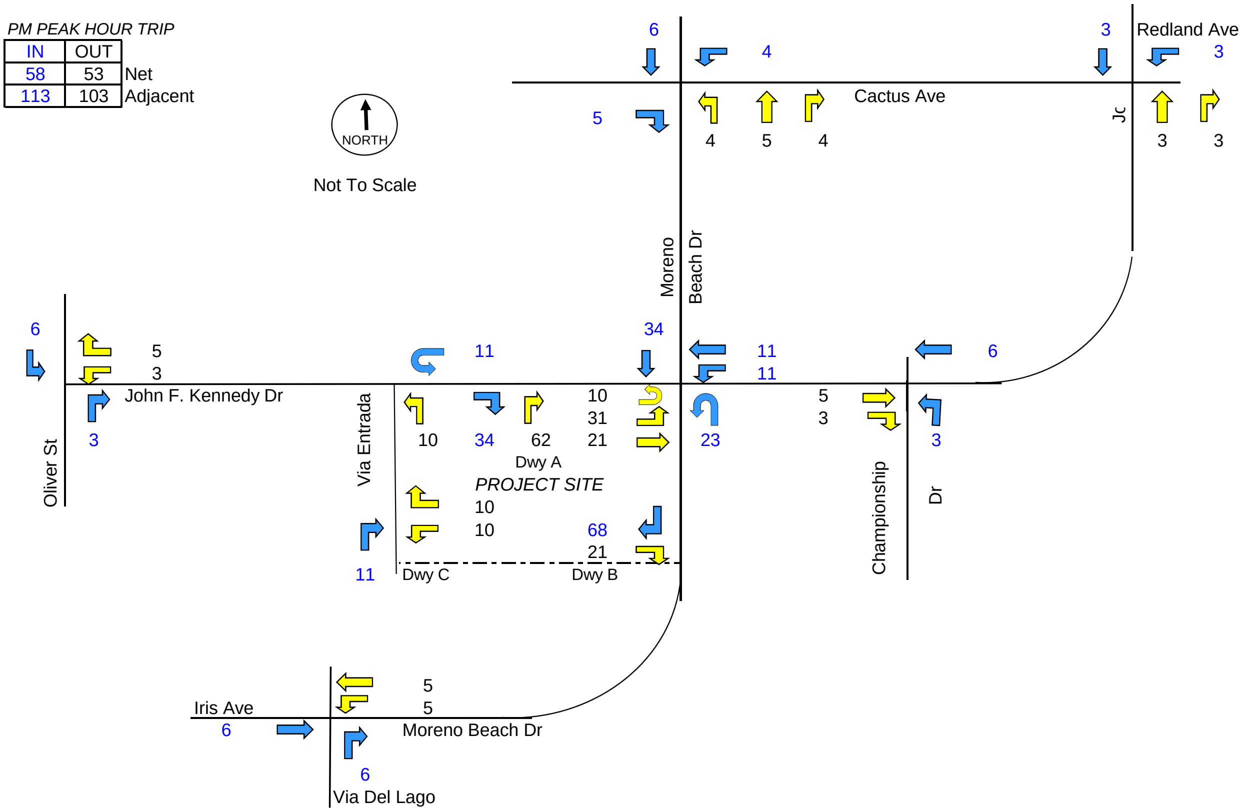
AM PEAK HOUR TRIP

IN	OUT	
39	36	Net
92	87	Adjacent



PM PEAK HOUR TRIP

IN	OUT	
58	53	Net
113	103	Adjacent



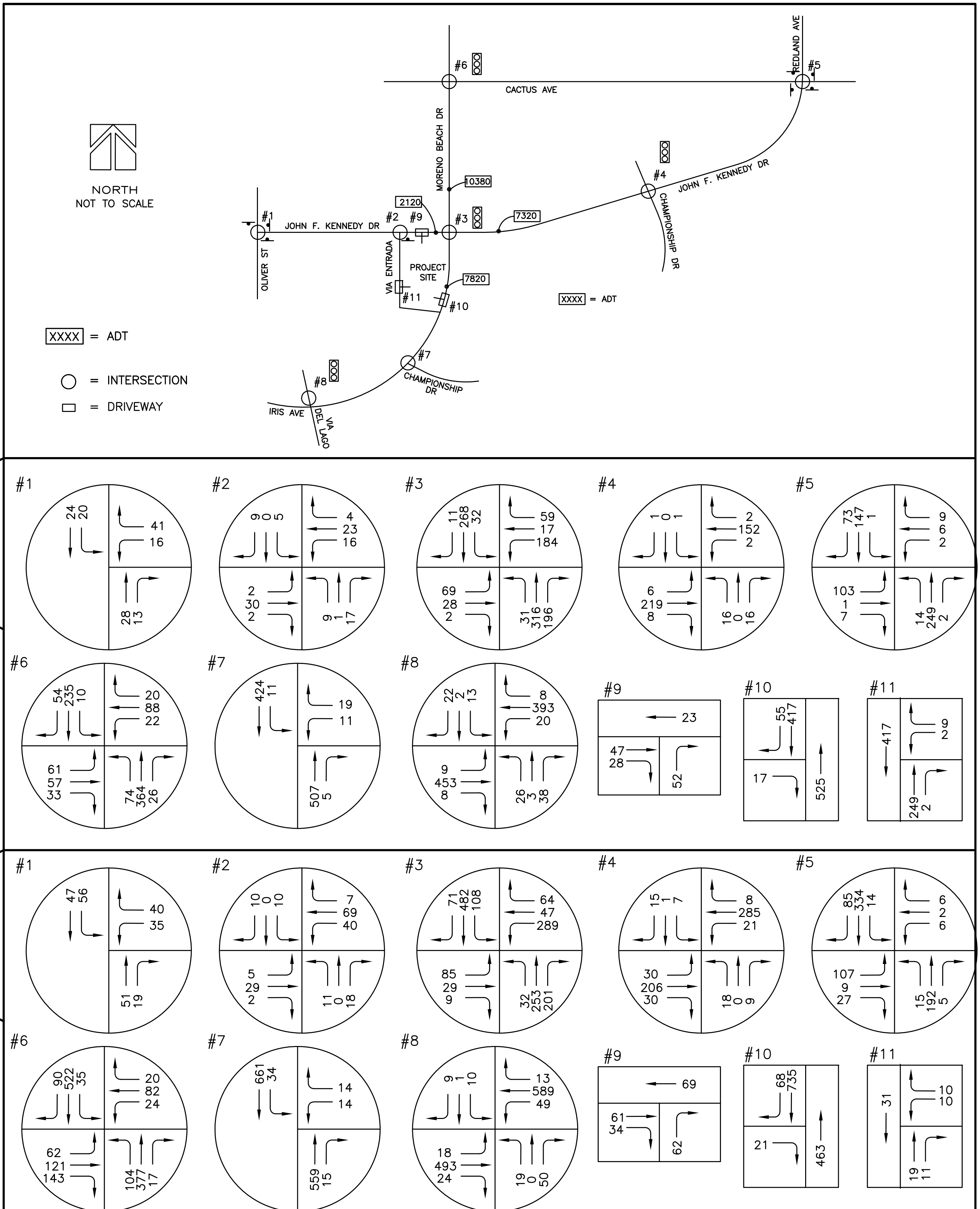
EXISTING CONDITIONS PLUS PROJECT

Traffic volumes of the existing condition plus project traffic are shown in **Exhibits 7**.

The project's level of significance of traffic impact under existing conditions for the AM and PM peak hour are shown in **Table 5**. All studied intersections will maintain level of service "C" or better for the existing conditions plus project.

Table 5. Existing Conditions Plus Project

No.	Intersection	AM		PM	
		LOS	Delay	LOS	Delay
1	John F. Kennedy Dr at Oliver St	A	7.5	A	8.0
2	John F. Kennedy Dr at Via Entrada	A	8.9	A	9.2
3	John F. Kennedy Dr at Moreno Beach Dr	B	14.5	C	22.4
4	John F. Kennedy Dr at Championship Dr	A	8.4	A	9.1
5	John F. Kennedy Dr at Cactus Ave	A	9.4	B	10.5
6	Moreno Beach Dr at Cactus Ave	B	13.1	C	21.3
7	Moreno Beach Dr at Championship Dr	B	12.5	A	0.6
8	Moreno Beach Dr at Via Del Lago	B	12.4	B	12.3
9	Driveway A (John F. Kennedy Dr)	A	8.8	A	9.0
10	Driveway B (Moreno Beach Dr)	A	8.6	A	8.7



NEW 7-ELEVEN GAS STATION
AT SWC OF MORENO BEACH DR AND JOHN F. KENNEDY DR

EXISTING (2017) PLUS PROJECT TRAFFIC

K2 TRAFFIC ENGINEERING

EXHIBIT 7

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

OTHER DEVELOPMENTS (CUMULATIVE PROJECTS)

Other approved developments within the study area were taken into consideration. Based on information provided by the Planning Department of the City of Moreno Valley, cumulative projects within a two-mile radius and corresponding trip generations are listed in **Exhibit 8**. The locations of cumulative projects are illustrated on **Exhibit 9**. **Exhibit 10** illustrates traffic volumes generated by cumulative projects for study intersections.

EXHIBIT 8. CUMULATIVE PROJECTS

Reference Number	Project Information	AM Peak			PM Peak			Daily
		IN	OUT	Total	IN	OUT	Total	
9	Integrated Care Communities (44,000 SF, 99 bed skilled nursing)	19	5	24	11	15	26	292
12	Main Street Skilled Nursing Facility (57,000 SF, 90-room)	24	7	31	14	20	34	378
21	Rochas Grandes (426-unit apartment)	45	151	196	150	88	239	3118
22	Rancho Belago (141-unit apartment)	15	50	65	50	29	79	1032
23	MV Bella Vista (220-unit apartment)	23	78	101	78	46	123	1610
37-41	352 Single-Family Residences	65	195	260	220	129	348	3323
42	Frontier Community (40 single-family residences)	7	22	30	25	15	40	378
43	KB Homes (159 single-family residences)	29	88	118	99	58	157	1501

Source: Planning Department of the City of Moreno Valley

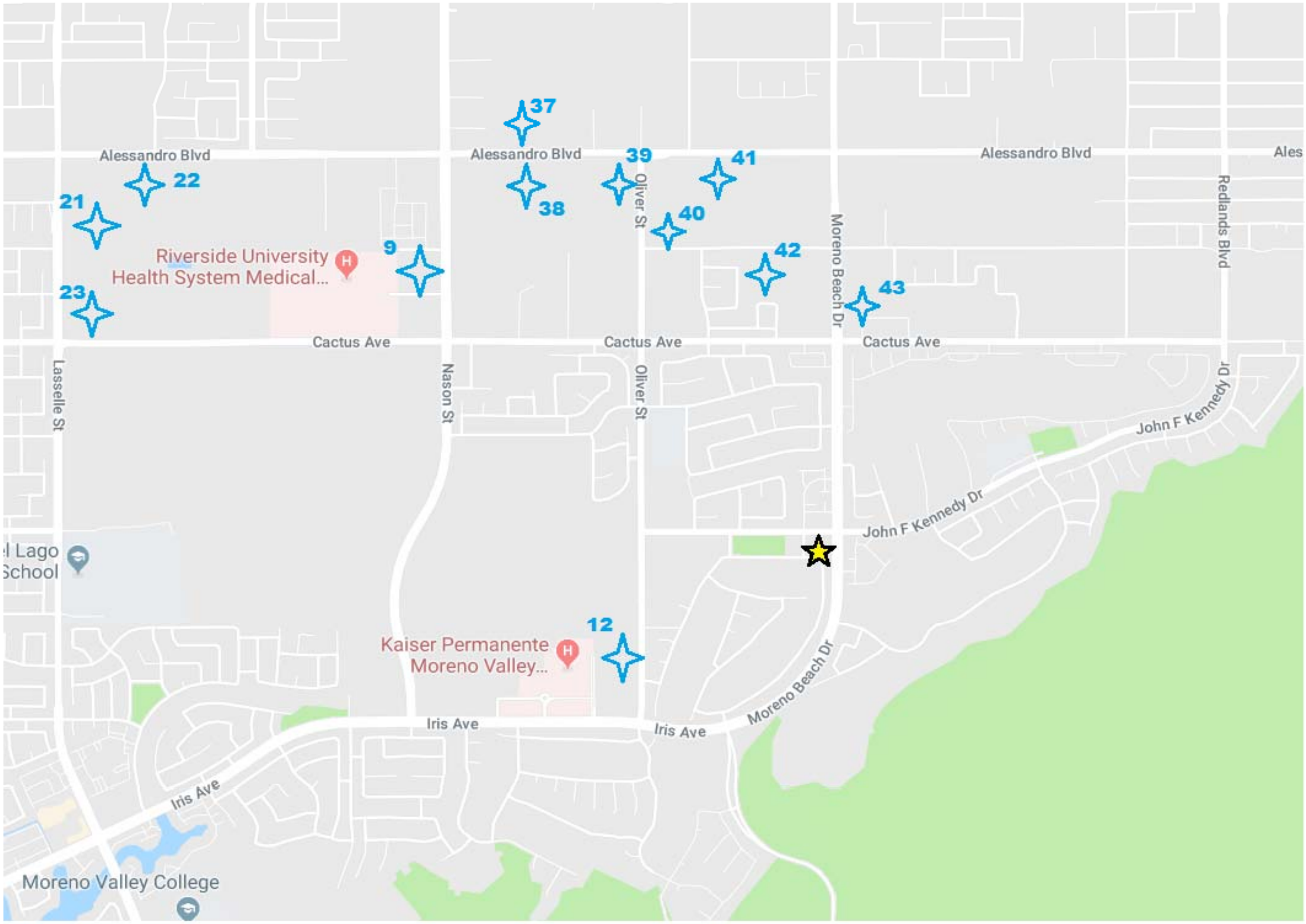
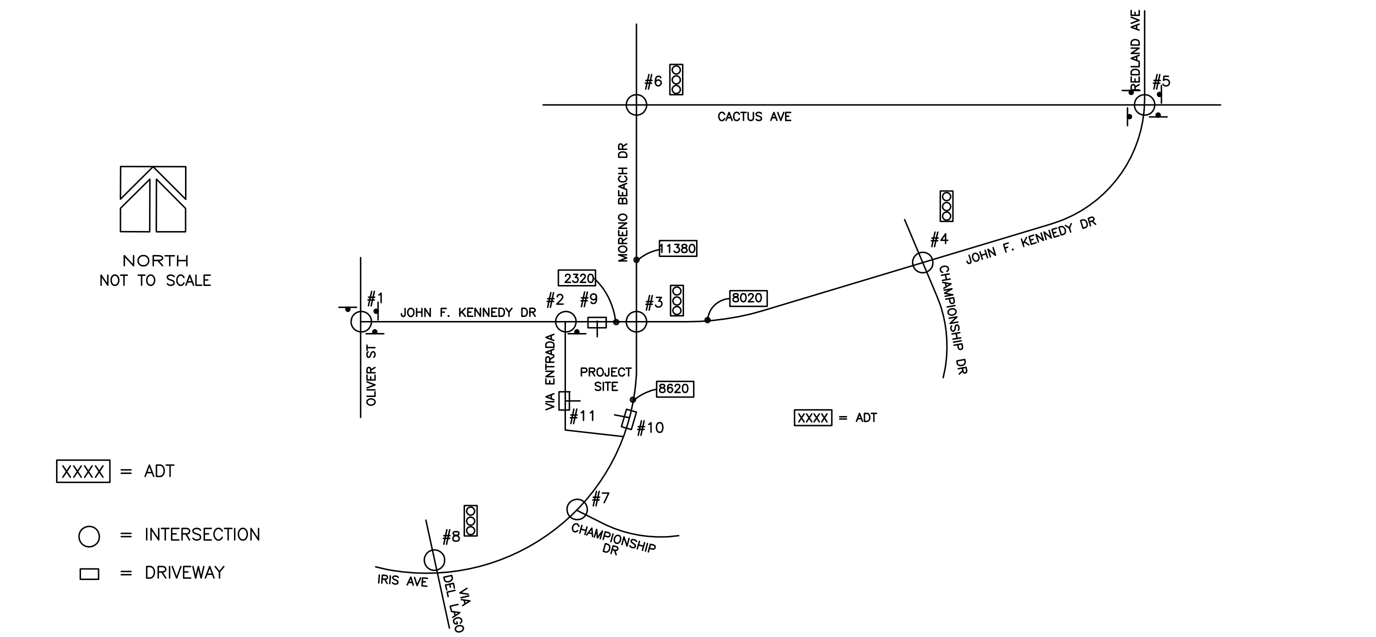
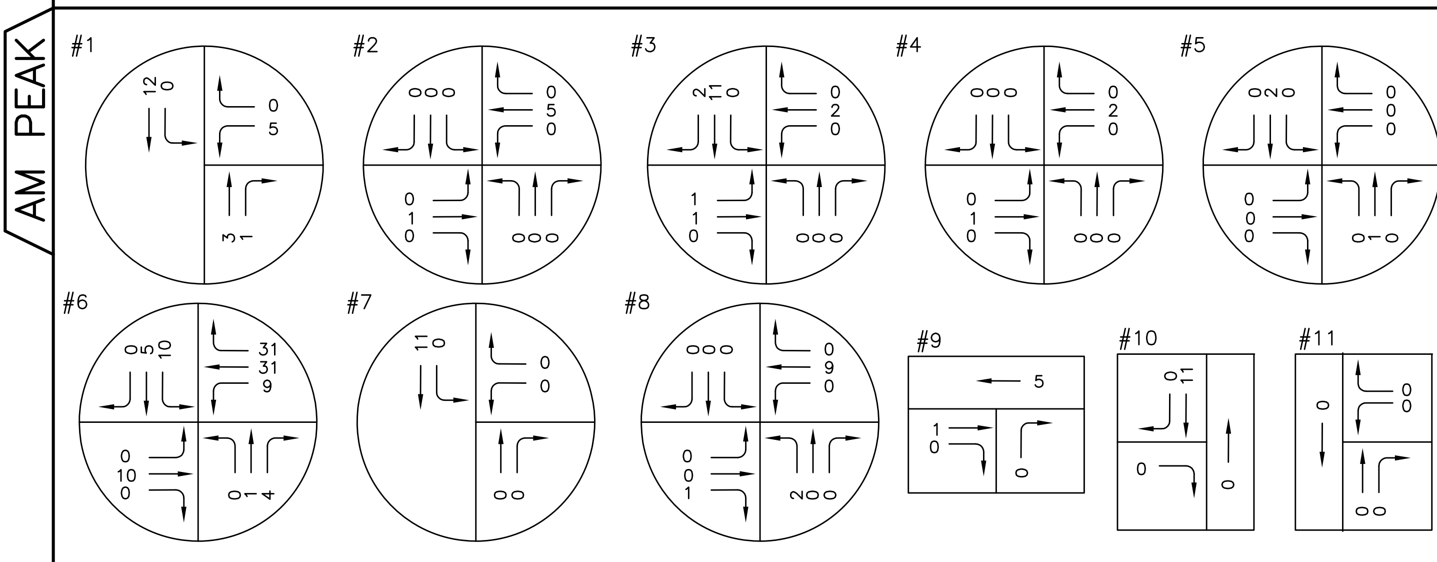


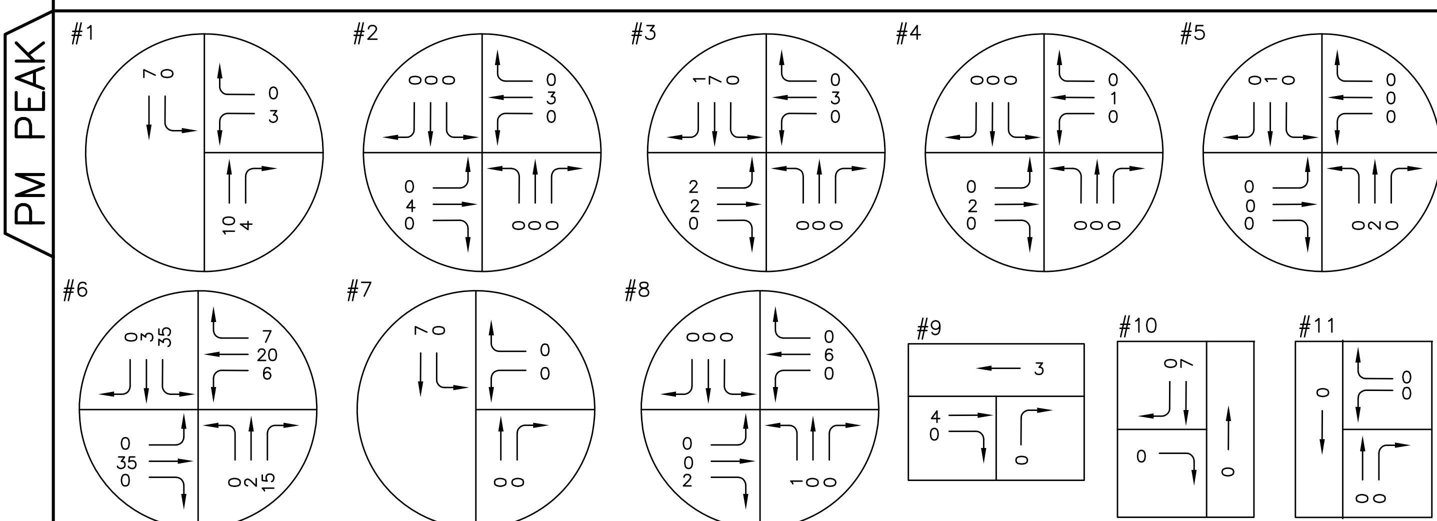
Exhibit 9. Location of Cumulative Projects

No Scale

K2 Traffic Engineering, Inc.







NEW 7-ELEVEN GAS STATION
AT SWC OF MORENO BEACH DR AND JOHN F. KENNEDY DR

CUMULATIVE PROJECTS
TRAFFIC VOLUME

K2 TRAFFIC ENGINEERING

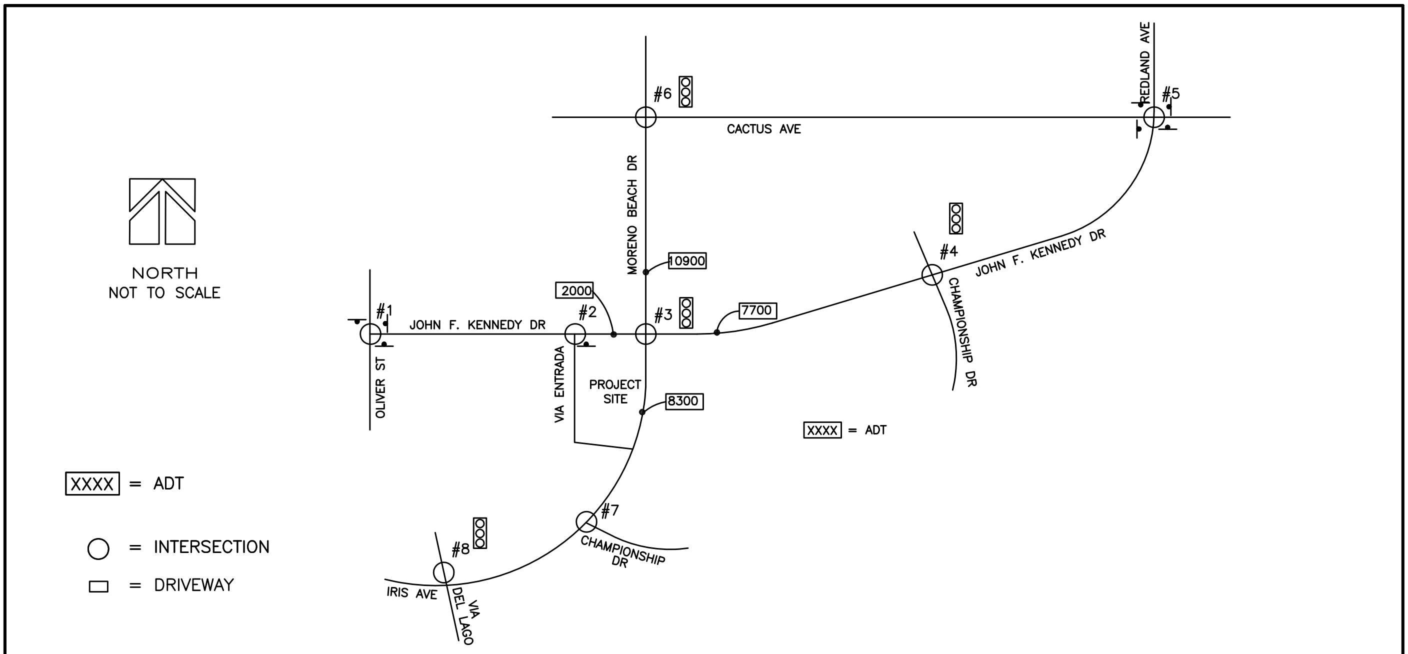
EXHIBIT 10

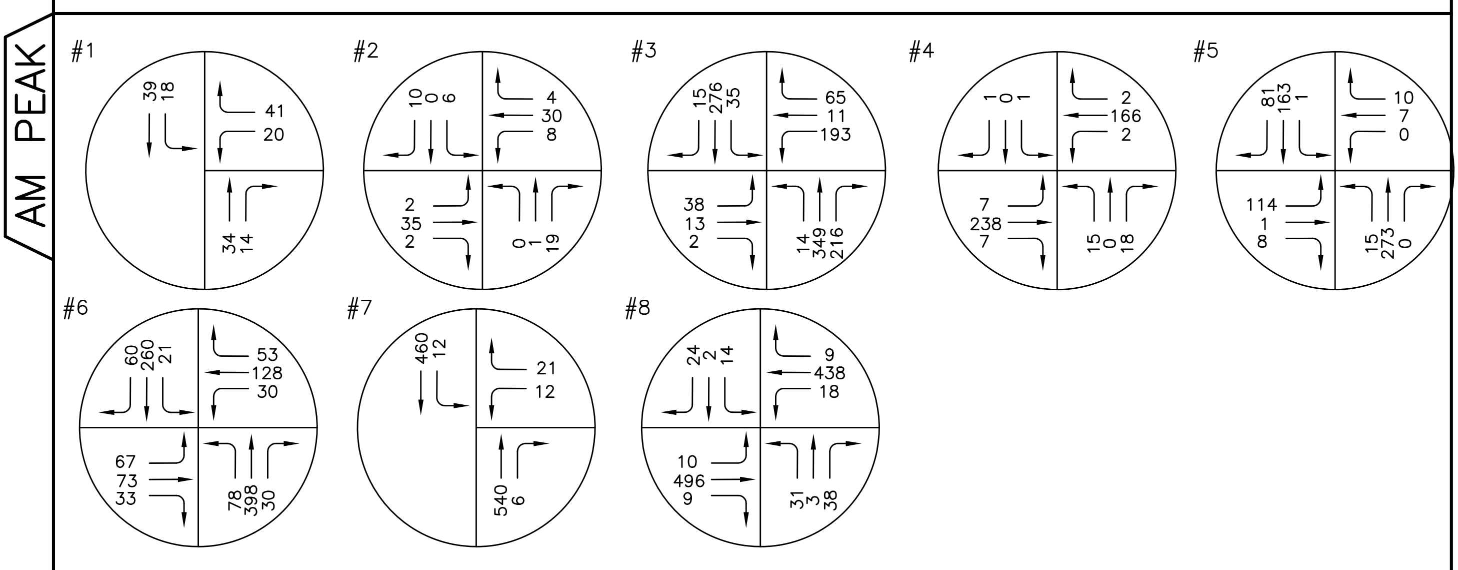
PRE-PROJECT COMPLETION

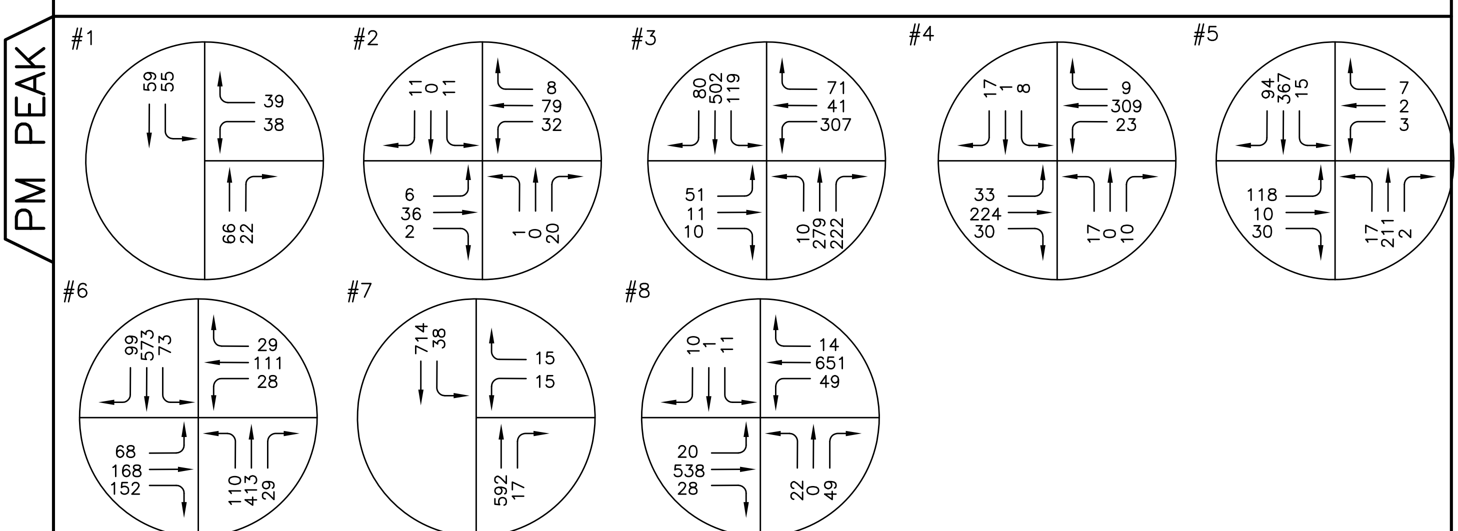
Traffic conditions prior to completion of the proposed development is estimated by applying an annual growth rate of two percent (2%) over existing traffic counts for year 2022 conditions plus traffic generated by cumulative projects. Traffic volumes for the pre-project completion are illustrated in **Exhibit 11**. All studied intersections will maintain level of service "C" or better for both AM and PM peak hours, as shown in **Table 6.** The analysis worksheets can be found in **Appendix "C"**.

Table 6. Pre-Project Completion (2022) Level of Service

No.	Intersection	AM		PM	
		LOS	Delay	LOS	Delay
1	John F. Kennedy Dr at Oliver St	A	7.6	A	8.2
2	John F. Kennedy Dr at Via Entrada	A	8.6	A	8.7
3	John F. Kennedy Dr at Moreno Beach Dr	B	14.3	C	22.8
4	John F. Kennedy Dr at Championship Dr	A	8.5	A	9.2
5	John F. Kennedy Dr at Cactus Ave	A	9.7	B	11.0
6	Moreno Beach Dr at Cactus Ave	B	13.7	C	27.7
7	Moreno Beach Dr at Championship Dr	B	12.9	C	15.7
8	Moreno Beach Dr at Via Del Lago	B	12.6	B	12.6







NEW 7-ELEVEN GAS STATION
AT SWC OF MORENO BEACH DR AND JOHN F. KENNEDY DR

PRE-PROJECT COMPLETION (2022) TRAFFIC VOLUMES

K2 TRAFFIC ENGINEERING

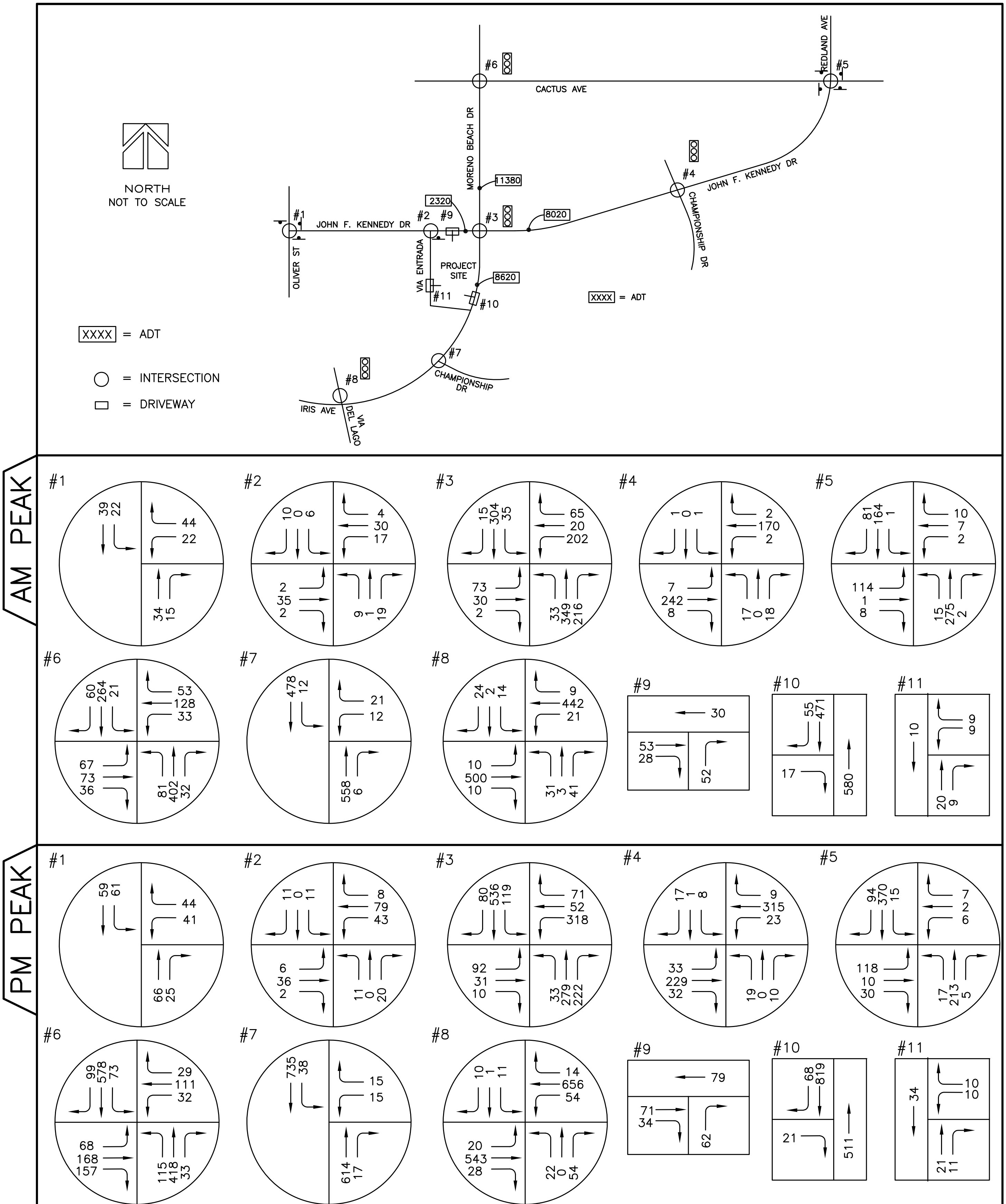
EXHIBIT 11

POST-PROJECT COMPLETION

Traffic volumes for year 2022 after project completion (existing plus ambient growth plus cumulative plus project) are illustrated in **Exhibit 12**. All studied intersections will maintain level of service "C" or better for both AM and PM peak hours, as shown in **Table 7**.

Table 7. Post-Project Completion (2022) Level of Service

No.	Intersection	AM		PM	
		LOS	Delay	LOS	Delay
1	John F. Kennedy Dr at Oliver St	A	7.7	A	8.2
2	John F. Kennedy Dr at Via Entrada	A	8.9	A	9.3
3	John F. Kennedy Dr at Moreno Beach Dr	B	14.9	C	27.3
4	John F. Kennedy Dr at Championship Dr	A	8.5	A	9.2
5	John F. Kennedy Dr at Cactus Ave	A	9.7	B	11.1
6	Moreno Beach Dr at Cactus Ave	B	13.7	C	21.8
7	Moreno Beach Dr at Championship Dr	B	13.1	C	16.1
8	Moreno Beach Dr at Via Del Lago	B	14.1	B	12.5
9	Driveway A (John F. Kennedy Dr)	A	8.9	A	9.0
10	Driveway B (Moreno Beach Dr)	B	11.1	B	13.3
11	Driveway C (Via Entrada)	A	8.7	A	8.7



STARBUCKS COFFEE & 7-ELEVEN GAS STATION
AT SWC OF MORENO BEACH DR AND JOHN F. KENNEDY DR

POST-PROJECT COMPLETION
TRAFFIC VOLUMES

K2 TRAFFIC ENGINEERING

EXHIBIT 12

THRESHOLD OF SIGNIFICANT IMPACT

In accordance with the Caltrans Guide for the Preparation of Traffic Impact Studies, the following criteria apply to determination of significant impact. The threshold of significant traffic impact are shown in **Table 8**.

Table 8. Threshold of Significant Impact

LOS	Control Delay (Sec/Veh)
A	≤ 10
B	> 10 - 20
C	> 20 - 35
D	> 35 - 55
E	> 55 - 80
F	> 80

With consideration of the proposed project together with other developments in the area, the combined traffic impacts are shown in **Table 9**. Based on the threshold shown above, the project does not have a significant traffic impact. Mitigation measure is, therefore, not required for the project.

Table 9. Project Impact Analysis

Intersection	Pre-Project Conditions LOS	Pre-Project Conditions Delay	Post Project Conditions LOS	Post Project Conditions Delay	LOS D or Worse	Significant Impact
AM PEAK						
1. John F. Kennedy Dr at Oliver St	A	7.5	A	7.5	No	No
2. John F. Kennedy Dr at Via Entrada	A	3.5	A	4.2	No	No
3. John F. Kennedy Dr at Moreno Beach Dr	C	22.8	B	14.9	No	No
4. John F. Kennedy Dr at Championship Dr	A	9.2	A	8.5	No	No
5. John F. Kennedy Dr at Cactus Ave	A	9.7	A	9.7	No	No
6. Moreno Beach Dr at Cactus Ave	C	21.8	B	13.3	No	No
7. Moreno Beach Dr at Championship Dr	A	0.5	A	0.5	No	No
8. Moreno Beach Dr at Via Del Lago	B	12.6	B	14.1	No	No
PM PEAK						
1. John F. Kennedy Dr at Oliver St	A	8.1	A	8.2	No	No
2. John F. Kennedy Dr at Via Entrada	A	3.3	A	3.9	No	No
3. John F. Kennedy Dr at Moreno Beach Dr	C	22.8	C	27.2	No	No
4. John F. Kennedy Dr at Championship Dr	A	9.2	A	9.2	No	No
5. John F. Kennedy Dr at Cactus Ave	B	11.0	B	11.1	No	No
6. Moreno Beach Dr at Cactus Ave	C	21.8	C	21.7	No	No
7. Moreno Beach Dr at Championship Dr	A	0.7	A	0.7	No	No
8. Moreno Beach Dr at Via Del Lago	B	12.6	B	12.5	No	No

QUEUE ANALYSIS

To ensure sufficient queuing storage length is available for all turning movements (e.g. left, right and U turns), the study conducted queue analysis based on year 2022 conditions including cumulative developments and the proposed project. The results of queue analysis can be found in **Appendix D** and are summarized in **Table 10.**

Table 10. Queue Analysis

No.	Intersection	Turn Movement	95th Percentile Queue (ft) AM Peak	95th Percentile Queue (ft) PM Peak	Turn Bay Length (ft)	Mitigation Measure Required
2	John F. Kennedy Dr at Via Entrada	EBL	0	0	TWLT	No
		WBL	1	2	145	No
3	Moreno Beach Dr at John F. Kennedy Dr	**EBL**	39	**118**	**100**	**Yes**
		WBL	116	309	320	No
		WBR	0	0	200	No
		NBL	19	43	285	No
		NBR	25	13	250	No
		SBL	36	150	314	No
7	Moreno Beach Dr at Championship Dr	SBL	1	4	100	No
9	John F. Kennedy Dr at Project Driveway	EBR	0	0	NC	No
		NBR	5	6	50	No
10	Moreno Beach Dr at Project Driveway	EBR	1	2	50	No
		SBR	0	0	90	No
11	Via Entrada at Project Driveway	WBL	2	2	90	No
		WBR	2	2	90	No
		NBR	0	0	NC	No
		SBL	0	0	NC	No

Note: TWLT = Two-way-left-turn lane; NC = Not Channelized

This study confirms that adequate queuing lengths are provided at all locations with the following exception:

- **Eastbound Left Turn (John F. Kennedy Dr at Moreno Beach Dr)**
  95th percentile queue (year 2022 PM peak hour with project) = 118 feet
  Existing pocket length = 100 feet

Mitigation measures for the insufficient queue length include:

- Extend eastbound left-turn lane at the intersection of John F. Kennedy Drive and Moreno Beach Drive to provide 145 feet of storage length.
- Shorten westbound left-turn lane at the intersection of John F. Kennedy Drive and Via Entrada to provide 100 feet of storage length.

The above mitigation measure will result in a shortened yet sufficient storage for westbound left turns on John F. Kennedy Drive at Via Entrada. The effects due to changes of back-to-back turn bay storages are shown in **Table 11**.

Table 11. Mitigation Measure for Queue Analysis

John F. Kennedy Drive	EBL at Moreno Beach Dr.	WBL at Via Entrada
Existing Pocket Length	100 ft	145 ft
Shared Taper	60 ft	60 ft
Peak Left-Turn Volume	98 (2022 PM Peak)	43 (2022 PM Peak)
Traffic Control	Protective Signal	Free (Yield to Thru Traffic)
95th Percentile Queue	118 ft	2 ft
Proposed Pocket Length	**145 ft**	**100 ft**

PEAK-HOUR SIGNAL WARRANT

According to the approved scoping agreement, this study examined peak-hour signal warrant for all study intersections that are not currently signalized. These stop-controlled intersections are:

- John F. Kennedy Drive at Oliver Street
- John F. Kennedy Drive at Via Entrada
- Redlands Boulevard at Cactus Avenue
- Moreno Beach Drive at Championship Drive

The worksheets of peak-hour signal warrant (Warrant 3) are shown in **Appendix E**. The results have shown that none of these stop-controlled intersections has met the warrant for traffic signal based on year 2022 am and pm peak hour, including project traffic.

PEDESTRIAN, BICYCLE, PUBLIC TRANSIT

Pedestrian sidewalks are provided in the project vicinity with adequate width clear of any apparent obstruction. The adjacent intersection of John F. Kennedy Drive and Moreno Beach Drive has pedestrian crosswalk for each approach and ADA compliant access ramp at each corner along with pedestrian push buttons to activate pedestrian crossing phases. Public transportation on Moreno Beach Drive is currently operated by Riverside Transit Agency (RTA) Bus Route 20. A proposed bus stop will be added for southbound Moreno Beach Drive in front of the project site.

The project vicinity is also bicycle friendly. Both Moreno Beach Drive and John F. Kennedy Drive are functioning as Class 2 Bike Lanes, except John F. Kennedy Drive east of Moreno Beach Drive which is Class 3 Bike Route in the Bicycle Master Plan of the City of Moreno Valley. Bicycle push buttons are provided for signal activation at the intersection.

Existing facilities for pedestrian and bicycle appear adequate to accommodate pedestrian and bicycle activities associated with the project development.

APPENDIX A

SCOPING AGREEMENT

SCOPING AGREEMENT FOR TRAFFIC ANALYSIS STUDY (REVISED)

City of Moreno Valley Transportation Engineering Division

Case No.	PEN17-0044, 0045, 0046, 0047 (P16-095)
Project Names:	Proposed Gas Station, C-Store, Carwash, and Dinner
Project Address:	Southwest corner of Moreno Beach Dr. and John F Kennedy Dr.
Project Description:	New gas station (3,400 sf) with automatic carwash, 12 fueling positions, quick-service restaurant (1,632 sf) and sit-down restaurant (2,584 sf)

	Consultant	Developer
Name	K2 Traffic Engineering, Inc. by Kay Hsu, PE, TE	Royal Excel Enterprises Corp by Essam Ali, CFO
Address:	1442 Irvine Blvd, Ste 210, Tustin, CA 92780	7033 Canoga Ave, Suite 2, Canoga Park, CA 91303
Telephone No.	714-832-2116	310-871-0441
Email Address:	khsu@k2traffic.com	essam@royalexcelenterprises.com

I. Background

The site is currently an unimproved vacant land. The project will construct a new 7-Eleven gas station with a convenient store (3,400 sf), automatic carwash, and 12 fueling positions. Additional tenants include a quick service restaurant (1,632 sf) and a sit-down restaurant (2,584 sf). See Exhibit 1: Site Plan. The proposed access to the project site will be: a right-in/right out only driveway on Moreno Beach Drive controlled by the existing raised landscaped median; a right-in/right out only driveway on John F. Kennedy Drive controlled by a raised concrete median and a full access driveway on Via Entrada.

II. Trip Geographic Distribution and Assignment

See Exhibit 2

III. Site Trip Generation Forecast

A. ITE Trip Generation Manual (10th Edition)
B. AM Peak: 7:00-9:00 AM
C. PM Peak: 4:00-6:00 PM
D. Intersection and link acceptable Level of Service "D" for some intersections and links and Level of Service "C" for others based upon the current City policy. (Use Highway Capacity Manual latest edition operations procedures; parameters per County of Riverside Traffic Impact Analysis Guidelines.)

Proposed Use Rate:	See Table 1
Existing Use Rate:	Vacant Land
Trip Generation Data:	See Table 2

IV. Specific Project Issues to be Analyzed

A. Address the adequacy of site access and identify specific near-term and future circulation improvement required in the study area to maintain accepable peak hour and daily level of services
B. Address the project traffic impacts at all study intersections listed in Section VI and provide appropriate mitigation measures if applicable. Peak-hour traffic signal warrants shall be evaluated for all intersections that are not currently signalized.
C. Qualitative assessment of existing and planned non-motorized facilities (e.g., pedestrians, bike routes, trails, etc.) within the study area.

D. The traffic study shall provide a Queuing Analysis section to determine the 95th percentile queues for the following turning movements based on forecasted Existing+Project Year 2017 (V.B) and Post-Project 2022 (V.D) traffic volumes using Synchro software:
1. Left-turn, right-turn and U-turn movements for all directions at Moreno Beach Drive/John F. Kennedy Drive intersection;
2. Left-turn, right-turn and U-turn movements for all directions at John F. Kennedy Drive/Via Entrada intersection;
3. NB right-turn at John F. Kennedy Drive/Project Driveway;
4. EB right-turn at John F. Kennedy Drive/Project Driveway;
5. SB right-turn at Moreno Beach Drive/Project Driveway;
6. SB U-turn at Moreno Beach Drive/Championship Drive;
7. Left-turn and right-turn movements for all directions at the project accesses on Via Entrada.
If there is not sufficient queuing storage length available, the traffic study shall provide mitigation measures for such issue.

V. Study of Horizon Years

Ambient Growth Rate: 2%

A. Existing: Year 2017
B. Existing: Year 2017 + Project condition
C. Pre-Project Conditions: Year 2022 (Existing + Growth + Cumulative projects in the vicinity)
D. Post-Project Conditions: Year 2022 (Pre-Project Conditions + Project)
E. Post-Project Conditions with Mitigation: Year 2022 (if necessary)

VI. Facilities to be Studied

A. Study Intersections
1. Moreno Beach Dr at Cactus Ave
2. Moreno Beach Dr at John F. Kennedy Dr
3. Iris Ave (Moreno Beach Drive) at Via Del Lago
4. Moreno Beach Dr at Championship Dr
5. John F. Kennedy Dr at Oliver St
6. John F. Kennedy Dr at Championship Dr
7. John F. Kennedy Dr/Redlands Blvd at Cactus Av

B. Roadway Segments
1. Moreno Beach Dr (from Via Del Lago to Cactus Avenue)
2. John F. Kennedy Dr (from Oliver St to Cactus Ave)

VII. Deliverables

A. Draft traffic impact study (2 copies + PDF file)
B. Final traffic impact study (4 copies + PDF file)

All draft and final traffic impact studies shall be delivered with the appropriate review fee to the Permit Technician, Land Development Division, Moreno Valley City Hall, 14177 Frederick Street, Moreno Valley, CA 92552. Please contact the Land Development Division at 951-413-3110 prior to the delivery of the traffic study. A signed copy of this Scoping Agreement must be included in the submitted draft and final traffic impact studies.

Recommended By:

12/14/2017

Kay Hsu, PE, TE
K2 Traffic Engineering, Inc.

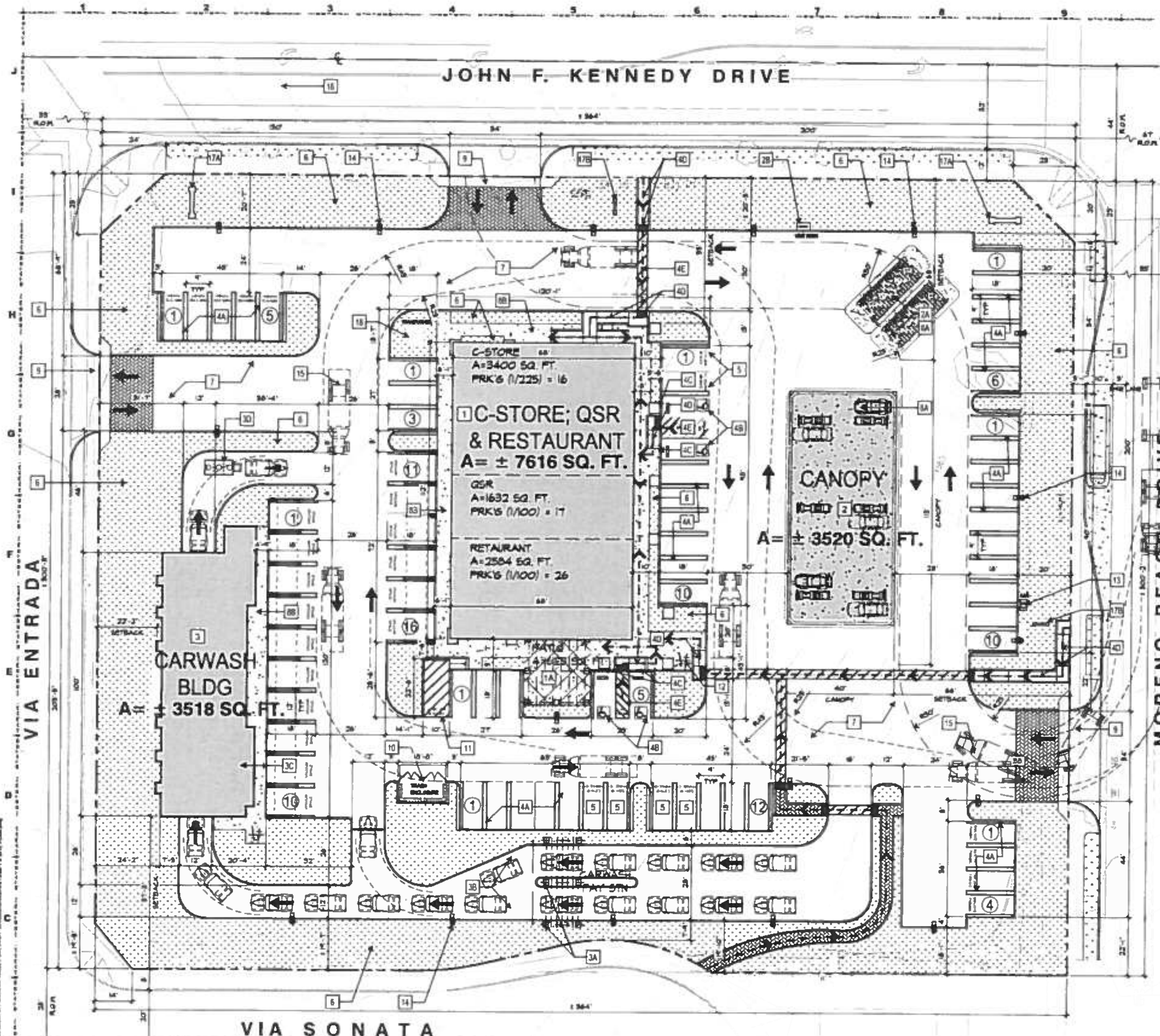
Approved By*:

12/14/17

Eric Lewis, P.E., T.E.
City Traffic Engineer
951-413-3140

* The original scoping agreement was approved on 3/16/2017. This revision incorporates a revised site plan with a reduced development scope.

NOTE: This scoping agreement was reviewed and approved based on the information submitted by K2 Traffic Engineering, Inc. on 12/6/2017. K2 Traffic Engineering, Inc. and the project applicant acknowledge that any changes to the project (zoning, size, type of use, number or location of access points,etc.) after 12/6/2017 may require this scoping agreement to be revised and resubmitted for review and approval by the City of Moreno valley.



1 PROPOSED SITE PLAN
SCALE: 1" = 20'-0"

PROJECT DATA

ZONING	CC - GENERAL COMMERCIAL	
LAND USE	COMMERCIAL	
SPECIFIC PLAN	SP 193	
AREA OF SITE	± 108,882 S.F. (± 2.50 ACRE)	
BLDG SETBACKS	REQUIRED	PROPOSED
FRONT (NORTH)	20'-0"	62'-6' (C-STORE)
REAR (SOUTH)	20'-0"	57'-3" (CARWASH)
LEFT (WEST)	20'-0"	22'-2" (CARWASH)
RIGHT (EAST)	20'-0"	86'-0" (CANOPY)
LANDSCAPE AREA	-- % MIN	28,978 S.F. (26.60%)
FLOOR AREA RATIO	-	± 0.144
MAXIMUM HEIGHT	-	31'-0"
PARKING	71	74
(SEE PARKING COMPUTATION BELOW)		

BUILDING DATA

C-STORE - Q.S.R. - RESTAURANT

AREAS	C-STORE	3,400 SF
	Q.S.R.	1,632 SF
	RESTAURANT	2,584 SF
	TOTAL	7,616 SF
OCCUPANCY		M - A2
TYPE OF CONST		V-B
NUMBER OF STORY		1
BLDG HEIGHT		± 31'-0"
SPRINKLERS		XX

CANOPY

AREA	4,600 SF
OCCUPANCY	M
TYPE OF CONST	II-B
NUMBER OF STORY	1
BLDG HEIGHT	21'-0"

CARWASH

AREA	3,518 SF
OCCUPANCY	B
TYPE OF CONST	V-B
NUMBER OF STORY	1
BLDG HEIGHT	24'-0"

PARKING COMPUTATION

PARKING STANDARDS

TYPE	SIZE
REGULAR	9'-0" X 18'-0"
PARALLEL	9'-0" X 22'-0"
COMPACT	8'-0" X 16'-0" (UP TO 35% OF REQD SP)
HANDICAP	17'-0" X 18'-0" VAN ACCESSIBLE

PARKING REQUIREMENTS

USE	FORMULA	REQUIRED	PROVIDED
C-STORE	(1/225 S.F.)	16	16
QSR	(1/100 S.F.)	17	17
RESTAURANT	(1/100 S.F.)	26	26
CARWASH	(10 + 1 PER 2 EMPLOYEE)	12	15
TOTAL PARKING REQUIRED		71	74

HANDICAP PARKING REQUIREMENTS

FORMULA	REQUIRED	PROVIDED
51-75 PARKING SPACES	(3)	(4)
CLEAN AIR VEHICLE PARKING FORMULA		
CH 11.5.040 M.V. MUN CODE (8% OF TOTAL PARKING SP)	(6)	(6)

OTHER PARKING REQUIREMENTS
BIKE PARKING:
CLASS 2 OR 3 (MIN OF TWO BICYCLE PARKING STALLS)
REQUIRED: 5% OF TOTAL REQD PARKING SP

LOADING SPACE
REQUIRED: 1 SP (0 - 29,999 TOTAL G.F.A.)

ASSESSOR'S PARCEL NUMBER

304-240-004

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS: LOT 13 OF TRACT 22456 AS SHOWN BY THE MAP ON FILE IN BOOK 191, PAGES 49 THRU 104 INCLUSIVE OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

VICINITY MAP

LEGEND

- NO. OF PARKING SPACES
- ACCESSIBLE PARKING
- PROPERTY LINE
- ADA PATH OF TRAVEL
- CONCRETE PAVING AREA
- DECORATIVE PAVING AREA
- LANDSCAPED AREA
- COMMUNITY TRAIL
- STREET DEDICATION
- DIRECTIONAL ARROW
- AREA LIGHTS
- WALL MOUNTED DECORATIVE AREA LIGHTS
- (E) FIRE HYDRANT
- (E) SEWER MANHOLE
- (E) SEWER CLEANOUT
- (E) POWER POLE
- (E) WATER METER
- (E) WATER POINT
- (E) SIGN

SITE KEY NOTES

- 1 CONVENIENCE STORE / Q.S.R. / RESTAURANT BLDG
- 1A OUTDOOR PATIO WITH SEATING AREA
- 2 GAS STATION CANOPY AND FUEL DISPENSERS
- 2A UNDERGROUND STORAGE TANKS
- 2B VENT RISER WITH CARBON VAPOR CANISTER
- 3 CARWASH BUILDING
- 3A CARWASH PAY STATIONS WITH TRELLIS
- 3B CARWASH AUTOMATIC GATE BARRIER
- 3C CARWASH CENTRAL VACUUM EQUIPMENT (INSIDE CARWASH BUILDING)
- 3D CARWASH WATER CLARIFIER
- 4A PARKING STRIPING AS PER CITY STANDARDS (WITH WHEELSTOP WHERE REQUIRED)
- 4B ACCESSIBLE PARKING STRIPING (WITH WHEELSTOP WHERE REQUIRED)
- 4C ACCESSIBLE PARKING SIGN
- 4D ADA ACCESSIBLE RAMP AND TRUNCATED DOME PAVER
- 4E ADA ACCESSIBLE PATH STRIPING (5% MAX SLOPE / 2% MAX CROSS SLOPE)
- 5 DESIGNATED CLEAN AIR VEHICLE PARKING
- 6 LANDSCAPE WITH 6" CONCRETE CURB TO REMAIN
- 7 ASPHALT PAVING
- 8A CONCRETE PAVING
- 8B CONCRETE SIDEWALK AND CURB
- 9 (N) DRIVEWAY (PER CITY STANDARDS)
- 10 TRASH ENCLOSURE (PER CITY STANDARDS)
- 11 LOADING SPACE 10' X 22'
- 12 CLASS-2 BIKE PARKING RACK (3-BIKE CAPACITY BIKE RACK)
- 13 AIR & WATER UNIT
- 14 AREA LIGHTS
- 15 FIRE TRUCK PATH OF TRAVEL
- 16 FUEL TANKER/TRASH TRUCK PATH OF TRAVEL
- 17A MONUMENT SIGN (UNDER SEPARATE PERMIT)
- 17B GAS STATION PRICE SIGN (UNDER SEPARATE PERMIT)
- 18 PROPOSED TRANSFORMER PAD LOCATION

KARAKI WSE
WESTERN STATES ENGINEERING
A DESIGN-BUILD COMPANY

CONSULTANT SEALS

SUBMITTAL
NO. DESCRIPTION BY DATE

REVISIONS
NO. DESCRIPTION BY DATE

OWNER NAME & ADDRESS
ROYAL EXCEL ENTERPRISES

PROJECT NAME & ADDRESS
76 GAS STATION
C-STORE / Q.S.R.
CARWASH
S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

NOTE TO CONTRACTOR

CONFIDENTIALITY STATEMENT

DESIGNED BY: WS
DRAWN BY: WS
CHECKED BY: JA
DATE DRAWN: 11.27.17
SCALE: 1" = 20'-0"
SHEET TITLE
PROPOSED SITE PLAN

SHEET NUMBER
AS-1.0
E97617

EXHIBIT 1. SITE PLAN

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

TABLE A1. TRIP GENERATION RATE (ITE)

LAND USE	UNIT	Daily	AM Peak			PM Peak		
			Total	IN	OUT	Total	IN	OUT
Gas Station with Convenience Market (945)	Veh Fueling Station	205.36	12.47	51%	49%	13.99	51%	49%
High-Turnover (Sit-Down) Restaurant (932)	1000 Sq. Ft.	112.18	9.94	55%	45%	9.77	62%	38%
Fast Casual Restaurant (930)	1000 Sq. Ft.	315.17	2.07	67%	33%	14.13	55%	45%

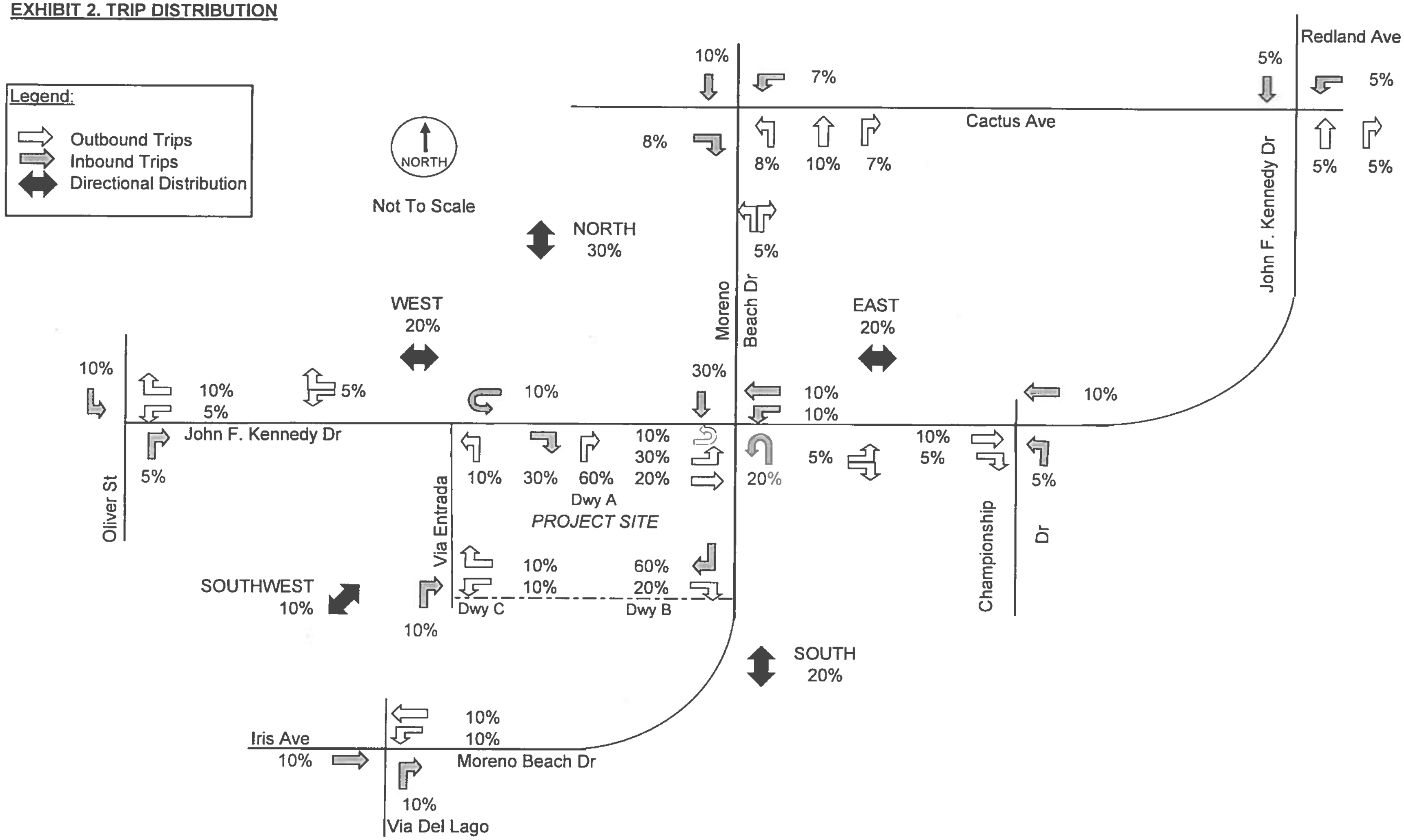
Source: Trip Generation Manual, 10th Edition

TABLE A2. TRIP GENERATION

LAND USE	UNIT	Quantity	AM Peak			PM Peak			Daily
			Total	IN	OUT	Total	IN	OUT	
Gas Station with Convenience Market (945)	Veh Fueling Station	12	149.6	76.3	73.3	167.9	85.6	82.3	2464.3
	Pass-By Trip Deduction Rate		62%	62%	62%	56%	56%	56%	59%
	Pass-By Trip Deduction		-92.8	-47.3	-45.5	-94.0	-47.9	-46.1	-1453.9
	Total		56.9	29.0	27.9	73.9	37.7	36.2	1010.4
High-Turnover (Sit-Down) Restaurant (932)	1000 Sq. Ft.	2.6	25.8	14.2	11.6	25.4	15.7	9.7	291.7
	Pass-By Trip Deduction	43%	-11.1	-6.0	-5.0	-10.9	-6.8	-4.2	-125.4
	Total		14.7	8.2	6.6	14.5	9.0	5.5	166.3
Fast Casual Restaurant (930)	1000 Sq. Ft.	1.63	3.4	1.7	1.7	23.0	11.5	11.5	513.7
Trip Generation (NET)			**75**	39	36	**111**	58	53	1690

K2 Traffic Engineering, Inc.

EXHIBIT 2. TRIP DISTRIBUTION



APPENDIX B

TURNING MOVEMENT COUNT DATA

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE: 3/21/17 TUESDAY	LOCATION:	MORENO VALLEY	PROJECT #:	
	NORTH & SOUTH:	Oliver St	LOCATION #:	1
	EAST & WEST:	John F Kennedy Dr	CONTROL:	All Way Stop

NOTES:

AM
PM
MD
OTHER
OTHER

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		NORTHBOUND Oliver St			SOUTHBOUND Oliver St			EASTBOUND John F Kennedy Dr			WESTBOUND John F Kennedy Dr			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TO
	LANES:	X	2	0	0	1	X	X	X	X	1	X	1	
AM	7:00 AM		8	1	0	8					5		6	2
	7:15 AM		6	2	2	11					7		13	4
	7:30 AM		11	2	2	4					2		10	3
	7:45 AM		5	1	3	2					4		7	2
	8:00 AM		2	1	3	8					3		10	2
	8:15 AM		11	4	7	7					3		14	4
	8:30 AM		7	3	1	3					2		9	2
	8:45 AM		8	3	5	6					6		4	3
	VOLUMES	0	58	17	23	49	0	0	0	0	32	0	73	2
	APPROACH %	0%	77%	23%	32%	68%	0%	0%	0%	0%	30%	0%	70%	
	APP/DEPART	75	/	131	72	/	81	0	/	40	105	/	0	
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	28	11	16	24	0	0	0	0	14	0	37	1
	APPROACH %	0%	72%	28%	40%	60%	0%	0%	0%	0%	27%	0%	73%	
	PEAK HR FACTOR		0.650			0.714			0.000			0.750		0.
	APP/DEPART	39	/	65	40	/	38	0	/	27	51	/	0	

		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TO
PM	4:00 PM		15	3	12	11					4		8	5
	4:15 PM		8	1	7	12					3		6	3
	4:30 PM		3	4	8	7					5		6	3
	4:45 PM		10	6	11	13					3		10	5
	5:00 PM		14	2	12	8					4		5	4
	5:15 PM		9	5	13	14					9		11	6
	5:30 PM		9	2	16	13					12		11	6
	5:45 PM		19	7	9	12					7		8	6
	VOLUMES	0	87	30	88	90	0	0	0	0	47	0	65	4
	APPROACH %	0%	74%	26%	49%	51%	0%	0%	0%	0%	42%	0%	58%	
	APP/DEPART	117	/	152	178	/	137	0	/	118	112	/	0	
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	51	16	50	47	0	0	0	0	32	0	35	2
	APPROACH %	0%	76%	24%	52%	48%	0%	0%	0%	0%	48%	0%	52%	
	PEAK HR FACTOR		0.644			0.836			0.000			0.728		0.
	APP/DEPART	67	/	86	97	/	79	0	/	66	67	/	0	

Oliver St

NORTH SIDE

John F Kennedy Dr WEST SIDE

EAST SIDE **John F Kennedy Dr**

SOUTH SIDE

Oliver St

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

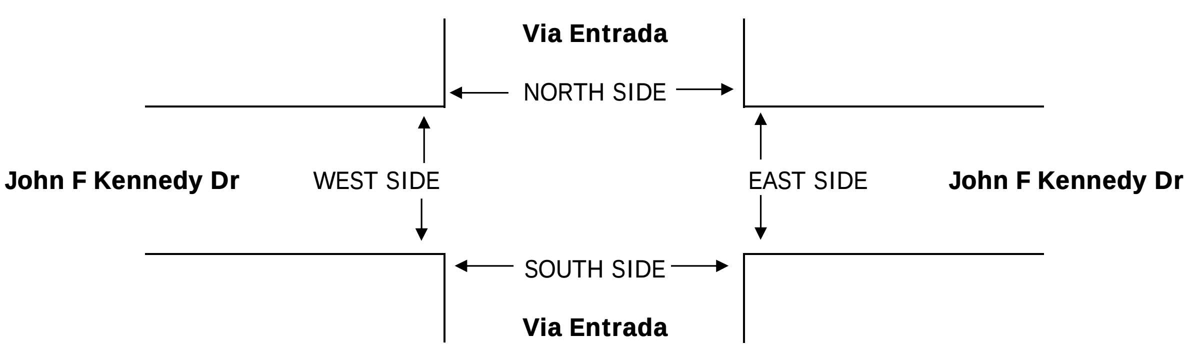
DATE: 3/21/17 TUESDAY	LOCATION:	MORENO VALLEY	PROJECT #:
	NORTH & SOUTH:	Via Entrada	LOCATION #: 2
	EAST & WEST:	John F Kennedy Dr	CONTROL: 2 Way Stop NS

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N / ◄ W / E / S ▼

	NORTHBOUND Via Entrada			SOUTHBOUND Via Entrada			EASTBOUND John F Kennedy Dr			WESTBOUND John F Kennedy Dr		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
LANES:	0	1	0	0	1	0	0	1	0	1	1	1
AM 7:00 AM	0	0	4	2	0	1	0	8	0	0	2	1
7:15 AM	0	0	3	2	0	3	1	12	0	2	3	0
7:30 AM	0	0	4	2	0	1	0	11	0	1	5	0
7:45 AM	0	0	3	1	0	2	0	4	1	1	2	0
8:00 AM	0	0	2	1	0	2	0	2	1	2	7	1
8:15 AM	0	0	7	2	0	2	1	9	0	1	7	2
8:30 AM	0	1	6	1	0	3	1	8	0	1	4	1
8:45 AM	0	0	2	1	0	2	0	11	1	3	5	0
VOLUMES	0	1	31	12	0	16	3	65	3	11	35	5
APPROACH %	0%	3%	97%	43%	0%	57%	4%	92%	4%	22%	69%	10%
APP/DEPART	32	/	9	28	/	14	71	/	108	51	/	51
BEGIN PEAK HR		8:00 AM										
VOLUMES	0	1	17	5	0	9	2	30	2	7	23	4
APPROACH %	0%	6%	94%	36%	0%	64%	6%	88%	6%	21%	68%	12%
PEAK HR FACTOR		0.643			0.875			0.708			0.850	
APP/DEPART	18	/	7	14	/	9	34	/	52	34	/	32
PM 4:00 PM	1	0	5	3	0	1	0	9	1	9	14	0
4:15 PM	0	0	7	1	0	0	1	5	0	6	4	1
4:30 PM	1	1	2	2	0	2	2	16	1	4	11	2
4:45 PM	2	1	3	1	0	0	1	7	0	6	16	2
5:00 PM	0	0	4	1	0	1	0	12	0	3	16	1
5:15 PM	0	0	6	2	0	6	1	7	1	8	15	0
5:30 PM	0	0	4	5	0	0	1	4	1	9	20	2
5:45 PM	1	0	4	2	0	3	3	6	0	9	18	4
VOLUMES	5	2	35	17	0	13	9	66	4	54	114	12
APPROACH %	12%	5%	83%	57%	0%	43%	11%	84%	5%	30%	63%	7%
APP/DEPART	42	/	23	30	/	58	79	/	118	180	/	132
BEGIN PEAK HR		5:00 PM										
VOLUMES	1	0	18	10	0	10	5	29	2	29	69	7
APPROACH %	5%	0%	95%	50%	0%	50%	14%	81%	6%	28%	66%	7%
PEAK HR FACTOR		0.792			0.625			0.750			0.847	
APP/DEPART	19	/	12	20	/	31	36	/	57	105	/	80



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	MORENO VALLEY	PROJECT #:	
3/21/17	NORTH & SOUTH:	Moreno Beach Dr	LOCATION #:	3
TUESDAY	EAST & WEST:	John F Kennedy Dr	CONTROL:	Signal

NOTES:

AM
PM
MD
OTHER
OTHER

N ▲ ◄ W E S ▼

		NORTHBOUND Moreno Beach Dr			SOUTHBOUND Moreno Beach Dr			EASTBOUND John F Kennedy Dr			WESTBOUND John F Kennedy Dr		
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TO
	LANES:	1	3	1	1	3	0	1	1	0	1	1	1	
AM	7:00 AM	2	65	61	7	53	1	9	4	0	43	2	11	2
	7:15 AM	4	64	51	3	55	1	13	2	2	49	4	18	2
	7:30 AM	3	75	35	7	68	3	11	6	0	58	1	12	2
	7:45 AM	3	93	50	10	62	2	5	2	0	31	1	17	2
	8:00 AM	3	84	60	12	55	5	5	1	0	37	2	12	2
	8:15 AM	1	76	43	8	31	2	11	4	2	26	6	16	2
	8:30 AM	1	60	39	10	42	2	12	5	1	27	3	16	2
	8:45 AM	2	62	21	5	45	5	11	2	1	30	3	9	1
	VOLUMES	19	579	360	62	411	21	77	26	6	301	22	111	1,
	APPROACH %	2%	60%	38%	13%	83%	4%	71%	24%	6%	69%	5%	26%	
	APP/DEPART	958	/	767	494	/	718	109	/	448	434	/	62	
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	13	316	196	32	240	11	34	11	2	175	8	59	1,
	APPROACH %	2%	60%	37%	11%	85%	4%	72%	23%	4%	72%	3%	24%	
	PEAK HR FACTOR		0.893			0.907			0.691			0.852		0.
	APP/DEPART	525	/	409	283	/	417	47	/	239	242	/	32	
PM	4:00 PM	0	96	58	26	100	17	10	4	0	59	6	4	3
	4:15 PM	3	85	47	25	108	7	9	4	1	46	3	20	3
	4:30 PM	4	75	42	26	111	11	11	3	2	49	5	12	3
	4:45 PM	4	93	49	23	74	10	7	6	0	41	7	10	3
	5:00 PM	2	92	56	21	100	19	11	3	3	70	4	15	3
	5:15 PM	2	97	62	31	111	12	10	2	4	65	10	11	4
	5:30 PM	3	88	47	30	122	13	11	3	1	75	16	20	4
	5:45 PM	2	76	36	26	115	27	12	0	1	68	6	18	3
	VOLUMES	20	702	397	208	841	116	81	25	12	473	57	110	3,
	APPROACH %	2%	63%	35%	18%	72%	10%	69%	21%	10%	74%	9%	17%	
	APP/DEPART	1,119	/	893	1,165	/	1,326	118	/	630	640	/	193	
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	9	353	201	108	448	71	44	8	9	278	36	64	1,
	APPROACH %	2%	63%	36%	17%	71%	11%	72%	13%	15%	74%	10%	17%	
	PEAK HR FACTOR		0.874			0.933			0.897			0.851		0.
	APP/DEPART	563	/	461	627	/	735	61	/	317	378	/	116	

Moreno Beach Dr

NORTH SIDE

John F Kennedy Dr WEST SIDE

EAST SIDE **John F Kennedy Dr**

SOUTH SIDE

Moreno Beach Dr

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE: 3/21/17 TUESDAY	LOCATION:	MORENO VALLEY	PROJECT #:	
	NORTH & SOUTH:	Championship Dr	LOCATION #:	4
	EAST & WEST:	John F Kennedy Dr	CONTROL:	Signal

NOTES:

AM
PM
MD
OTHER
OTHER

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	NORTHBOUND Championship Dr			SOUTHBOUND Championship Dr			EASTBOUND John F Kennedy Dr			WESTBOUND John F Kennedy Dr			TO
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
AM 7:00 AM	2	0	5	0	0	1	2	71	2	1	37	1	1
7:15 AM	3	0	7	0	0	0	1	49	2	0	38	0	1
7:30 AM	3	0	1	0	0	0	1	45	0	0	47	0	9
7:45 AM	6	0	3	1	0	0	2	50	2	1	26	1	9
8:00 AM	4	0	1	0	0	1	2	56	4	1	38	0	1
8:15 AM	1	0	4	1	0	0	0	47	1	0	31	1	8
8:30 AM	8	0	2	1	0	0	0	41	0	1	25	0	7
8:45 AM	2	0	3	0	0	0	1	23	2	1	25	0	5
VOLUMES	29	0	26	3	0	2	9	382	13	5	267	3	7
APPROACH %	53%	0%	47%	60%	0%	40%	2%	95%	3%	2%	97%	1%	
APP/DEPART	55	/	12	5	/	18	404	/	411	275	/	298	
BEGIN PEAK HR		7:00 AM											
VOLUMES	14	0	16	1	0	1	6	215	6	2	148	2	4
APPROACH %	47%	0%	53%	50%	0%	50%	3%	95%	3%	1%	97%	1%	
PEAK HR FACTOR		0.750			0.500			0.757			0.809		0.
APP/DEPART	30	/	8	2	/	8	227	/	232	152	/	163	
PM 4:00 PM	4	0	2	0	0	2	1	51	6	4	54	1	1
4:15 PM	4	0	6	2	0	2	4	45	6	5	55	2	1
4:30 PM	3	0	3	1	0	2	6	41	3	5	53	4	1
4:45 PM	3	0	2	1	0	2	10	49	5	6	53	2	1
5:00 PM	5	0	4	3	1	8	13	50	7	2	62	3	1
5:15 PM	4	0	1	2	0	3	4	51	9	5	77	2	1
5:30 PM	3	0	2	1	0	2	3	51	6	8	87	1	1
5:45 PM	1	0	1	0	0	1	1	32	2	3	69	0	1
VOLUMES	27	0	21	10	1	22	42	370	44	38	510	15	1,
APPROACH %	56%	0%	44%	30%	3%	67%	9%	81%	10%	7%	91%	3%	
APP/DEPART	48	/	57	33	/	83	456	/	401	563	/	559	
BEGIN PEAK HR		4:45 PM											
VOLUMES	15	0	9	7	1	15	30	201	27	21	279	8	6
APPROACH %	63%	0%	38%	30%	4%	65%	12%	78%	10%	7%	91%	3%	
PEAK HR FACTOR		0.667			0.479			0.921			0.802		0.
APP/DEPART	24	/	38	23	/	49	258	/	217	308	/	309	

Championship Dr

NORTH SIDE

John F Kennedy Dr WEST SIDE

EAST SIDE **John F Kennedy Dr**

SOUTH SIDE

Championship Dr

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	MORENO VALLEY	PROJECT #:	
3/21/17	NORTH & SOUTH:	John F Kennedy dr/Redlands Blvd	LOCATION #:	5
TUESDAY	EAST & WEST:	Cactus Ave	CONTROL:	All Way Stop

NOTES:

AM
PM
MD
OTHER
OTHER

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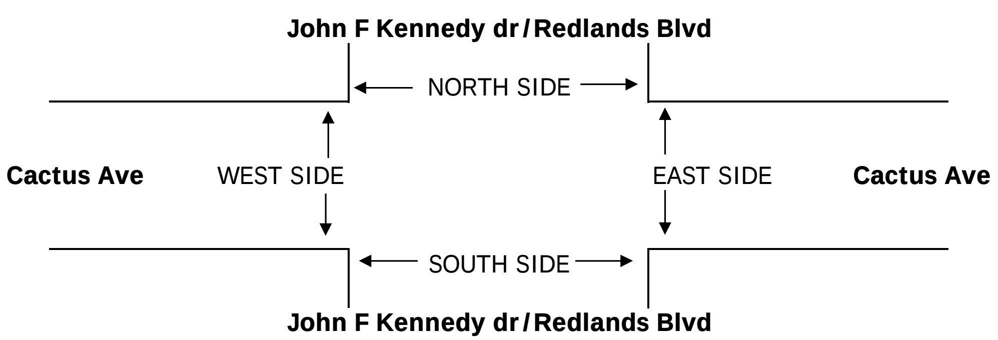
	NORTHBOUND John F Kennedy dr/Redlands Blvd			SOUTHBOUND John F Kennedy dr/Redlands Blvd			EASTBOUND Cactus Ave			WESTBOUND Cactus Ave			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TC
LANES:	X	X	X	X	X	X	X	X	X	X	X	X	
AM 7:00 AM	2	88	0	0	36	14	36	0	2	0	3	3	1
7:15 AM	5	59	0	1	39	16	22	0	2	0	2	4	1
7:30 AM	2	55	0	0	41	18	23	1	1	0	1	1	1
7:45 AM	5	45	0	0	29	25	22	0	2	0	0	1	1
8:00 AM	2	65	1	0	38	18	22	1	1	0	1	1	1
8:15 AM	6	60	0	1	33	11	21	2	4	0	0	7	1
8:30 AM	2	49	0	0	27	10	22	2	1	0	2	3	1
8:45 AM	0	37	1	0	24	17	11	3	2	0	1	3	9
VOLUMES	24	458	2	2	267	129	179	9	15	0	10	23	1,
APPROACH %	5%	95%	0%	1%	67%	32%	88%	4%	7%	0%	30%	70%	
APP/DEPART	484	/	660	398	/	282	203	/	13	33	/	163	
BEGIN PEAK HR		7:00 AM											
VOLUMES	14	247	0	1	145	73	103	1	7	0	6	9	6
APPROACH %	5%	95%	0%	0%	66%	33%	93%	1%	6%	0%	40%	60%	
PEAK HR FACTOR		0.725			0.928			0.730			0.625		0.
APP/DEPART	261	/	359	219	/	152	111	/	2	15	/	93	
PM 4:00 PM	0	57	1	3	73	24	22	1	6	0	1	2	1
4:15 PM	3	47	0	2	58	19	21	0	8	0	0	1	1
4:30 PM	5	40	1	1	72	16	27	1	4	0	1	2	1
4:45 PM	3	45	1	3	66	14	19	5	5	0	0	3	1
5:00 PM	2	56	0	5	75	26	26	3	9	0	1	1	2
5:15 PM	3	53	1	0	90	21	37	1	5	2	0	2	2
5:30 PM	5	47	0	5	89	18	17	2	6	0	0	2	1
5:45 PM	5	33	1	4	77	20	27	3	7	1	1	1	1
VOLUMES	26	378	5	23	600	158	196	16	50	3	4	14	1,
APPROACH %	6%	92%	1%	3%	77%	20%	75%	6%	19%	14%	19%	67%	
APP/DEPART	409	/	588	781	/	653	262	/	44	21	/	188	
BEGIN PEAK HR		5:00 PM											
VOLUMES	15	189	2	14	331	85	107	9	27	3	2	6	7
APPROACH %	7%	92%	1%	3%	77%	20%	75%	6%	19%	27%	18%	55%	
PEAK HR FACTOR		0.888			0.960			0.831			0.688		0.
APP/DEPART	206	/	302	430	/	361	143	/	25	11	/	102	



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	MORENO VALLEY	PROJECT #:	
3/21/17	NORTH & SOUTH:	Moreno Beach Dr	LOCATION #:	6
TUESDAY	EAST & WEST:	Cactus Ave	CONTROL:	Signal

NOTES:

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		NORTHBOUND Moreno Beach Dr			SOUTHBOUND Moreno Beach Dr			EASTBOUND Cactus Ave			WESTBOUND Cactus Ave			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TO
	LANES:	1	2	1	1	3	0	1	2	0	1	2	0	
AM	7:00 AM	10	82	7	1	48	15	17	17	7	0	21	7	2
	7:15 AM	16	88	5	3	45	16	21	16	6	4	20	6	2
	7:30 AM	14	88	4	2	63	11	12	19	8	6	20	7	2
	7:45 AM	16	96	5	2	65	16	17	10	7	7	29	4	2
	8:00 AM	25	88	9	3	58	11	11	12	9	2	19	3	2
	8:15 AM	12	95	5	2	36	15	9	23	8	1	20	3	2
	8:30 AM	15	81	4	3	43	17	12	18	10	2	14	2	2
	8:45 AM	8	68	3	1	43	9	9	8	4	1	22	5	1
	VOLUMES	116	686	42	17	401	110	108	123	59	23	165	37	1,
	APPROACH %	14%	81%	5%	3%	76%	21%	37%	42%	20%	10%	73%	16%	
	APP/DEPART	844	/	831	528	/	483	290	/	182	225	/	391	
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	71	360	23	10	231	54	61	57	30	19	88	20	1,(
	APPROACH %	16%	79%	5%	3%	78%	18%	41%	39%	20%	15%	69%	16%	
	PEAK HR FACTOR		0.930			0.889			0.860			0.794		0.
	APP/DEPART	454	/	441	295	/	280	148	/	90	127	/	213	
PM	4:00 PM	16	91	6	16	100	21	13	19	29	9	16	3	3
	4:15 PM	19	92	4	12	120	19	25	22	21	5	19	2	3
	4:30 PM	22	79	2	7	136	20	29	26	21	3	23	1	3
	4:45 PM	26	87	5	12	86	23	20	28	25	1	16	5	3
	5:00 PM	20	93	3	12	108	23	15	29	35	8	17	5	3
	5:15 PM	22	101	7	12	131	19	18	35	43	3	18	6	4
	5:30 PM	27	96	1	4	143	24	15	21	27	3	23	2	3
	5:45 PM	31	82	2	7	134	24	14	36	33	6	24	7	4
	VOLUMES	183	721	30	82	958	173	149	216	234	38	156	31	2,
	APPROACH %	20%	77%	3%	7%	79%	14%	25%	36%	39%	17%	69%	14%	
	APP/DEPART	934	/	901	1,213	/	1,230	599	/	328	225	/	512	
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	100	372	13	35	516	90	62	121	138	20	82	20	1,
	APPROACH %	21%	77%	3%	5%	80%	14%	19%	38%	43%	16%	67%	16%	
	PEAK HR FACTOR		0.933			0.937			0.836			0.824		0.
	APP/DEPART	485	/	454	641	/	674	321	/	169	122	/	272	

Moreno Beach Dr

NORTH SIDE

Cactus Ave WEST SIDE EAST SIDE **Cactus Ave**

SOUTH SIDE

Moreno Beach Dr

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	MORENO VALLEY	PROJECT #:	
3/21/17	NORTH & SOUTH:	Moreno Beach Dr	LOCATION #:	7
TUESDAY	EAST & WEST:	Championship Dr	CONTROL:	1 Way Stop WB

NOTES:

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		NORTHBOUND Moreno Beach Dr			SOUTHBOUND Moreno Beach Dr			EASTBOUND Championship Dr			WESTBOUND Championship Dr			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOT
	LANES:	X	3	0	1	3	X	X	X	X	0.5	X	0.5	
AM	7:00 AM		115	1	0	84					5		5	21
	7:15 AM		109	4	5	104					1		6	22
	7:30 AM		102	1	1	122					4		6	23
	7:45 AM		136	0	2	96					4		3	24
	8:00 AM		142	0	3	85					2		4	23
	8:15 AM		111	1	2	56					0		0	17
	8:30 AM		94	2	2	68					0		4	17
	8:45 AM		75	0	1	62					2		4	14
	VOLUMES	0	884	9	16	677	0	0	0	0	18	0	32	1,6
	APPROACH %	0%	99%	1%	2%	98%	0%	0%	0%	0%	36%	0%	64%	
	APP/DEPART	893	/	916	693	/	695	0	/	25	50	/	0	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	489	5	11	407	0	0	0	0	11	0	19	94
	APPROACH %	0%	99%	1%	3%	97%	0%	0%	0%	0%	37%	0%	63%	
	PEAK HR FACTOR		0.870			0.850			0.000			0.750		0.9
	APP/DEPART	494	/	508	418	/	418	0	/	16	30	/	0	0
PM	4:00 PM		144	3	7	140					5		5	30
	4:15 PM		132	3	0	139					1		1	27
	4:30 PM		114	7	3	155					1		2	28
	4:45 PM		136	2	10	95					3		2	24
	5:00 PM		140	2	4	149					1		4	30
	5:15 PM		155	3	8	161					2		4	33
	5:30 PM		130	5	10	172					5		4	32
	5:45 PM		111	5	12	158					6		2	29
	VOLUMES	0	1,062	30	54	1,169	0	0	0	0	24	0	24	2,3
	APPROACH %	0%	97%	3%	4%	96%	0%	0%	0%	0%	50%	0%	50%	
	APP/DEPART	1,092	/	1,086	1,223	/	1,193	0	/	84	48	/	0	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	536	15	34	640	0	0	0	0	14	0	14	1,2
	APPROACH %	0%	97%	3%	5%	95%	0%	0%	0%	0%	50%	0%	50%	
	PEAK HR FACTOR		0.872			0.926			0.000			0.778		0.9
	APP/DEPART	551	/	550	674	/	654	0	/	49	28	/	0	0

Moreno Beach Dr

NORTH SIDE

Championship Dr WEST SIDE EAST SIDE **Championship Dr**

SOUTH SIDE

Moreno Beach Dr

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	MORENO VALLEY	PROJECT #:	
3/21/17	NORTH & SOUTH:	Via Del Lago	LOCATION #:	8
TUESDAY	EAST & WEST:	Moreno Beach Dr/Iris Ave	CONTROL:	Signal

NOTES:

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		NORTHBOUND Via Del Lago			SOUTHBOUND Via Del Lago			EASTBOUND Moreno Beach Dr/Iris Ave			WESTBOUND Moreno Beach Dr/Iris Ave			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TO
	LANES:	1	1	1	1	1	0	1	3	0	1	3	0	
AM	7:00 AM	5	0	7	1	0	5	0	100	1	8	81	1	20
	7:15 AM	3	1	10	3	1	4	1	99	1	4	100	1	22
	7:30 AM	8	1	4	4	1	7	3	112	2	2	117	5	26
	7:45 AM	9	0	9	2	0	7	2	116	4	6	93	0	24
	8:00 AM	6	1	11	4	0	4	3	122	3	4	79	2	23
	8:15 AM	6	0	6	0	0	0	0	109	1	4	49	3	17
	8:30 AM	1	0	11	3	0	4	3	84	3	4	63	0	17
	8:45 AM	6	0	6	2	0	6	2	65	1	5	58	1	15
	VOLUMES	44	3	64	19	2	37	14	807	16	37	640	13	1,6
	APPROACH %	40%	3%	58%	33%	3%	64%	2%	96%	2%	5%	93%	2%	
	APP/DEPART	111	/	30	58	/	55	837	/	890	690	/	721	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	26	3	34	13	2	22	9	449	10	16	389	8	98
	APPROACH %	41%	5%	54%	35%	5%	59%	2%	96%	2%	4%	94%	2%	
	PEAK HR FACTOR		0.875			0.771			0.914			0.833		0.9
	APP/DEPART	63	/	20	37	/	28	468	/	496	413	/	437	0
PM	4:00 PM	7	0	3	4	0	6	11	136	4	10	134	1	31
	4:15 PM	5	0	8	4	1	2	2	119	4	16	118	5	28
	4:30 PM	7	2	5	2	0	4	6	120	7	13	141	1	30
	4:45 PM	6	2	11	0	1	6	5	137	5	10	92	0	27
	5:00 PM	4	0	11	0	1	3	5	123	6	13	132	2	30
	5:15 PM	4	0	11	2	0	3	3	147	4	9	155	3	34
	5:30 PM	2	0	13	6	0	2	5	110	6	13	155	5	31
	5:45 PM	9	0	9	2	0	1	5	107	8	9	142	3	29
	VOLUMES	44	4	71	20	3	27	42	999	44	93	1,069	20	2,4
	APPROACH %	37%	3%	60%	40%	6%	54%	4%	92%	4%	8%	90%	2%	
	APP/DEPART	119	/	66	50	/	140	1,085	/	1,090	1,182	/	1,140	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	19	0	44	10	1	9	18	487	24	44	584	13	1,2
	APPROACH %	30%	0%	70%	50%	5%	45%	3%	92%	5%	7%	91%	2%	
	PEAK HR FACTOR		0.875			0.625			0.859			0.926		0.9
	APP/DEPART	63	/	31	20	/	69	529	/	541	641	/	612	0

Via Del Lago

NORTH SIDE

Moreno Beach Dr / Iris Ave WEST SIDE EAST SIDE **Moreno Beach Dr / Iris Ave**

SOUTH SIDE

Via Del Lago

APPENDIX C

LEVEL OF SERVICE ANALYSIS

HCM 2010 AWSC
1: Oliver St & John F Kennedy Dr 12/15/2017

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	37	28	11	16	24
Future Vol, veh/h	14	37	28	11	16	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	40	30	12	17	26
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.2	7.3	7.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	40%
Vol Thru, %	100%	46%	0%	0%	60%
Vol Right, %	0%	54%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	20	14	37	40
LT Vol	0	0	14	0	16
Through Vol	19	9	0	0	24
RT Vol	0	11	0	37	0
Lane Flow Rate	20	22	15	40	43
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.026	0.026	0.022	0.044	0.055
Departure Headway (Hd)	4.654	4.275	5.182	3.981	4.543
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	767	835	687	892	786
Service Time	2.394	2.015	2.939	1.738	2.586
HCM Lane V/C Ratio	0.026	0.026	0.022	0.045	0.055
HCM Control Delay	7.5	7.1	8.1	6.9	7.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.1	0.2

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	30	2	7	23	4	0	1	17	5	0	9
Future Vol, veh/h	2	30	2	7	23	4	0	1	17	5	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	33	2	8	25	4	0	1	18	5	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	29	0	0	35	0	0	86	83	34	91	82	27
Stage 1	-	-	-	-	-	-	38	38	-	43	43	-
Stage 2	-	-	-	-	-	-	48	45	-	48	39	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1584	-	-	1576	-	-	900	807	1039	893	808	1048
Stage 1	-	-	-	-	-	-	977	863	-	971	859	-
Stage 2	-	-	-	-	-	-	965	857	-	965	862	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1584	-	-	1576	-	-	887	802	1039	872	803	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	887	802	-	872	803	-
Stage 1	-	-	-	-	-	-	976	862	-	970	855	-
Stage 2	-	-	-	-	-	-	951	853	-	946	861	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.5	8.6	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1022	1584	-	-	1576	-	-	978
HCM Lane V/C Ratio	0.019	0.001	-	-	0.005	-	-	0.016
HCM Control Delay (s)	8.6	7.3	-	-	7.3	-	-	8.7
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	11	2	175	8	59	13	316	196	32	240	11
Future Volume (veh/h)	34	11	2	175	8	59	13	316	196	32	240	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	37	12	2	190	9	64	14	343	213	35	261	12
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	189	32	312	414	352	261	1166	642	131	777	35
Arrive On Green	0.08	0.12	0.08	0.18	0.22	0.22	0.15	0.23	0.23	0.07	0.16	0.12
Sat Flow, veh/h	1774	1557	260	1774	1863	1583	1774	5085	1583	1774	4986	227
Grp Volume(v), veh/h	37	0	14	190	9	64	14	343	213	35	177	96
Grp Sat Flow(s),veh/h/ln	1774	0	1817	1774	1863	1583	1774	1695	1583	1774	1695	1823
Q Serve(g_s), s	0.8	0.0	0.3	4.0	0.2	1.3	0.3	2.2	3.7	0.7	1.9	1.9
Cycle Q Clear(g_c), s	0.8	0.0	0.3	4.0	0.2	1.3	0.3	2.2	3.7	0.7	1.9	1.9
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	134	0	221	312	414	352	261	1166	642	131	528	284
V/C Ratio(X)	0.28	0.00	0.06	0.61	0.02	0.18	0.05	0.29	0.33	0.27	0.33	0.34
Avail Cap(c_a), veh/h	266	0	794	664	1232	1047	266	2602	1089	266	1735	933
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	15.7	15.2	12.2	12.6	14.7	12.8	8.2	17.5	15.1	15.2
Incr Delay (d2), s/veh	1.1	0.0	0.1	1.9	0.0	0.2	0.1	0.1	0.3	1.1	0.4	0.7
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	0.0	0.1	2.1	0.1	0.6	0.1	1.1	1.6	0.4	0.9	1.0
LnGrp Delay(d),s/veh	18.6	0.0	15.8	17.1	12.2	12.9	14.8	12.9	8.5	18.6	15.4	15.9
LnGrp LOS	B		B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		51			263			570			308	
Approach Delay, s/veh		17.8			15.9			11.3			15.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	13.2	11.1	8.9	9.9	10.2	7.0	12.9
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	19.0	13.5	16.0	4.5	19.0	4.5	25.0
Max Q Clear Time (g_c+I1), s	2.7	5.7	6.0	2.3	2.3	3.9	2.8	3.3
Green Ext Time (p_c), s	0.0	2.0	0.4	0.0	0.0	0.8	0.0	0.2

Intersection Summary			
HCM 2010 Ctrl Delay			13.8
HCM 2010 LOS			B

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	215	6	2	148	2	14	0	16	1	0	1
Future Volume (veh/h)	6	215	6	2	148	2	14	0	16	1	0	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	7	234	7	2	161	2	15	0	17	1	0	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	813	24	109	808	10	328	52	195	336	59	182
Arrive On Green	0.07	0.23	0.17	0.06	0.23	0.17	0.24	0.00	0.18	0.24	0.00	0.18
Sat Flow, veh/h	1774	3509	105	1774	3580	44	509	219	825	524	250	774
Grp Volume(v), veh/h	7	118	123	2	79	84	32	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1844	1774	1770	1855	1554	0	0	1548	0	0
Q Serve(g_s), s	0.1	1.4	1.4	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	1.4	1.4	0.0	0.9	0.9	0.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.02	0.47		0.53	0.50		0.50
Lane Grp Cap(c), veh/h	120	410	427	109	399	419	574	0	0	577	0	0
V/C Ratio(X)	0.06	0.29	0.29	0.02	0.20	0.20	0.06	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	418	1216	1268	418	1216	1275	1368	0	0	1362	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	8.1	8.1	11.2	8.0	8.0	7.9	0.0	0.0	7.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.1	0.2	0.2	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7	0.0	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	11.3	8.4	8.5	11.3	8.2	8.2	7.9	0.0	0.0	7.7	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		248			165			32			2	
Approach Delay, s/veh		8.5			8.3			7.9			7.7	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	5.6	9.9		10.0	5.7	9.7
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.4	2.0	3.4		2.0	2.1	2.9
Green Ext Time (p_c), s		0.1	0.0	0.6		0.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

HCM 2010 AWSC
5: Redlands Blvd & Cactus Ave 12/15/2017

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	1	7	0	6	9	14	247	0	1	145	73
Future Vol, veh/h	103	1	7	0	6	9	14	247	0	1	145	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	112	1	8	0	7	10	15	268	0	1	158	79
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	10.4	8.8	9.4	8.9
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	100%	0%	0%	1%	0%
Vol Thru, %	85%	100%	0%	7%	40%	99%	50%
Vol Right, %	0%	0%	0%	93%	60%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	96	165	104	8	15	74	146
LT Vol	14	0	103	0	0	1	0
Through Vol	82	165	1	1	6	73	73
RT Vol	0	0	0	7	9	0	73
Lane Flow Rate	105	179	112	8	16	80	158
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.153	0.257	0.196	0.012	0.025	0.116	0.214
Departure Headway (Hd)	5.249	5.176	6.263	5.103	5.582	5.241	4.88
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	682	693	570	697	636	681	732
Service Time	2.995	2.922	4.026	2.866	3.66	2.989	2.628
HCM Lane V/C Ratio	0.154	0.258	0.196	0.011	0.025	0.117	0.216
HCM Control Delay	8.9	9.7	10.6	7.9	8.8	8.7	9
HCM Lane LOS	A	A	B	A	A	A	A
HCM 95th-tile Q	0.5	1	0.7	0	0.1	0.4	0.8

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 2010 Signalized Intersection Summary
6: Moreno Beach Dr & Cactus Ave

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	57	30	19	88	20	71	360	23	10	231	5
Future Volume (veh/h)	61	57	30	19	88	20	71	360	23	10	231	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	66	62	33	21	96	22	77	391	25	11	251	5
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	444	220	117	451	100	195	824	473	98	916	18
Arrive On Green	0.10	0.19	0.15	0.07	0.16	0.11	0.11	0.23	0.23	0.06	0.18	0.14
Sat Flow, veh/h	1774	2293	1138	1774	2879	641	1774	3539	1583	1774	5133	102
Grp Volume(v), veh/h	66	47	48	21	58	60	77	391	25	11	165	91
Grp Sat Flow(s),veh/h/ln	1774	1770	1662	1774	1770	1750	1774	1770	1583	1774	1695	1845
Q Serve(g_s), s	1.2	0.8	0.9	0.4	1.0	1.1	1.4	3.4	0.2	0.2	1.5	1.5
Cycle Q Clear(g_c), s	1.2	0.8	0.9	0.4	1.0	1.1	1.4	3.4	0.2	0.2	1.5	1.5
Prop In Lane	1.00		0.68	1.00		0.37	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	183	343	322	117	277	274	195	824	473	98	605	329
V/C Ratio(X)	0.36	0.14	0.15	0.18	0.21	0.22	0.40	0.47	0.05	0.11	0.27	0.28
Avail Cap(c_a), veh/h	301	875	821	301	875	865	351	1949	977	301	1771	964
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	11.8	12.3	15.6	13.0	13.3	14.7	11.7	1.5	15.9	12.6	12.6
Incr Delay (d2), s/veh	1.2	0.2	0.2	0.7	0.4	0.4	1.3	0.4	0.0	0.5	0.2	0.4
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	0.6	0.4	0.4	0.2	0.5	0.5	0.8	1.7	0.1	0.1	0.7	0.8
LnGrp Delay(d),s/veh	16.0	12.0	12.5	16.3	13.4	13.7	16.0	12.1	1.6	16.4	12.8	13.1
LnGrp LOS	B	B	B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		161			139			493			267	
Approach Delay, s/veh		13.8			14.0			12.2			13.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	12.2	6.3	10.9	7.9	10.3	7.6	9.5
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	18.0	4.5	16.0	5.5	17.0	4.5	16.0
Max Q Clear Time (g_c+I1), s	2.2	5.4	2.4	2.9	3.4	3.5	3.2	3.1
Green Ext Time (p_c), s	0.0	1.4	0.0	0.2	0.0	0.7	0.0	0.2

Intersection Summary		
HCM 2010 Ctrl Delay		12.9
HCM 2010 LOS		B

HCM 6th TWSC
7: Moreno Beach Dr & Championship Dr

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	19	489	5	11	407
Future Vol, veh/h	11	19	489	5	11	407
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	21	532	5	12	442

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	736	269	0	0	537	0
Stage 1	535	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	420	621	-	-	651	-
Stage 1	460	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	412	621	-	-	651	-
Mov Cap-2 Maneuver	412	-	-	-	-	-
Stage 1	452	-	-	-	-	-
Stage 2	747	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	524	651	-
HCM Lane V/C Ratio	-	-	0.062	0.018	-
HCM Control Delay (s)	-	-	12.3	10.6	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	449	8	16	389	8	26	3	34	13	2	22
Future Volume (veh/h)	9	449	8	16	389	8	26	3	34	13	2	22
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	10	488	9	17	423	9	28	3	37	14	2	24
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	1595	29	109	1051	22	128	233	295	103	14	164
Arrive On Green	0.17	0.31	0.27	0.06	0.21	0.16	0.07	0.12	0.12	0.06	0.11	0.07
Sat Flow, veh/h	1774	5142	95	1774	5125	109	1774	1863	1583	1774	123	1479
Grp Volume(v), veh/h	10	321	176	17	279	153	28	3	37	14	0	26
Grp Sat Flow(s),veh/h/ln	1774	1695	1846	1774	1695	1844	1774	1863	1583	1774	0	1602
Q Serve(g_s), s	0.2	2.6	2.6	0.3	2.6	2.6	0.5	0.1	0.7	0.3	0.0	0.5
Cycle Q Clear(g_c), s	0.2	2.6	2.6	0.3	2.6	2.6	0.5	0.1	0.7	0.3	0.0	0.5
Prop In Lane	1.00		0.05	1.00		0.06	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	295	1052	573	109	696	378	128	233	295	103	0	177
V/C Ratio(X)	0.03	0.31	0.31	0.16	0.40	0.40	0.22	0.01	0.13	0.14	0.00	0.15
Avail Cap(c_a), veh/h	864	2737	1491	296	1652	898	296	934	891	296	0	803
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	9.4	9.5	16.0	12.4	12.4	15.7	13.8	12.2	16.1	0.0	15.1
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.7	0.4	0.7	0.8	0.0	0.2	0.6	0.0	0.4
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	0.1	1.2	1.4	0.2	1.2	1.4	0.3	0.0	0.3	0.1	0.0	0.3
LnGrp Delay(d),s/veh	12.6	9.6	9.8	16.6	12.7	13.1	16.5	13.8	12.4	16.7	0.0	15.4
LnGrp LOS	B	A	A	B	B	B	B	B	B	B		B
Approach Vol, veh/h		507			449			68			40	
Approach Delay, s/veh		9.7			13.0			14.2			15.9	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	8.0	10.0	11.4	6.1	8.5	6.2	15.1
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	16.5	16.0	16.0	4.5	16.5	4.5	27.5
Max Q Clear Time (g_c+I1), s	2.5	2.5	2.2	4.6	2.3	2.7	2.3	4.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.3	0.0	0.1	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

Notes
User approved changes to right turn type.

HCM 2010 AWSC
1: Oliver St & John F Kennedy Dr

12/15/2017

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱			↑
Traffic Vol, veh/h	16	41	28	13	20	24
Future Vol, veh/h	16	41	28	13	20	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	45	30	14	22	26
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.3	7.3	7.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	45%
Vol Thru, %	100%	42%	0%	0%	55%
Vol Right, %	0%	58%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	22	16	41	44
LT Vol	0	0	16	0	20
Through Vol	19	9	0	0	24
RT Vol	0	13	0	41	0
Lane Flow Rate	20	24	17	45	48
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.026	0.029	0.025	0.049	0.061
Departure Headway (Hd)	4.666	4.258	5.193	3.992	4.566
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	764	837	685	889	781
Service Time	2.413	2.005	2.956	1.754	2.615
HCM Lane V/C Ratio	0.026	0.029	0.025	0.051	0.061
HCM Control Delay	7.5	7.1	8.1	7	7.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.2	0.2

HCM 6th TWSC
2: Via Entrada & John F Kennedy Dr 12/15/2017

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	30	2	16	23	4	9	1	17	5	0	9
Future Vol, veh/h	2	30	2	16	23	4	9	1	17	5	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	33	2	17	25	4	10	1	18	5	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	29	0	0	35	0	0	104	101	34	109	100	27
Stage 1	-	-	-	-	-	-	38	38	-	61	61	-
Stage 2	-	-	-	-	-	-	66	63	-	48	39	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1584	-	-	1576	-	-	876	789	1039	870	790	1048
Stage 1	-	-	-	-	-	-	977	863	-	950	844	-
Stage 2	-	-	-	-	-	-	945	842	-	965	862	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1584	-	-	1576	-	-	860	780	1039	846	781	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	860	780	-	846	781	-
Stage 1	-	-	-	-	-	-	976	862	-	949	835	-
Stage 2	-	-	-	-	-	-	926	833	-	946	861	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.7	8.9	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	961	1584	-	-	1576	-	-	966
HCM Lane V/C Ratio	0.031	0.001	-	-	0.011	-	-	0.016
HCM Control Delay (s)	8.9	7.3	-	-	7.3	-	-	8.8
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	28	2	184	17	59	31	316	196	32	268	11
Future Volume (veh/h)	69	28	2	184	17	59	31	316	196	32	268	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	75	30	2	200	18	64	34	343	213	35	291	12
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	230	15	322	401	341	243	1145	644	128	803	33
Arrive On Green	0.10	0.13	0.10	0.18	0.22	0.22	0.14	0.23	0.23	0.07	0.16	0.12
Sat Flow, veh/h	1774	1727	115	1774	1863	1583	1774	5085	1583	1774	5012	205
Grp Volume(v), veh/h	75	0	32	200	18	64	34	343	213	35	196	107
Grp Sat Flow(s),veh/h/ln	1774	0	1842	1774	1863	1583	1774	1695	1583	1774	1695	1827
Q Serve(g_s), s	1.6	0.0	0.6	4.3	0.3	1.4	0.7	2.3	3.8	0.8	2.1	2.2
Cycle Q Clear(g_c), s	1.6	0.0	0.6	4.3	0.3	1.4	0.7	2.3	3.8	0.8	2.1	2.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	176	0	245	322	401	341	243	1145	644	128	544	293
V/C Ratio(X)	0.43	0.00	0.13	0.62	0.04	0.19	0.14	0.30	0.33	0.27	0.36	0.37
Avail Cap(c_a), veh/h	258	0	782	645	1197	1017	258	2528	1075	258	1685	908
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	15.8	15.6	12.8	13.2	15.7	13.3	8.4	18.1	15.4	15.5
Incr Delay (d2), s/veh	1.6	0.0	0.2	2.0	0.0	0.3	0.3	0.1	0.3	1.1	0.4	0.8
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	0.0	0.3	2.2	0.2	0.6	0.4	1.1	1.7	0.4	1.0	1.1
LnGrp Delay(d),s/veh	19.1	0.0	16.1	17.5	12.9	13.5	15.9	13.4	8.7	19.2	15.8	16.3
LnGrp LOS	B		B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		107			282			590			338	
Approach Delay, s/veh		18.2			16.3			11.9			16.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	13.3	11.5	9.5	9.7	10.6	8.1	12.9
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	19.0	13.5	16.0	4.5	19.0	4.5	25.0
Max Q Clear Time (g_c+I1), s	2.8	5.8	6.3	2.6	2.7	4.2	3.6	3.4
Green Ext Time (p_c), s	0.0	2.0	0.4	0.0	0.0	1.0	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	219	8	2	152	2	16	0	16	1	0	1
Future Volume (veh/h)	6	219	8	2	152	2	16	0	16	1	0	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	7	238	9	2	165	2	17	0	17	1	0	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	808	30	109	810	10	341	53	182	335	59	182
Arrive On Green	0.07	0.23	0.17	0.06	0.23	0.17	0.24	0.00	0.18	0.24	0.00	0.18
Sat Flow, veh/h	1774	3478	131	1774	3581	43	549	226	775	524	250	774
Grp Volume(v), veh/h	7	121	126	2	81	86	34	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1840	1774	1770	1855	1550	0	0	1548	0	0
Q Serve(g_s), s	0.1	1.4	1.4	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	1.4	1.4	0.0	1.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.02	0.50		0.50	0.50		0.50
Lane Grp Cap(c), veh/h	120	411	427	109	400	420	577	0	0	576	0	0
V/C Ratio(X)	0.06	0.29	0.30	0.02	0.20	0.20	0.06	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	418	1215	1263	418	1215	1274	1367	0	0	1361	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	8.1	8.1	11.2	8.0	8.0	7.9	0.0	0.0	7.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.1	0.2	0.2	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.8	0.0	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	11.3	8.5	8.5	11.3	8.2	8.3	7.9	0.0	0.0	7.7	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		254			169			34			2	
Approach Delay, s/veh		8.6			8.3			7.9			7.7	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	5.6	9.9		10.0	5.7	9.8
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.4	2.0	3.4		2.0	2.1	3.0
Green Ext Time (p_c), s		0.1	0.0	0.6		0.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

HCM 2010 AWSC
5: Redlands Blvd & Cactus Ave

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	1	7	2	6	9	14	249	2	1	147	73
Future Vol, veh/h	103	1	7	2	6	9	14	249	2	1	147	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	112	1	8	2	7	10	15	271	2	1	160	79
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	10.4	8.9	9.4	8.9
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	10%	0%	100%	0%	12%	1%	0%
Vol Thru, %	90%	98%	0%	7%	35%	99%	50%
Vol Right, %	0%	2%	0%	93%	53%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	127	104	8	17	75	147
LT Vol	14	0	103	0	2	1	0
Through Vol	125	125	1	1	6	74	74
RT Vol	0	2	0	7	9	0	73
Lane Flow Rate	151	137	112	8	18	81	159
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.219	0.198	0.196	0.012	0.029	0.118	0.217
Departure Headway (Hd)	5.237	5.175	6.276	5.117	5.656	5.253	4.896
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	683	692	569	694	628	680	731
Service Time	2.984	2.922	4.046	2.886	3.74	3.003	2.645
HCM Lane V/C Ratio	0.221	0.198	0.197	0.012	0.029	0.119	0.218
HCM Control Delay	9.5	9.2	10.6	7.9	8.9	8.7	9
HCM Lane LOS	A	A	B	A	A	A	A
HCM 95th-tile Q	0.8	0.7	0.7	0	0.1	0.4	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	57	33	22	88	20	74	364	26	10	235	54
Future Volume (veh/h)	61	57	33	22	88	20	74	364	26	10	235	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	66	62	36	24	96	22	80	396	28	11	255	59
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	423	228	122	450	100	197	827	479	105	758	168
Arrive On Green	0.10	0.19	0.15	0.07	0.16	0.11	0.11	0.23	0.23	0.06	0.18	0.14
Sat Flow, veh/h	1774	2224	1197	1774	2879	641	1774	3539	1583	1774	4168	922
Grp Volume(v), veh/h	66	48	50	24	58	60	80	396	28	11	205	109
Grp Sat Flow(s),veh/h/ln	1774	1770	1651	1774	1770	1750	1774	1770	1583	1774	1695	1700
Q Serve(g_s), s	1.2	0.8	0.9	0.5	1.0	1.1	1.5	3.4	0.2	0.2	1.9	2.0
Cycle Q Clear(g_c), s	1.2	0.8	0.9	0.5	1.0	1.1	1.5	3.4	0.2	0.2	1.9	2.0
Prop In Lane	1.00		0.72	1.00		0.37	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	182	337	314	122	277	274	197	827	479	105	617	309
V/C Ratio(X)	0.36	0.14	0.16	0.20	0.21	0.22	0.41	0.48	0.06	0.10	0.33	0.35
Avail Cap(c_a), veh/h	298	867	809	298	867	858	348	1933	974	298	1757	881
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	12.0	12.5	15.7	13.1	13.4	14.8	11.8	1.5	15.9	12.7	13.1
Incr Delay (d2), s/veh	1.2	0.2	0.2	0.8	0.4	0.4	1.3	0.4	0.1	0.4	0.3	0.7
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	0.7	0.4	0.4	0.2	0.5	0.6	0.8	1.7	0.2	0.1	0.9	1.0
LnGrp Delay(d),s/veh	16.1	12.2	12.8	16.5	13.5	13.8	16.1	12.2	1.6	16.3	13.0	13.8
LnGrp LOS	B	B	B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		164			142			504			325	
Approach Delay, s/veh		14.0			14.1			12.3			13.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	12.3	6.5	10.8	8.0	10.5	7.7	9.6
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	18.0	4.5	16.0	5.5	17.0	4.5	16.0
Max Q Clear Time (g_c+I1), s	2.2	5.4	2.5	2.9	3.5	4.0	3.2	3.1
Green Ext Time (p_c), s	0.0	1.4	0.0	0.2	0.0	1.0	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

HCM 6th TWSC
7: Moreno Beach Dr & Championship Dr 12/15/2017

Intersection						
Int Delay, s/veh	0.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	19	507	5	11	424
Future Vol, veh/h	11	19	507	5	11	424
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	21	551	5	12	461

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	762	278	0	0	556	0
Stage 1	554	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	408	613	-	-	637	-
Stage 1	449	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	400	613	-	-	637	-
Mov Cap-2 Maneuver	400	-	-	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	741	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	513	637	-
HCM Lane V/C Ratio	-	-	0.064	0.019	-
HCM Control Delay (s)	-	-	12.5	10.8	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	453	8	20	393	8	26	3	38	13	2	22
Future Volume (veh/h)	9	453	8	20	393	8	26	3	38	13	2	22
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	10	492	9	22	427	9	28	3	41	14	2	24
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	1107	20	271	1630	34	122	312	507	97	19	227
Arrive On Green	0.05	0.22	0.18	0.15	0.32	0.28	0.07	0.17	0.17	0.05	0.15	0.12
Sat Flow, veh/h	1774	5143	94	1774	5126	108	1774	1863	1583	1774	123	1479
Grp Volume(v), veh/h	10	324	177	22	282	154	28	3	41	14	0	26
Grp Sat Flow(s),veh/h/ln	1774	1695	1846	1774	1695	1844	1774	1863	1583	1774	0	1602
Q Serve(g_s), s	0.2	3.2	3.3	0.4	2.4	2.4	0.6	0.1	0.7	0.3	0.0	0.6
Cycle Q Clear(g_c), s	0.2	3.2	3.3	0.4	2.4	2.4	0.6	0.1	0.7	0.3	0.0	0.6
Prop In Lane	1.00		0.05	1.00		0.06	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	89	730	397	271	1078	586	122	312	507	97	0	246
V/C Ratio(X)	0.11	0.44	0.45	0.08	0.26	0.26	0.23	0.01	0.08	0.14	0.00	0.11
Avail Cap(c_a), veh/h	273	1519	827	795	2517	1369	273	858	972	273	0	738
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	13.3	13.3	14.2	9.9	9.9	17.2	13.6	9.3	17.6	0.0	14.8
Incr Delay (d2), s/veh	0.6	0.4	0.8	0.1	0.1	0.2	1.0	0.0	0.1	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.5	1.7	0.2	1.2	1.3	0.3	0.0	0.3	0.2	0.0	0.3
LnGrp Delay(d),s/veh	18.3	13.7	14.1	14.3	10.0	10.2	18.2	13.6	9.3	18.3	0.0	15.0
LnGrp LOS	B	B	B	B	B	B	B	B	A	B		B
Approach Vol, veh/h		511			458			72			40	
Approach Delay, s/veh		13.9			10.3			12.9			16.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	10.0	6.0	16.4	6.1	10.5	10.0	12.4
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	16.5	4.5	27.5	4.5	16.5	16.0	16.0
Max Q Clear Time (g_c+I1), s	2.6	2.6	2.2	4.4	2.3	2.7	2.4	5.3
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	0.1	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

HCM 6th TWSC
9: Dwy A & John F Kennedy Dr

Intersection						
Int Delay, s/veh	3.1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↱
Traffic Vol, veh/h	47	28	0	23	0	52
Future Vol, veh/h	47	28	0	23	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	51	30	0	25	0	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	66
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	998
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	998
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	998	-	-	-
HCM Lane V/C Ratio	0.057	-	-	-
HCM Control Delay (s)	8.8	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 6th TWSC
10: Moreno Beach Dr & Dwy B 12/15/2017

Intersection						
Int Delay, s/veh	0.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	0	525	417	55
Future Vol, veh/h	0	17	0	525	417	55
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, %	2	2	2	2	2	2
Mvmt Flow	0	18	0	571	453	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	257	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	632	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	632	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	632	-	-
HCM Lane V/C Ratio	-	0.029	-	-
HCM Control Delay (s)	-	10.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 6th TWSC
11: Via Entrada & Dwy C

01/30/2018

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑			↑
Traffic Vol, veh/h	9	9	18	9	0	9
Future Vol, veh/h	9	9	18	9	0	9
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, %	2	2	2	2	2	2
Mvmt Flow	10	10	20	10	0	10

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	35	25	0	0	-	-
Stage 1	25	-	-	-	-	-
Stage 2	10	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	978	1051	-	-	0	-
Stage 1	998	-	-	-	0	-
Stage 2	1013	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	978	1051	-	-	-	-
Mov Cap-2 Maneuver	978	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	1013	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	1013	-
HCM Lane V/C Ratio	-	-	0.019	-
HCM Control Delay (s)	-	-	8.6	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.1	-

HCM 6th AWSC
1: Oliver St & John F Kennedy Dr

01/30/2018

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	41	34	14	18	39
Future Vol, veh/h	20	41	34	14	18	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	45	37	15	20	42
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.4	7.4	8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	32%
Vol Thru, %	100%	45%	0%	0%	68%
Vol Right, %	0%	55%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	25	20	41	57
LT Vol	0	0	20	0	18
Through Vol	23	11	0	0	39
RT Vol	0	14	0	41	0
Lane Flow Rate	25	28	22	45	62
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.032	0.033	0.032	0.05	0.078
Departure Headway (Hd)	4.68	4.293	5.228	4.026	4.55
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	760	828	679	877	782
Service Time	2.439	2.052	3.007	1.805	2.61
HCM Lane V/C Ratio	0.033	0.034	0.032	0.051	0.079
HCM Control Delay	7.6	7.2	8.2	7	8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.2	0.3

HCM 6th TWSC
2: Via Entrada & John F Kennedy Dr

01/30/2018

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑		↰	↑			✣			✣	
Traffic Vol, veh/h	2	35	2	8	30	4	0	1	19	6	0	10
Future Vol, veh/h	2	35	2	8	30	4	0	1	19	6	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	38	2	9	33	4	0	1	21	7	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	37	0	0	40	0	0	102	98	39	107	97	35
Stage 1	-	-	-	-	-	-	43	43	-	53	53	-
Stage 2	-	-	-	-	-	-	59	55	-	54	44	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1574	-	-	1570	-	-	879	792	1033	872	793	1038
Stage 1	-	-	-	-	-	-	971	859	-	960	851	-
Stage 2	-	-	-	-	-	-	953	849	-	958	858	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1574	-	-	1570	-	-	865	786	1033	849	787	1038
Mov Cap-2 Maneuver	-	-	-	-	-	-	865	786	-	849	787	-
Stage 1	-	-	-	-	-	-	970	858	-	959	846	-
Stage 2	-	-	-	-	-	-	938	844	-	937	857	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.4	8.6	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1017	1574	-	-	1570	-	-	958
HCM Lane V/C Ratio	0.021	0.001	-	-	0.006	-	-	0.018
HCM Control Delay (s)	8.6	7.3	-	-	7.3	-	-	8.8
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	13	2	193	11	65	14	349	216	35	276	15
Future Volume (veh/h)	38	13	2	193	11	65	14	349	216	35	276	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	41	14	2	210	12	71	15	379	235	38	300	16
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	194	28	332	434	369	262	1199	670	131	801	42
Arrive On Green	0.08	0.12	0.09	0.19	0.23	0.23	0.15	0.24	0.24	0.07	0.16	0.13
Sat Flow, veh/h	1774	1595	228	1774	1863	1583	1774	5085	1583	1774	4946	261
Grp Volume(v), veh/h	41	0	16	210	12	71	15	379	235	38	205	111
Grp Sat Flow(s),veh/h/ln	1774	0	1823	1774	1863	1583	1774	1695	1583	1774	1695	1817
Q Serve(g_s), s	0.9	0.0	0.3	4.6	0.2	1.5	0.3	2.6	4.2	0.9	2.3	2.3
Cycle Q Clear(g_c), s	0.9	0.0	0.3	4.6	0.2	1.5	0.3	2.6	4.2	0.9	2.3	2.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	136	0	222	332	434	369	262	1199	670	131	549	294
V/C Ratio(X)	0.30	0.00	0.07	0.63	0.03	0.19	0.06	0.32	0.35	0.29	0.37	0.38
Avail Cap(c_a), veh/h	253	0	759	633	1175	999	262	2482	1069	253	1654	887
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	16.4	15.7	12.4	12.9	15.4	13.3	8.2	18.4	15.7	15.8
Incr Delay (d2), s/veh	1.2	0.0	0.1	2.0	0.0	0.3	0.1	0.1	0.3	1.2	0.4	0.8
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	0.5	0.0	0.2	2.4	0.1	0.7	0.2	1.2	1.9	0.5	1.1	1.2
LnGrp Delay(d),s/veh	19.6	0.0	16.6	17.7	12.5	13.2	15.5	13.4	8.5	19.6	16.1	16.6
LnGrp LOS	B		B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		57			293			629			354	
Approach Delay, s/veh		18.7			16.4			11.6			16.6	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	13.9	11.9	9.1	10.2	10.8	7.2	13.8
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	19.0	13.5	16.0	4.5	19.0	4.5	25.0
Max Q Clear Time (g_c+I1), s	2.9	6.2	6.6	2.3	2.3	4.3	2.9	3.5
Green Ext Time (p_c), s	0.0	2.2	0.4	0.0	0.0	1.0	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	238	7	2	166	2	15	0	18	1	0	1
Future Volume (veh/h)	7	238	7	2	166	2	15	0	18	1	0	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	8	259	8	2	180	2	16	0	20	1	0	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	823	25	108	816	9	318	48	203	334	59	181
Arrive On Green	0.07	0.23	0.18	0.06	0.23	0.17	0.23	0.00	0.18	0.23	0.00	0.18
Sat Flow, veh/h	1774	3505	108	1774	3586	40	488	203	863	524	250	773
Grp Volume(v), veh/h	8	130	137	2	89	93	36	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1844	1774	1770	1856	1554	0	0	1546	0	0
Q Serve(g_s), s	0.1	1.6	1.6	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	1.6	1.6	0.0	1.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.02	0.44		0.56	0.50		0.50
Lane Grp Cap(c), veh/h	121	415	433	108	403	422	568	0	0	574	0	0
V/C Ratio(X)	0.07	0.31	0.32	0.02	0.22	0.22	0.06	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	416	1211	1262	416	1211	1270	1361	0	0	1355	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	8.1	8.1	11.3	8.0	8.0	8.0	0.0	0.0	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.1	0.3	0.3	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.8	0.0	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	11.4	8.5	8.5	11.3	8.3	8.3	8.0	0.0	0.0	7.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		275			184			36			2	
Approach Delay, s/veh		8.6			8.3			8.0			7.8	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	5.6	10.0		10.0	5.7	9.8
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.4	2.0	3.6		2.0	2.1	3.0
Green Ext Time (p_c), s		0.1	0.0	0.7		0.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

HCM 6th AWSC
5: Redlands Blvd & Cactus Ave

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	1	8	0	7	10	15	273	0	1	163	81
Future Vol, veh/h	114	1	8	0	7	10	15	273	0	1	163	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	124	1	9	0	8	11	16	297	0	1	177	88
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	10.8	9	9.8	9.2
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	14%	0%	100%	0%	0%	1%	0%
Vol Thru, %	86%	100%	0%	6%	41%	99%	50%
Vol Right, %	0%	0%	0%	94%	59%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	182	115	9	17	83	163
LT Vol	15	0	114	0	0	1	0
Through Vol	91	182	1	1	7	82	82
RT Vol	0	0	0	8	10	0	81
Lane Flow Rate	115	198	124	9	18	90	177
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.171	0.289	0.221	0.013	0.03	0.133	0.244
Departure Headway (Hd)	5.334	5.263	6.396	5.229	5.848	5.331	4.974
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	669	679	558	678	616	669	717
Service Time	3.094	3.023	4.178	3.011	3.848	3.093	2.735
HCM Lane V/C Ratio	0.172	0.292	0.222	0.013	0.029	0.135	0.247
HCM Control Delay	9.2	10.2	11	8.1	9	8.9	9.4
HCM Lane LOS	A	B	B	A	A	A	A
HCM 95th-tile Q	0.6	1.2	0.8	0	0.1	0.5	1

HCM 2010 Signalized Intersection Summary
6: Moreno Beach Dr & Cactus Ave

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	73	33	30	128	53	78	398	30	21	260	60
Future Volume (veh/h)	67	73	33	30	128	53	78	398	30	21	260	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	73	79	36	33	139	58	85	433	33	23	283	65
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	451	194	134	390	156	197	854	501	117	818	180
Arrive On Green	0.10	0.19	0.15	0.08	0.16	0.12	0.11	0.24	0.24	0.07	0.20	0.16
Sat Flow, veh/h	1774	2412	1037	1774	2471	987	1774	3539	1583	1774	4172	919
Grp Volume(v), veh/h	73	57	58	33	98	99	85	433	33	23	228	120
Grp Sat Flow(s),veh/h/ln	1774	1770	1680	1774	1770	1689	1774	1770	1583	1774	1695	1701
Q Serve(g_s), s	1.4	1.0	1.1	0.7	1.8	2.0	1.7	3.9	0.2	0.5	2.2	2.3
Cycle Q Clear(g_c), s	1.4	1.0	1.1	0.7	1.8	2.0	1.7	3.9	0.2	0.5	2.2	2.3
Prop In Lane	1.00		0.62	1.00		0.58	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	185	331	314	134	280	267	197	854	501	117	665	333
V/C Ratio(X)	0.39	0.17	0.19	0.25	0.35	0.37	0.43	0.51	0.07	0.20	0.34	0.36
Avail Cap(c_a), veh/h	286	833	791	286	833	795	334	1857	950	286	1687	846
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	12.7	13.1	16.2	13.9	14.4	15.4	12.2	1.6	16.4	12.9	13.3
Incr Delay (d2), s/veh	1.4	0.2	0.3	1.0	0.7	0.9	1.5	0.5	0.1	0.8	0.3	0.7
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	0.8	0.5	0.5	0.4	1.0	1.0	0.9	2.0	0.2	0.2	1.0	1.1
LnGrp Delay(d),s/veh	16.9	12.9	13.4	17.1	14.7	15.3	16.9	12.7	1.6	17.2	13.2	14.0
LnGrp LOS	B	B	B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		188			230			551			371	
Approach Delay, s/veh		14.6			15.3			12.7			13.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	13.0	6.8	11.0	8.1	11.3	7.9	9.9
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	18.0	4.5	16.0	5.5	17.0	4.5	16.0
Max Q Clear Time (g_c+I1), s	2.5	5.9	2.7	3.1	3.7	4.3	3.4	4.0
Green Ext Time (p_c), s	0.0	1.5	0.0	0.2	0.0	1.1	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

HCM 6th TWSC
7: Moreno Beach Dr & Championship Dr 01/30/2018

Intersection						
Int Delay, s/veh	0.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	21	540	6	12	460
Future Vol, veh/h	12	21	540	6	12	460
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	23	587	7	13	500

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	817	297	0	0	594	0
Stage 1	591	-	-	-	-	-
Stage 2	226	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	383	596	-	-	612	-
Stage 1	426	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	375	596	-	-	612	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	417	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	491	612	-
HCM Lane V/C Ratio	-	-	0.073	0.021	-
HCM Control Delay (s)	-	-	12.9	11	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	496	10	18	438	9	31	3	38	14	2	24
Future Volume (veh/h)	10	496	10	18	438	9	31	3	38	14	2	24
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	11	539	11	20	476	10	34	3	41	15	2	26
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	1134	23	268	1647	34	130	316	507	98	17	225
Arrive On Green	0.05	0.22	0.18	0.15	0.32	0.28	0.07	0.17	0.17	0.06	0.15	0.11
Sat Flow, veh/h	1774	5130	104	1774	5127	107	1774	1863	1583	1774	114	1486
Grp Volume(v), veh/h	11	356	194	20	314	172	34	3	41	15	0	28
Grp Sat Flow(s),veh/h/ln	1774	1695	1844	1774	1695	1844	1774	1863	1583	1774	0	1600
Q Serve(g_s), s	0.2	3.6	3.6	0.4	2.8	2.8	0.7	0.1	0.7	0.3	0.0	0.6
Cycle Q Clear(g_c), s	0.2	3.6	3.6	0.4	2.8	2.8	0.7	0.1	0.7	0.3	0.0	0.6
Prop In Lane	1.00		0.06	1.00		0.06	1.00		1.00	1.00		0.93
Lane Grp Cap(c), veh/h	90	750	408	268	1089	592	130	316	507	98	0	242
V/C Ratio(X)	0.12	0.47	0.48	0.07	0.29	0.29	0.26	0.01	0.08	0.15	0.00	0.12
Avail Cap(c_a), veh/h	268	1496	814	783	2479	1348	268	845	958	268	0	726
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	13.4	13.5	14.5	10.1	10.1	17.4	13.7	9.4	17.9	0.0	15.1
Incr Delay (d2), s/veh	0.6	0.5	0.9	0.1	0.1	0.3	1.1	0.0	0.1	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.7	1.9	0.2	1.3	1.4	0.4	0.0	0.3	0.2	0.0	0.3
LnGrp Delay(d),s/veh	18.6	13.9	14.4	14.6	10.2	10.4	18.4	13.7	9.5	18.6	0.0	15.4
LnGrp LOS	B	B	B	B	B	B	B	B	A	B		B
Approach Vol, veh/h		561			506			78			43	
Approach Delay, s/veh		14.2			10.4			13.5			16.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	10.0	6.0	16.7	6.2	10.7	10.0	12.8
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	16.5	4.5	27.5	4.5	16.5	16.0	16.0
Max Q Clear Time (g_c+I1), s	2.7	2.6	2.2	4.8	2.3	2.7	2.4	5.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.1	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes
User approved changes to right turn type.

HCM 6th AWSC
1: Oliver St & John F Kennedy Dr 01/30/2018

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	44	34	15	22	39
Future Vol, veh/h	22	44	34	15	22	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	48	37	16	24	42
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.5	7.4	8.1
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	36%
Vol Thru, %	100%	43%	0%	0%	64%
Vol Right, %	0%	57%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	26	22	44	61
LT Vol	0	0	22	0	22
Through Vol	23	11	0	0	39
RT Vol	0	15	0	44	0
Lane Flow Rate	25	29	24	48	66
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.032	0.034	0.035	0.054	0.084
Departure Headway (Hd)	4.693	4.293	5.237	4.036	4.57
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	757	827	677	875	778
Service Time	2.456	2.057	3.02	1.818	2.634
HCM Lane V/C Ratio	0.033	0.035	0.035	0.055	0.085
HCM Control Delay	7.6	7.2	8.2	7.1	8.1
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.2	0.3

HCM 6th TWSC
2: Via Entrada & John F Kennedy Dr

01/30/2018

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	35	2	17	30	4	9	1	19	6	0	10
Future Vol, veh/h	2	35	2	17	30	4	9	1	19	6	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	38	2	18	33	4	10	1	21	7	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	37	0	0	40	0	0	120	116	39	125	115	35
Stage 1	-	-	-	-	-	-	43	43	-	71	71	-
Stage 2	-	-	-	-	-	-	77	73	-	54	44	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1574	-	-	1570	-	-	855	774	1033	849	775	1038
Stage 1	-	-	-	-	-	-	971	859	-	939	836	-
Stage 2	-	-	-	-	-	-	932	834	-	958	858	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1574	-	-	1570	-	-	838	765	1033	824	766	1038
Mov Cap-2 Maneuver	-	-	-	-	-	-	838	765	-	824	766	-
Stage 1	-	-	-	-	-	-	970	858	-	938	827	-
Stage 2	-	-	-	-	-	-	912	825	-	937	857	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.4	8.9	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	953	1574	-	-	1570	-	-	946
HCM Lane V/C Ratio	0.033	0.001	-	-	0.012	-	-	0.018
HCM Control Delay (s)	8.9	7.3	-	-	7.3	-	-	8.9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	30	2	202	20	65	33	349	216	35	304	15
Future Volume (veh/h)	73	30	2	202	20	65	33	349	216	35	304	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	79	33	2	220	22	71	36	379	235	38	330	16
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	227	14	342	418	355	245	1180	672	130	830	40
Arrive On Green	0.10	0.13	0.10	0.19	0.22	0.22	0.14	0.23	0.23	0.07	0.17	0.13
Sat Flow, veh/h	1774	1739	105	1774	1863	1583	1774	5085	1583	1774	4972	239
Grp Volume(v), veh/h	79	0	35	220	22	71	36	379	235	38	224	122
Grp Sat Flow(s),veh/h/ln	1774	0	1844	1774	1863	1583	1774	1695	1583	1774	1695	1821
Q Serve(g_s), s	1.8	0.0	0.7	4.9	0.4	1.6	0.8	2.7	4.3	0.9	2.5	2.6
Cycle Q Clear(g_c), s	1.8	0.0	0.7	4.9	0.4	1.6	0.8	2.7	4.3	0.9	2.5	2.6
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	175	0	241	342	418	355	245	1180	672	130	566	304
V/C Ratio(X)	0.45	0.00	0.15	0.64	0.05	0.20	0.15	0.32	0.35	0.29	0.40	0.40
Avail Cap(c_a), veh/h	247	0	750	618	1147	975	247	2422	1059	247	1615	867
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	16.6	16.0	13.1	13.6	16.3	13.7	8.4	18.9	16.0	16.1
Incr Delay (d2), s/veh	1.8	0.0	0.3	2.0	0.1	0.3	0.3	0.2	0.3	1.2	0.5	0.9
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	1.0	0.0	0.4	2.6	0.2	0.7	0.4	1.2	1.9	0.5	1.2	1.4
LnGrp Delay(d),s/veh	20.1	0.0	16.9	18.0	13.2	13.8	16.6	13.9	8.7	20.1	16.4	17.0
LnGrp LOS	C		B	B	B	B	B	B	A	C	B	B
Approach Vol, veh/h		114			313			650			384	
Approach Delay, s/veh		19.1			16.7			12.1			17.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	14.0	12.3	9.6	10.0	11.2	8.3	13.7
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	19.0	13.5	16.0	4.5	19.0	4.5	25.0
Max Q Clear Time (g_c+I1), s	2.9	6.3	6.9	2.7	2.8	4.6	3.8	3.6
Green Ext Time (p_c), s	0.0	2.2	0.4	0.0	0.0	1.1	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	242	8	2	170	2	17	0	18	1	0	1
Future Volume (veh/h)	7	242	8	2	170	2	17	0	18	1	0	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	8	263	9	2	185	2	18	0	20	1	0	1
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	821	28	108	818	9	331	49	191	334	59	181
Arrive On Green	0.07	0.24	0.18	0.06	0.23	0.17	0.23	0.00	0.18	0.23	0.00	0.18
Sat Flow, veh/h	1774	3492	119	1774	3587	39	525	209	816	524	250	773
Grp Volume(v), veh/h	8	133	139	2	91	96	38	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1842	1774	1770	1856	1550	0	0	1546	0	0
Q Serve(g_s), s	0.1	1.6	1.6	0.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	1.6	1.6	0.0	1.1	1.1	0.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.02	0.47		0.53	0.50		0.50
Lane Grp Cap(c), veh/h	121	416	433	108	403	423	571	0	0	574	0	0
V/C Ratio(X)	0.07	0.32	0.32	0.02	0.23	0.23	0.07	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	416	1211	1260	416	1211	1270	1361	0	0	1354	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.2	8.1	8.1	11.3	8.0	8.1	8.0	0.0	0.0	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.1	0.3	0.3	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.9	0.0	0.5	0.6	0.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	11.4	8.5	8.6	11.4	8.3	8.3	8.0	0.0	0.0	7.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		280			189			38			2	
Approach Delay, s/veh		8.6			8.4			8.0			7.8	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	5.6	10.0		10.0	5.7	9.8
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.5	2.0	3.6		2.0	2.1	3.1
Green Ext Time (p_c), s		0.1	0.0	0.7		0.0	0.0	0.5

Intersection Summary		
HCM 2010 Ctrl Delay		8.5
HCM 2010 LOS		A

HCM 6th AWSC
5: Redlands Blvd & Cactus Ave 01/30/2018

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	1	8	2	7	10	15	275	2	1	164	81
Future Vol, veh/h	114	1	8	2	7	10	15	275	2	1	164	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	124	1	9	2	8	11	16	299	2	1	178	88
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	10.8	9.1	9.7	9.2
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	10%	0%	100%	0%	11%	1%	0%
Vol Thru, %	90%	99%	0%	6%	37%	99%	50%
Vol Right, %	0%	1%	0%	94%	53%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	140	115	9	19	83	163
LT Vol	15	0	114	0	2	1	0
Through Vol	138	138	1	1	7	82	82
RT Vol	0	2	0	8	10	0	81
Lane Flow Rate	166	152	124	9	21	90	177
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.245	0.222	0.221	0.013	0.034	0.134	0.245
Departure Headway (Hd)	5.32	5.26	6.406	5.24	5.914	5.342	4.985
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	671	679	556	676	609	667	716
Service Time	3.082	3.022	4.192	3.025	3.914	3.107	2.751
HCM Lane V/C Ratio	0.247	0.224	0.223	0.013	0.034	0.135	0.247
HCM Control Delay	9.8	9.5	11	8.1	9.1	8.9	9.4
HCM Lane LOS	A	A	B	A	A	A	A
HCM 95th-tile Q	1	0.8	0.8	0	0.1	0.5	1

HCM 2010 Signalized Intersection Summary
6: Moreno Beach Dr & Cactus Ave

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	73	36	33	128	53	81	402	32	21	264	60
Future Volume (veh/h)	67	73	36	33	128	53	81	402	32	21	264	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	73	79	39	36	139	58	88	437	35	23	287	65
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	433	201	138	390	156	200	858	507	117	819	178
Arrive On Green	0.10	0.18	0.14	0.08	0.16	0.12	0.11	0.24	0.24	0.07	0.20	0.16
Sat Flow, veh/h	1774	2350	1090	1774	2471	987	1774	3539	1583	1774	4183	909
Grp Volume(v), veh/h	73	58	60	36	98	99	88	437	35	23	230	122
Grp Sat Flow(s),veh/h/ln	1774	1770	1670	1774	1770	1689	1774	1770	1583	1774	1695	1702
Q Serve(g_s), s	1.4	1.0	1.2	0.7	1.8	2.0	1.7	4.0	0.2	0.5	2.2	2.3
Cycle Q Clear(g_c), s	1.4	1.0	1.2	0.7	1.8	2.0	1.7	4.0	0.2	0.5	2.2	2.3
Prop In Lane	1.00		0.65	1.00		0.58	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	185	326	308	138	279	267	200	858	507	117	664	333
V/C Ratio(X)	0.39	0.18	0.19	0.26	0.35	0.37	0.44	0.51	0.07	0.20	0.35	0.37
Avail Cap(c_a), veh/h	286	831	785	286	831	793	333	1853	952	286	1684	845
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	12.8	13.3	16.2	14.0	14.4	15.4	12.2	1.5	16.5	12.9	13.3
Incr Delay (d2), s/veh	1.4	0.3	0.3	1.0	0.7	0.9	1.5	0.5	0.1	0.8	0.3	0.7
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	0.8	0.5	0.6	0.4	1.0	1.0	0.9	2.0	0.2	0.3	1.1	1.2
LnGrp Delay(d),s/veh	16.9	13.1	13.6	17.2	14.7	15.3	17.0	12.7	1.6	17.3	13.2	14.0
LnGrp LOS	B	B	B	B	B	B	B	B	A	B	B	B
Approach Vol, veh/h		191			233			560			375	
Approach Delay, s/veh		14.7			15.3			12.6			13.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	13.0	6.9	10.9	8.2	11.3	7.9	9.9
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	18.0	4.5	16.0	5.5	17.0	4.5	16.0
Max Q Clear Time (g_c+I1), s	2.5	6.0	2.7	3.2	3.7	4.3	3.4	4.0
Green Ext Time (p_c), s	0.0	1.6	0.0	0.3	0.0	1.1	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Intersection						
Int Delay, s/veh	0.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	21	558	6	12	478
Future Vol, veh/h	12	21	558	6	12	478
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	23	607	7	13	520

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	845	307	0	0	614	0
Stage 1	611	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	371	588	-	-	598	-
Stage 1	415	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	363	588	-	-	598	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	406	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	480	598	-
HCM Lane V/C Ratio	-	-	0.075	0.022	-
HCM Control Delay (s)	-	-	13.1	11.2	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	500	10	21	442	9	31	3	41	14	2	24
Future Volume (veh/h)	10	500	10	21	442	9	31	3	41	14	2	24
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	11	543	11	23	480	10	34	3	45	15	2	26
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	1138	23	267	1107	23	130	315	507	98	17	225
Arrive On Green	0.16	0.22	0.18	0.15	0.22	0.18	0.07	0.17	0.17	0.06	0.15	0.11
Sat Flow, veh/h	1774	5131	104	1774	5128	107	1774	1863	1583	1774	114	1486
Grp Volume(v), veh/h	11	358	196	23	317	173	34	3	45	15	0	28
Grp Sat Flow(s),veh/h/ln	1774	1695	1844	1774	1695	1844	1774	1863	1583	1774	0	1600
Q Serve(g_s), s	0.2	3.7	3.7	0.4	3.2	3.2	0.7	0.1	0.8	0.3	0.0	0.6
Cycle Q Clear(g_c), s	0.2	3.7	3.7	0.4	3.2	3.2	0.7	0.1	0.8	0.3	0.0	0.6
Prop In Lane	1.00		0.06	1.00		0.06	1.00		1.00	1.00		0.93
Lane Grp Cap(c), veh/h	278	752	409	267	732	398	130	315	507	98	0	242
V/C Ratio(X)	0.04	0.48	0.48	0.09	0.43	0.43	0.26	0.01	0.09	0.15	0.00	0.12
Avail Cap(c_a), veh/h	278	1494	813	782	2476	1347	268	845	957	268	0	726
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	13.4	13.5	14.5	13.5	13.5	17.4	13.7	9.4	17.9	0.0	15.2
Incr Delay (d2), s/veh	0.1	0.5	0.9	0.1	0.4	0.7	1.1	0.0	0.1	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.7	1.9	0.2	1.5	1.7	0.4	0.0	0.3	0.2	0.0	0.3
LnGrp Delay(d),s/veh	14.3	13.9	14.4	14.6	13.9	14.3	18.4	13.7	9.5	18.6	0.0	15.4
LnGrp LOS	B	B	B	B	B	B	B	B	A	B		B
Approach Vol, veh/h		565			513			82			43	
Approach Delay, s/veh		14.1			14.0			13.4			16.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	10.0	10.2	12.6	6.2	10.7	10.0	12.8
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	16.5	4.5	27.5	4.5	16.5	16.0	16.0
Max Q Clear Time (g_c+I1), s	2.7	2.6	2.2	5.2	2.3	2.8	2.4	5.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.1	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Notes
User approved changes to right turn type.

HCM 6th TWSC
9: Dwy A & John F Kennedy Dr 01/30/2018

Intersection						
Int Delay, s/veh	2.8					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	53	28	0	30	0	52
Future Vol, veh/h	53	28	0	30	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	58	30	0	33	0	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	73
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	989
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	989
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	989	-	-	-
HCM Lane V/C Ratio	0.057	-	-	-
HCM Control Delay (s)	8.9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

HCM 6th TWSC
10: Moreno Beach Dr & Dwy B 01/30/2018

Intersection						
Int Delay, s/veh	0.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	0	580	471	55
Future Vol, veh/h	0	17	0	580	471	55
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, %	2	2	2	2	2	2
Mvmt Flow	0	18	0	630	512	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	286	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	606	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	606	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	606	-	-
HCM Lane V/C Ratio	-	0.03	-	-
HCM Control Delay (s)	-	11.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

HCM 6th TWSC
11: Via Entrada & Dwy C 01/30/2018

Intersection						
Int Delay, s/veh	3.9					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑			↑
Traffic Vol, veh/h	9	9	20	0	9	10
Future Vol, veh/h	9	9	20	0	9	10
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, %	2	2	2	2	2	2
Mvmt Flow	10	10	22	0	10	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	53	22	0	-	22	0
Stage 1	22	-	-	-	-	-
Stage 2	31	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	955	1055	-	0	1593	-
Stage 1	1001	-	-	0	-	-
Stage 2	992	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	949	1055	-	-	1593	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	992	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBL	SBT
Capacity (veh/h)	-	999	1593	-
HCM Lane V/C Ratio	-	0.02	0.006	-
HCM Control Delay (s)	-	8.7	7.3	-
HCM Lane LOS	-	A	A	-
HCM 95th %tile Q(veh)	-	0.1	0	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 2010 AWSC
1: Oliver St & John F Kennedy Dr 12/15/2017

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	35	51	16	50	47
Future Vol, veh/h	32	35	51	16	50	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	38	55	17	54	51
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.8	7.6	8.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	52%
Vol Thru, %	100%	52%	0%	0%	48%
Vol Right, %	0%	48%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	33	32	35	97
LT Vol	0	0	32	0	50
Through Vol	34	17	0	0	47
RT Vol	0	16	0	35	0
Lane Flow Rate	37	36	35	38	105
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.048	0.044	0.053	0.045	0.135
Departure Headway (Hd)	4.715	4.375	5.464	4.261	4.618
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	750	807	659	845	768
Service Time	2.505	2.165	3.164	1.961	2.703
HCM Lane V/C Ratio	0.049	0.045	0.053	0.045	0.137
HCM Control Delay	7.7	7.4	8.5	7.2	8.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.2	0.1	0.5

HCM 6th TWSC
2: Via Entrada & John F Kennedy Dr 12/15/2017

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	29	2	29	69	7	1	0	18	10	0	10
Future Vol, veh/h	5	29	2	29	69	7	1	0	18	10	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	32	2	32	75	8	1	0	20	11	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	83	0	0	34	0	0	192	190	33	196	187	79
Stage 1	-	-	-	-	-	-	43	43	-	143	143	-
Stage 2	-	-	-	-	-	-	149	147	-	53	44	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1514	-	-	1578	-	-	768	705	1041	763	708	981
Stage 1	-	-	-	-	-	-	971	859	-	860	779	-
Stage 2	-	-	-	-	-	-	854	775	-	960	858	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1514	-	-	1578	-	-	746	689	1041	736	692	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	746	689	-	736	692	-
Stage 1	-	-	-	-	-	-	968	856	-	857	763	-
Stage 2	-	-	-	-	-	-	827	760	-	939	855	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	2	8.6	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1020	1514	-	-	1578	-	-	841
HCM Lane V/C Ratio	0.02	0.004	-	-	0.02	-	-	0.026
HCM Control Delay (s)	8.6	7.4	-	-	7.3	-	-	9.4
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	8	9	278	36	64	9	253	201	108	448	71
Future Volume (veh/h)	44	8	9	278	36	64	9	253	201	108	448	71
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	48	9	10	302	39	70	10	275	218	117	487	77
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	63	70	371	428	364	424	1254	722	448	1155	179
Arrive On Green	0.06	0.08	0.06	0.21	0.23	0.23	0.24	0.25	0.25	0.50	0.52	0.48
Sat Flow, veh/h	1774	807	897	1774	1863	1583	1774	5085	1583	1774	4442	689
Grp Volume(v), veh/h	48	0	19	302	39	70	10	275	218	117	369	195
Grp Sat Flow(s),veh/h/ln	1774	0	1704	1774	1863	1583	1774	1695	1583	1774	1695	1741
Q Serve(g_s), s	2.0	0.0	0.8	12.2	1.2	1.3	0.3	3.2	1.3	2.8	5.0	5.3
Cycle Q Clear(g_c), s	2.0	0.0	0.8	12.2	1.2	1.3	0.3	3.2	1.3	2.8	5.0	5.3
Prop In Lane	1.00		0.53	1.00		1.00	1.00		1.00	1.00		0.40
Lane Grp Cap(c), veh/h	103	0	134	371	428	364	424	1254	722	448	881	453
V/C Ratio(X)	0.47	0.00	0.14	0.81	0.09	0.19	0.02	0.22	0.30	0.26	0.42	0.43
Avail Cap(c_a), veh/h	142	0	398	378	683	581	424	1254	722	448	881	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	34.2	0.0	32.6	28.3	22.7	5.4	21.8	22.5	4.1	14.6	14.5	15.1
Incr Delay (d2), s/veh	3.3	0.0	0.5	12.6	0.1	0.3	0.0	0.4	1.1	0.3	1.4	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	1.1	0.0	0.4	7.3	0.6	0.6	0.2	1.5	1.7	1.4	2.5	2.8
LnGrp Delay(d),s/veh	37.5	0.0	33.1	40.9	22.8	5.7	21.9	22.9	5.2	14.9	15.9	17.9
LnGrp LOS	D		C	D	C	A	C	C	A	B	B	B
Approach Vol, veh/h		67			411			503			681	
Approach Delay, s/veh		36.2			33.2			15.2			16.3	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.9	22.5	19.7	9.9	21.9	23.5	8.3	21.2
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	5.5	17.0	14.5	16.0	4.5	18.0	4.5	26.0
Max Q Clear Time (g_c+I1), s	4.8	5.2	14.2	2.8	2.3	7.3	4.0	3.3
Green Ext Time (p_c), s	0.0	1.6	0.0	0.0	0.0	1.7	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	201	27	21	279	8	15	0	9	7	1	15
Future Volume (veh/h)	30	201	27	21	279	8	15	0	9	7	1	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	33	218	29	23	303	9	16	0	10	8	1	16
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	765	100	147	818	24	380	47	131	253	52	226
Arrive On Green	0.09	0.24	0.19	0.08	0.23	0.18	0.22	0.00	0.17	0.22	0.22	0.17
Sat Flow, veh/h	1774	3146	413	1774	3510	104	721	211	583	335	232	1007
Grp Volume(v), veh/h	33	121	126	23	152	160	26	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1790	1774	1770	1844	1515	0	0	1574	0	0
Q Serve(g_s), s	0.5	1.5	1.5	0.3	1.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	1.5	1.5	0.3	1.9	1.9	0.3	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.06	0.62		0.38	0.32		0.64
Lane Grp Cap(c), veh/h	165	430	435	147	412	430	558	0	0	532	0	0
V/C Ratio(X)	0.20	0.28	0.29	0.16	0.37	0.37	0.05	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	399	1160	1173	399	1160	1209	1296	0	0	1305	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.2	8.2	8.4	11.4	8.6	8.6	8.4	0.0	0.0	8.5	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.4	0.5	0.6	0.5	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.8	0.2	1.0	1.0	0.2	0.0	0.0	0.2	0.0	0.0
LnGrp Delay(d),s/veh	11.8	8.6	8.7	11.9	9.1	9.2	8.4	0.0	0.0	8.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		280			335			26			25	
Approach Delay, s/veh		9.0			9.3			8.4			8.6	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	6.2	10.5		10.0	6.5	10.2
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.3	2.3	3.5		2.3	2.5	3.9
Green Ext Time (p_c), s		0.0	0.0	0.6		0.0	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	107	9	27	3	2	6	15	189	2	14	331	85
Future Vol, veh/h	107	9	27	3	2	6	15	189	2	14	331	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	116	10	29	3	2	7	16	205	2	15	360	92
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	10.7	9.3	9.6	10.7
HCM LOS	B	A	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	14%	0%	96%	0%	27%	8%	0%
Vol Thru, %	86%	98%	4%	14%	18%	92%	66%
Vol Right, %	0%	2%	0%	86%	55%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	97	112	32	11	180	251
LT Vol	15	0	107	0	3	14	0
Through Vol	95	95	5	5	2	166	166
RT Vol	0	2	0	27	6	0	85
Lane Flow Rate	119	105	121	34	12	195	272
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.185	0.16	0.225	0.053	0.021	0.289	0.382
Departure Headway (Hd)	5.592	5.508	6.697	5.607	6.204	5.325	5.046
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	634	644	539	643	580	669	708
Service Time	3.387	3.303	4.398	3.307	4.209	3.101	2.823
HCM Lane V/C Ratio	0.188	0.163	0.224	0.053	0.021	0.291	0.384
HCM Control Delay	9.7	9.4	11.3	8.6	9.3	10.3	11
HCM Lane LOS	A	A	B	A	A	B	B
HCM 95th-tile Q	0.7	0.6	0.9	0.2	0.1	1.2	1.8

HCM 2010 Signalized Intersection Summary
6: Moreno Beach Dr & Cactus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	121	138	20	82	20	100	372	13	35	516	90
Future Volume (veh/h)	62	121	138	20	82	20	100	372	13	35	516	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	67	132	150	22	89	22	109	404	14	38	561	98
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	259	232	75	342	82	624	1930	930	94	1078	185
Arrive On Green	0.07	0.15	0.13	0.04	0.12	0.10	0.70	1.00	1.00	0.05	0.25	0.23
Sat Flow, veh/h	1774	1770	1583	1774	2834	679	1774	3539	1583	1774	4370	751
Grp Volume(v), veh/h	67	132	150	22	54	57	109	404	14	38	433	226
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1743	1774	1770	1583	1774	1695	1730
Q Serve(g_s), s	2.7	5.2	6.8	0.9	2.1	2.2	1.6	0.0	0.0	1.6	8.3	8.5
Cycle Q Clear(g_c), s	2.7	5.2	6.8	0.9	2.1	2.2	1.6	0.0	0.0	1.6	8.3	8.5
Prop In Lane	1.00		1.00	1.00		0.39	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	120	259	232	75	213	210	624	1930	930	94	836	427
V/C Ratio(X)	0.56	0.51	0.65	0.29	0.26	0.27	0.17	0.21	0.02	0.41	0.52	0.53
Avail Cap(c_a), veh/h	213	484	433	189	460	453	624	1930	930	189	836	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	29.5	30.9	34.8	29.9	30.2	7.5	0.0	0.0	34.4	24.4	24.8
Incr Delay (d2), s/veh	4.0	1.5	3.0	2.2	0.6	0.7	0.1	0.2	0.0	2.8	2.3	4.6
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	1.5	2.6	3.1	0.5	1.1	1.1	0.8	0.1	0.0	0.8	4.1	4.6
LnGrp Delay(d),s/veh	37.8	31.1	33.9	37.0	30.6	30.9	7.6	0.2	0.0	37.2	26.7	29.4
LnGrp LOS	D	C	C	D	C	C	A	A	A	D	C	C
Approach Vol, veh/h		349			133			527			697	
Approach Delay, s/veh		33.6			31.8			1.8			28.1	
Approach LOS		C			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	44.9	7.2	15.0	30.4	22.5	9.1	13.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	6.5	21.0	6.5	19.0	10.5	17.0	7.5	18.0
Max Q Clear Time (g_c+I1), s	3.6	2.0	2.9	8.8	3.6	10.5	4.7	4.2
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.1	1.6	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

HCM 6th TWSC
7: Moreno Beach Dr & Championship Dr

12/15/2017

Intersection						
Int Delay, s/veh	0.6					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰		↑↑↑		↰	↑↑↑
Traffic Vol, veh/h	14	14	536	15	34	640
Future Vol, veh/h	14	14	536	15	34	640
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	15	583	16	37	696

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	943	300	0	0	599	0
Stage 1	591	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	332	594	-	-	608	-
Stage 1	426	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	312	594	-	-	608	-
Mov Cap-2 Maneuver	312	-	-	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	409	608	-
HCM Lane V/C Ratio	-	-	0.074	0.061	-
HCM Control Delay (s)	-	-	14.5	11.3	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	487	24	44	584	13	19	0	44	10	1	9
Future Volume (veh/h)	18	487	24	44	584	13	19	0	44	10	1	9
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	20	529	26	48	635	14	21	0	48	11	1	10
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	1160	57	290	1707	38	114	212	439	95	15	151
Arrive On Green	0.06	0.23	0.19	0.16	0.33	0.29	0.06	0.00	0.11	0.05	0.10	0.06
Sat Flow, veh/h	1774	4967	243	1774	5120	113	1774	1863	1583	1774	146	1459
Grp Volume(v), veh/h	20	360	195	48	420	229	21	0	48	11	0	11
Grp Sat Flow(s),veh/h/ln	1774	1695	1820	1774	1695	1843	1774	1863	1583	1774	0	1605
Q Serve(g_s), s	0.4	3.3	3.4	0.9	3.5	3.5	0.4	0.0	0.8	0.2	0.0	0.2
Cycle Q Clear(g_c), s	0.4	3.3	3.4	0.9	3.5	3.5	0.4	0.0	0.8	0.2	0.0	0.2
Prop In Lane	1.00		0.13	1.00		0.06	1.00		1.00	1.00		0.91
Lane Grp Cap(c), veh/h	113	792	425	290	1130	614	114	212	439	95	0	166
V/C Ratio(X)	0.18	0.45	0.46	0.17	0.37	0.37	0.18	0.00	0.11	0.12	0.00	0.07
Avail Cap(c_a), veh/h	290	1642	882	850	1854	1008	290	938	1056	290	0	808
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	12.1	12.2	13.2	9.3	9.4	16.3	0.0	9.9	16.6	0.0	15.5
Incr Delay (d2), s/veh	0.7	0.4	0.8	0.3	0.2	0.4	0.8	0.0	0.1	0.5	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.6	1.8	0.4	1.6	1.8	0.2	0.0	0.4	0.1	0.0	0.1
LnGrp Delay(d),s/veh	17.0	12.5	13.0	13.5	9.5	9.7	17.0	0.0	10.0	17.1	0.0	15.7
LnGrp LOS	B	B	B	B	A	A	B		B	B		B
Approach Vol, veh/h		575			697			69			22	
Approach Delay, s/veh		12.8			9.9			12.1			16.4	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	7.8	6.3	16.3	6.0	8.2	10.0	12.6
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	17.0	4.5	18.6	4.5	17.0	16.1	16.3
Max Q Clear Time (g_c+I1), s	2.4	2.2	2.4	5.5	2.2	2.8	2.9	5.4
Green Ext Time (p_c), s	0.0	0.0	0.0	2.2	0.0	0.1	0.1	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

HCM 2010 AWSC
1: Oliver St & John F Kennedy Dr 12/15/2017

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	40	51	19	56	47
Future Vol, veh/h	35	40	51	19	56	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	43	55	21	61	51
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.8	7.6	8.5
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	54%
Vol Thru, %	100%	47%	0%	0%	46%
Vol Right, %	0%	53%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	36	35	40	103
LT Vol	0	0	35	0	56
Through Vol	34	17	0	0	47
RT Vol	0	19	0	40	0
Lane Flow Rate	37	39	38	43	112
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.05	0.049	0.058	0.052	0.144
Departure Headway (Hd)	4.835	4.464	5.488	4.285	4.641
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	745	807	656	840	761
Service Time	2.535	2.164	3.194	1.99	2.738
HCM Lane V/C Ratio	0.05	0.048	0.058	0.051	0.147
HCM Control Delay	7.8	7.4	8.5	7.2	8.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.2	0.5

Intersection												
Int Delay, s/veh	3.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	29	2	40	69	7	11	0	18	10	0	10
Future Vol, veh/h	5	29	2	40	69	7	11	0	18	10	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	32	2	43	75	8	12	0	20	11	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	83	0	0	34	0	0	214	212	33	218	209	79
Stage 1	-	-	-	-	-	-	43	43	-	165	165	-
Stage 2	-	-	-	-	-	-	171	169	-	53	44	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1514	-	-	1578	-	-	743	685	1041	738	688	981
Stage 1	-	-	-	-	-	-	971	859	-	837	762	-
Stage 2	-	-	-	-	-	-	831	759	-	960	858	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1514	-	-	1578	-	-	718	664	1041	708	667	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	718	664	-	708	667	-
Stage 1	-	-	-	-	-	-	968	856	-	834	741	-
Stage 2	-	-	-	-	-	-	799	739	-	939	855	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	2.5	9.2	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	889	1514	-	-	1578	-	-	822
HCM Lane V/C Ratio	0.035	0.004	-	-	0.028	-	-	0.026
HCM Control Delay (s)	9.2	7.4	-	-	7.3	-	-	9.5
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	29	9	289	47	64	32	253	201	108	482	71
Future Volume (veh/h)	85	29	9	289	47	64	32	253	201	108	482	71
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	92	32	10	314	51	70	35	275	218	117	524	77
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	109	34	378	397	337	414	1254	728	438	1167	169
Arrive On Green	0.08	0.08	0.06	0.21	0.21	0.21	0.23	0.25	0.25	0.49	0.52	0.48
Sat Flow, veh/h	1774	1362	426	1774	1863	1583	1774	5085	1583	1774	4489	649
Grp Volume(v), veh/h	92	0	42	314	51	70	35	275	218	117	394	207
Grp Sat Flow(s),veh/h/ln	1774	0	1788	1774	1863	1583	1774	1695	1583	1774	1695	1748
Q Serve(g_s), s	3.8	0.0	1.7	12.7	1.7	1.4	1.2	3.2	1.4	2.9	5.4	5.7
Cycle Q Clear(g_c), s	3.8	0.0	1.7	12.7	1.7	1.4	1.2	3.2	1.4	2.9	5.4	5.7
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	142	0	142	378	397	337	414	1254	728	438	881	455
V/C Ratio(X)	0.65	0.00	0.29	0.83	0.13	0.21	0.08	0.22	0.30	0.27	0.45	0.46
Avail Cap(c_a), veh/h	142	0	417	378	683	581	414	1254	728	438	881	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	33.5	0.0	32.7	28.2	23.9	6.1	22.5	22.5	4.0	15.0	14.6	15.1
Incr Delay (d2), s/veh	9.9	0.0	1.1	14.3	0.1	0.3	0.1	0.4	1.1	0.3	1.6	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.9	7.7	0.9	0.6	0.6	1.5	1.6	1.4	2.7	3.0
LnGrp Delay(d),s/veh	43.3	0.0	33.8	42.5	24.0	6.4	22.6	22.9	5.0	15.3	16.2	18.3
LnGrp LOS	D		C	D	C	A	C	C	A	B	B	B
Approach Vol, veh/h		134			435			528			718	
Approach Delay, s/veh		40.4			34.5			15.5			16.7	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.5	22.5	20.0	10.0	21.5	23.5	10.0	20.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	5.5	17.0	14.5	16.0	4.5	18.0	4.5	26.0
Max Q Clear Time (g_c+I1), s	4.9	5.2	14.7	3.7	3.2	7.7	5.8	3.7
Green Ext Time (p_c), s	0.0	1.6	0.0	0.1	0.0	1.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	206	30	21	285	8	18	0	9	7	1	15
Future Volume (veh/h)	30	206	30	21	285	8	18	0	9	7	1	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	33	224	33	23	310	9	20	0	10	8	1	16
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	761	111	146	826	24	406	42	112	253	52	226
Arrive On Green	0.09	0.25	0.19	0.08	0.24	0.18	0.22	0.00	0.17	0.22	0.22	0.17
Sat Flow, veh/h	1774	3102	451	1774	3513	102	811	188	500	335	232	1007
Grp Volume(v), veh/h	33	127	130	23	156	163	30	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1783	1774	1770	1845	1499	0	0	1574	0	0
Q Serve(g_s), s	0.5	1.6	1.6	0.3	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	1.6	1.6	0.3	2.0	2.0	0.4	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		0.25	1.00		0.06	0.67		0.33	0.32		0.64
Lane Grp Cap(c), veh/h	164	434	437	146	416	434	560	0	0	530	0	0
V/C Ratio(X)	0.20	0.29	0.30	0.16	0.37	0.38	0.05	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	398	1157	1166	398	1157	1206	1291	0	0	1301	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.2	8.2	8.4	11.4	8.6	8.6	8.4	0.0	0.0	8.6	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.4	0.5	0.6	0.5	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.8	0.2	1.0	1.1	0.2	0.0	0.0	0.2	0.0	0.0
LnGrp Delay(d),s/veh	11.8	8.6	8.8	11.9	9.1	9.2	8.4	0.0	0.0	8.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		290			342			30			25	
Approach Delay, s/veh		9.0			9.3			8.4			8.6	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	6.2	10.6		10.0	6.5	10.3
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.4	2.3	3.6		2.3	2.5	4.0
Green Ext Time (p_c), s		0.0	0.0	0.7		0.0	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

HCM 2010 AWSC
5: Redlands Blvd & Cactus Ave
12/15/2017

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	107	9	27	6	2	6	15	192	5	14	334	85
Future Vol, veh/h	107	9	27	6	2	6	15	192	5	14	334	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	116	10	29	7	2	7	16	209	5	15	363	92
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	10.8	9.5	9.7	10.8
HCM LOS	B	A	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	14%	0%	96%	0%	43%	8%	0%
Vol Thru, %	86%	95%	4%	14%	14%	92%	66%
Vol Right, %	0%	5%	0%	86%	43%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	101	112	32	14	181	252
LT Vol	15	0	107	0	6	14	0
Through Vol	96	96	5	5	2	167	167
RT Vol	0	5	0	27	6	0	85
Lane Flow Rate	121	110	121	34	15	197	274
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.191	0.171	0.227	0.054	0.027	0.292	0.386
Departure Headway (Hd)	5.711	5.608	6.728	5.637	6.335	5.346	5.069
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	632	643	536	638	567	665	701
Service Time	3.411	3.308	4.438	3.346	4.351	3.132	2.855
HCM Lane V/C Ratio	0.191	0.171	0.226	0.053	0.026	0.296	0.391
HCM Control Delay	9.8	9.5	11.4	8.7	9.5	10.4	11.1
HCM Lane LOS	A	A	B	A	A	B	B
HCM 95th-tile Q	0.7	0.6	0.9	0.2	0.1	1.2	1.8

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 2010 Signalized Intersection Summary
6: Moreno Beach Dr & Cactus Ave

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	121	143	24	82	20	104	377	17	35	522	90
Future Volume (veh/h)	62	121	143	24	82	20	104	377	17	35	522	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	67	132	155	26	89	22	113	410	18	38	567	98
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	265	237	80	359	86	613	1909	925	94	1080	184
Arrive On Green	0.07	0.15	0.13	0.05	0.13	0.11	0.69	1.00	1.00	0.05	0.25	0.23
Sat Flow, veh/h	1774	1770	1583	1774	2834	679	1774	3539	1583	1774	4377	744
Grp Volume(v), veh/h	67	132	155	26	54	57	113	410	18	38	437	228
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1743	1774	1770	1583	1774	1695	1731
Q Serve(g_s), s	2.7	5.1	7.0	1.1	2.1	2.2	1.7	0.0	0.0	1.6	8.4	8.6
Cycle Q Clear(g_c), s	2.7	5.1	7.0	1.1	2.1	2.2	1.7	0.0	0.0	1.6	8.4	8.6
Prop In Lane	1.00		1.00	1.00		0.39	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	120	265	237	80	224	221	613	1909	925	94	836	427
V/C Ratio(X)	0.56	0.50	0.65	0.33	0.24	0.26	0.18	0.21	0.02	0.41	0.52	0.53
Avail Cap(c_a), veh/h	213	484	433	189	460	453	613	1909	925	189	836	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	29.3	30.8	34.7	29.5	29.8	7.8	0.0	0.0	34.4	24.4	24.8
Incr Delay (d2), s/veh	4.0	1.5	3.1	2.3	0.6	0.6	0.1	0.3	0.0	2.8	2.3	4.7
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	1.5	2.6	3.2	0.6	1.0	1.1	0.8	0.1	0.0	0.8	4.2	4.6
LnGrp Delay(d),s/veh	37.8	30.8	33.9	37.0	30.1	30.4	8.0	0.3	0.0	37.2	26.8	29.5
LnGrp LOS	D	C	C	D	C	C	A	A	A	D	C	C
Approach Vol, veh/h		354			137			541			703	
Approach Delay, s/veh		33.5			31.5			1.9			28.2	
Approach LOS		C			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	44.4	7.4	15.2	29.9	22.5	9.1	13.5
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	6.5	21.0	6.5	19.0	10.5	17.0	7.5	18.0
Max Q Clear Time (g_c+I1), s	3.6	2.0	3.1	9.0	3.7	10.6	4.7	4.2
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.2	1.6	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	14	559	15	34	661
Future Vol, veh/h	14	14	559	15	34	661
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	15	608	16	37	718

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	977	312	0	0	624	0
Stage 1	616	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	319	583	-	-	592	-
Stage 1	412	-	-	-	-	-
Stage 2	619	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	299	583	-	-	592	-
Mov Cap-2 Maneuver	299	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	619	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	395	592	-
HCM Lane V/C Ratio	-	-	0.077	0.062	-
HCM Control Delay (s)	-	-	14.9	11.5	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

12/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	493	24	49	589	13	19	0	50	10	1	9
Future Volume (veh/h)	18	493	24	49	589	13	19	0	50	10	1	9
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	20	536	26	53	640	14	21	0	54	11	1	10
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	1198	58	164	1381	30	115	326	423	96	24	240
Arrive On Green	0.06	0.24	0.20	0.09	0.27	0.23	0.06	0.00	0.17	0.05	0.16	0.12
Sat Flow, veh/h	1774	4971	240	1774	5121	112	1774	1863	1583	1774	146	1459
Grp Volume(v), veh/h	20	365	197	53	423	231	21	0	54	11	0	11
Grp Sat Flow(s),veh/h/ln	1774	1695	1820	1774	1695	1843	1774	1863	1583	1774	0	1605
Q Serve(g_s), s	0.4	3.3	3.4	1.0	3.8	3.8	0.4	0.0	0.9	0.2	0.0	0.2
Cycle Q Clear(g_c), s	0.4	3.3	3.4	1.0	3.8	3.8	0.4	0.0	0.9	0.2	0.0	0.2
Prop In Lane	1.00		0.13	1.00		0.06	1.00		1.00	1.00		0.91
Lane Grp Cap(c), veh/h	113	817	439	164	914	497	115	326	423	96	0	264
V/C Ratio(X)	0.18	0.45	0.45	0.32	0.46	0.46	0.18	0.00	0.13	0.11	0.00	0.04
Avail Cap(c_a), veh/h	291	1670	897	291	1670	908	291	968	969	291	0	834
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	11.8	11.9	15.5	11.1	11.2	16.2	0.0	10.2	16.5	0.0	13.4
Incr Delay (d2), s/veh	0.7	0.4	0.7	1.1	0.4	0.7	0.8	0.0	0.1	0.5	0.0	0.1
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	0.2	1.6	1.8	0.6	1.8	2.0	0.2	0.0	0.4	0.1	0.0	0.1
LnGrp Delay(d),s/veh	16.9	12.2	12.6	16.7	11.5	11.9	16.9	0.0	10.3	17.0	0.0	13.5
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		582			707			75			22	
Approach Delay, s/veh		12.5			12.0			12.2			15.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	10.0	6.3	13.9	6.0	10.4	7.4	12.8
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	17.5	4.5	16.5	4.5	17.5	4.5	16.5
Max Q Clear Time (g_c+I1), s	2.4	2.2	2.4	5.8	2.2	2.9	3.0	5.4
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0	0.0	0.1	0.0	1.9

Intersection Summary			
HCM 2010 Ctrl Delay			12.3
HCM 2010 LOS			B

Notes
User approved changes to right turn type.

HCM 6th TWSC
9: Dwy A & John F Kennedy Dr

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↱
Traffic Vol, veh/h	61	34	0	69	0	62
Future Vol, veh/h	61	34	0	69	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	66	37	0	75	0	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	85
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	974
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	974
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	974	-	-	-
HCM Lane V/C Ratio	0.069	-	-	-
HCM Control Delay (s)	9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

HCM 6th TWSC
10: Moreno Beach Dr & Dwy B

12/15/2017

Intersection						
Int Delay, s/veh	0.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	21	0	463	735	68
Future Vol, veh/h	0	21	0	463	735	68
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, %	2	2	2	2	2	2
Mvmt Flow	0	23	0	503	799	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	437	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	485	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	485	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	485	-	-
HCM Lane V/C Ratio	-	0.047	-	-
HCM Control Delay (s)	-	12.8	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

HCM 6th TWSC
11: Via Entrada 01/30/2018

Intersection						
Int Delay, s/veh	2.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	10	19	11	0	31
Future Vol, veh/h	10	10	19	11	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	21	12	0	34

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	61	27	0	0	-	-
Stage 1	27	-	-	-	-	-
Stage 2	34	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	945	1048	-	-	0	-
Stage 1	996	-	-	-	0	-
Stage 2	988	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	945	1048	-	-	-	-
Mov Cap-2 Maneuver	945	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	988	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	994	-
HCM Lane V/C Ratio	-	-	0.022	-
HCM Control Delay (s)	-	-	8.7	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.1	-

HCM 6th AWSC
1: Oliver St & John F Kennedy Dr

01/30/2018

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	39	66	22	55	59
Future Vol, veh/h	38	39	66	22	55	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	42	72	24	60	64
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8	7.7	8.7
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	48%
Vol Thru, %	100%	50%	0%	0%	52%
Vol Right, %	0%	50%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	44	38	39	114
LT Vol	0	0	38	0	55
Through Vol	44	22	0	0	59
RT Vol	0	22	0	39	0
Lane Flow Rate	48	48	41	42	124
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.064	0.06	0.064	0.051	0.164
Departure Headway (Hd)	4.846	4.495	5.563	4.359	4.756
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	742	800	646	824	758
Service Time	2.557	2.206	3.276	2.072	2.756
HCM Lane V/C Ratio	0.065	0.06	0.063	0.051	0.164
HCM Control Delay	7.9	7.5	8.7	7.3	8.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.2	0.6

HCM 6th TWSC
2: Via Entrada & John F Kennedy Dr 01/30/2018

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	36	2	32	79	8	1	0	20	11	0	11
Future Vol, veh/h	6	36	2	32	79	8	1	0	20	11	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	39	2	35	86	9	1	0	22	12	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	95	0	0	41	0	0	221	219	40	226	216	91
Stage 1	-	-	-	-	-	-	54	54	-	161	161	-
Stage 2	-	-	-	-	-	-	167	165	-	65	55	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1499	-	-	1568	-	-	735	679	1031	729	682	967
Stage 1	-	-	-	-	-	-	958	850	-	841	765	-
Stage 2	-	-	-	-	-	-	835	762	-	946	849	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1499	-	-	1568	-	-	711	661	1031	699	664	967
Mov Cap-2 Maneuver	-	-	-	-	-	-	711	661	-	699	664	-
Stage 1	-	-	-	-	-	-	953	846	-	837	748	-
Stage 2	-	-	-	-	-	-	806	745	-	921	845	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	2	8.7	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1009	1499	-	-	1568	-	-	811
HCM Lane V/C Ratio	0.023	0.004	-	-	0.022	-	-	0.029
HCM Control Delay (s)	8.7	7.4	-	-	7.3	-	-	9.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	11	10	307	41	71	10	279	222	119	502	80
Future Volume (veh/h)	51	11	10	307	41	71	10	279	222	119	502	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	55	12	11	334	45	77	11	303	241	129	546	87
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	71	65	378	431	367	416	1254	728	439	1153	181
Arrive On Green	0.06	0.08	0.06	0.21	0.23	0.23	0.23	0.25	0.25	0.50	0.52	0.48
Sat Flow, veh/h	1774	896	822	1774	1863	1583	1774	5085	1583	1774	4435	695
Grp Volume(v), veh/h	55	0	23	334	45	77	11	303	241	129	415	218
Grp Sat Flow(s),veh/h/ln	1774	0	1718	1774	1863	1583	1774	1695	1583	1774	1695	1740
Q Serve(g_s), s	2.3	0.0	0.9	13.7	1.4	1.4	0.4	3.6	1.5	3.2	5.8	6.1
Cycle Q Clear(g_c), s	2.3	0.0	0.9	13.7	1.4	1.4	0.4	3.6	1.5	3.2	5.8	6.1
Prop In Lane	1.00		0.48	1.00		1.00	1.00		1.00	1.00		0.40
Lane Grp Cap(c), veh/h	108	0	136	378	431	367	416	1254	728	439	881	452
V/C Ratio(X)	0.51	0.00	0.17	0.88	0.10	0.21	0.03	0.24	0.33	0.29	0.47	0.48
Avail Cap(c_a), veh/h	142	0	401	378	683	581	416	1254	728	439	881	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	34.1	0.0	32.6	28.6	22.7	5.5	22.1	22.6	4.0	15.1	14.7	15.3
Incr Delay (d2), s/veh	3.7	0.0	0.6	20.9	0.1	0.3	0.0	0.5	1.2	0.4	1.7	3.5
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	1.2	0.0	0.5	8.9	0.8	0.7	0.2	1.7	1.9	1.6	2.9	3.3
LnGrp Delay(d),s/veh	37.8	0.0	33.2	49.5	22.8	5.8	22.2	23.1	5.3	15.4	16.5	18.8
LnGrp LOS	D		C	D	C	A	C	C	A	B	B	B
Approach Vol, veh/h		78			456			555			762	
Approach Delay, s/veh		36.4			39.5			15.3			16.9	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.6	22.5	20.0	9.9	21.6	23.5	8.6	21.4
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	5.5	17.0	14.5	16.0	4.5	18.0	4.5	26.0
Max Q Clear Time (g_c+I1), s	5.2	5.6	15.7	2.9	2.4	8.1	4.3	3.4
Green Ext Time (p_c), s	0.0	1.8	0.0	0.0	0.0	1.9	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	224	30	23	309	9	17	0	10	8	1	17
Future Volume (veh/h)	33	224	30	23	309	9	17	0	10	8	1	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	36	243	33	25	336	10	18	0	11	9	1	18
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	795	107	149	852	25	376	46	127	250	49	223
Arrive On Green	0.09	0.25	0.20	0.08	0.24	0.19	0.22	0.00	0.17	0.22	0.22	0.17
Sat Flow, veh/h	1774	3137	421	1774	3510	104	730	209	573	340	221	1010
Grp Volume(v), veh/h	36	136	140	25	169	177	29	0	0	28	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1788	1774	1770	1844	1512	0	0	1571	0	0
Q Serve(g_s), s	0.5	1.7	1.7	0.4	2.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	1.7	1.7	0.4	2.2	2.2	0.4	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.06	0.62		0.38	0.32		0.64
Lane Grp Cap(c), veh/h	168	449	453	149	429	447	549	0	0	522	0	0
V/C Ratio(X)	0.21	0.30	0.31	0.17	0.39	0.40	0.05	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	392	1140	1152	392	1140	1188	1272	0	0	1281	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.4	8.2	8.4	11.6	8.6	8.7	8.6	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.4	0.5	0.6	0.6	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.8	0.9	0.2	1.1	1.2	0.2	0.0	0.0	0.2	0.0	0.0
LnGrp Delay(d),s/veh	12.0	8.6	8.7	12.1	9.2	9.2	8.7	0.0	0.0	8.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		312			371			29			28	
Approach Delay, s/veh		9.0			9.4			8.7			8.8	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	6.3	10.9		10.0	6.6	10.6
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.4	2.4	3.7		2.4	2.5	4.2
Green Ext Time (p_c), s		0.0	0.0	0.7		0.0	0.0	0.9

Intersection Summary		
HCM 2010 Ctrl Delay		9.2
HCM 2010 LOS		A

HCM 6th AWSC
5: Redlands Blvd & Cactus Ave 01/30/2018

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	118	10	30	3	2	7	17	211	2	15	367	94
Future Vol, veh/h	118	10	30	3	2	7	17	211	2	15	367	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	128	11	33	3	2	8	18	229	2	16	399	102
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	11.3	9.6	10	11.5
HCM LOS	B	A	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	14%	0%	96%	0%	25%	8%	0%
Vol Thru, %	86%	98%	4%	14%	17%	92%	66%
Vol Right, %	0%	2%	0%	86%	58%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	108	123	35	12	199	278
LT Vol	17	0	118	0	3	15	0
Through Vol	106	106	5	5	2	184	184
RT Vol	0	2	0	30	7	0	94
Lane Flow Rate	133	117	134	38	13	216	302
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.216	0.187	0.256	0.061	0.023	0.331	0.44
Departure Headway (Hd)	5.831	5.747	6.881	5.788	6.407	5.528	5.251
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	616	625	523	619	559	654	691
Service Time	3.556	3.472	4.611	3.518	4.445	3.228	2.951
HCM Lane V/C Ratio	0.216	0.187	0.256	0.061	0.023	0.33	0.437
HCM Control Delay	10.2	9.8	12	8.9	9.6	10.9	12
HCM Lane LOS	B	A	B	A	A	B	B
HCM 95th-tile Q	0.8	0.7	1	0.2	0.1	1.4	2.3

HCM 2010 Signalized Intersection Summary
6: Moreno Beach Dr & Cactus Ave

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	168	152	28	111	29	110	413	29	73	573	99
Future Volume (veh/h)	68	168	152	28	111	29	110	413	29	73	573	99
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	74	183	165	30	121	32	120	449	32	79	623	108
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	291	247	85	376	96	589	1778	871	136	1079	184
Arrive On Green	0.07	0.16	0.14	0.05	0.13	0.11	0.11	0.17	0.17	0.08	0.25	0.23
Sat Flow, veh/h	1774	1818	1543	1774	2791	715	1774	3539	1583	1774	4373	748
Grp Volume(v), veh/h	74	178	170	30	75	78	120	449	32	79	481	250
Grp Sat Flow(s),veh/h/ln	1774	1770	1591	1774	1770	1736	1774	1770	1583	1774	1695	1731
Q Serve(g_s), s	3.0	7.0	7.6	1.2	2.9	3.1	4.6	8.3	1.2	3.2	9.3	9.6
Cycle Q Clear(g_c), s	3.0	7.0	7.6	1.2	2.9	3.1	4.6	8.3	1.2	3.2	9.3	9.6
Prop In Lane	1.00		0.97	1.00		0.41	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	130	283	254	85	238	234	589	1778	871	136	836	427
V/C Ratio(X)	0.57	0.63	0.67	0.35	0.32	0.33	0.20	0.25	0.04	0.58	0.58	0.59
Avail Cap(c_a), veh/h	213	484	435	189	460	451	589	1778	871	189	836	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	29.4	30.3	34.6	29.3	29.7	24.4	19.0	13.1	33.5	24.8	25.2
Incr Delay (d2), s/veh	3.9	2.3	3.0	2.5	0.8	0.8	0.2	0.3	0.1	3.9	2.9	5.8
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	1.6	3.6	3.6	0.7	1.5	1.5	2.3	4.2	0.5	1.7	4.7	5.2
LnGrp Delay(d),s/veh	37.5	31.7	33.4	37.1	30.1	30.5	24.5	19.4	13.2	37.4	27.7	31.0
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	C	C
Approach Vol, veh/h		422			183			601			810	
Approach Delay, s/veh		33.4			31.4			20.1			29.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	41.7	7.6	16.0	28.9	22.5	9.5	14.1
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	6.5	21.0	6.5	19.0	10.5	17.0	7.5	18.0
Max Q Clear Time (g_c+I1), s	5.2	10.3	3.2	9.6	6.6	11.6	5.0	5.1
Green Ext Time (p_c), s	0.0	1.5	0.0	0.9	0.1	1.5	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

HCM 6th TWSC
7: Moreno Beach Dr & Championship Dr 01/30/2018

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	15	592	17	38	714
Future Vol, veh/h	15	15	592	17	38	714
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	643	18	41	776

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1044	331	0	0	661	0
Stage 1	652	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	295	567	-	-	569	-
Stage 1	392	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	274	567	-	-	569	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	369	569	-
HCM Lane V/C Ratio	-	-	0.088	0.073	-
HCM Control Delay (s)	-	-	15.7	11.8	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	538	28	49	651	14	22	0	49	11	1	10
Future Volume (veh/h)	20	538	28	49	651	14	22	0	49	11	1	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	585	30	53	708	15	24	0	53	12	1	11
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	1170	60	266	1662	35	113	302	494	91	20	220
Arrive On Green	0.06	0.24	0.20	0.15	0.32	0.29	0.06	0.00	0.16	0.05	0.15	0.11
Sat Flow, veh/h	1774	4956	253	1774	5125	108	1774	1863	1583	1774	134	1470
Grp Volume(v), veh/h	22	399	216	53	468	255	24	0	53	12	0	12
Grp Sat Flow(s),veh/h/ln	1774	1695	1818	1774	1695	1844	1774	1863	1583	1774	0	1603
Q Serve(g_s), s	0.5	4.1	4.1	1.0	4.3	4.4	0.5	0.0	1.0	0.3	0.0	0.3
Cycle Q Clear(g_c), s	0.5	4.1	4.1	1.0	4.3	4.4	0.5	0.0	1.0	0.3	0.0	0.3
Prop In Lane	1.00		0.14	1.00		0.06	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	110	800	429	266	1099	598	113	302	494	91	0	241
V/C Ratio(X)	0.20	0.50	0.50	0.20	0.43	0.43	0.21	0.00	0.11	0.13	0.00	0.05
Avail Cap(c_a), veh/h	266	1483	796	776	2458	1337	266	838	950	266	0	722
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	13.2	13.3	14.9	10.6	10.6	17.8	0.0	9.8	18.1	0.0	15.1
Incr Delay (d2), s/veh	0.9	0.5	0.9	0.4	0.3	0.5	0.9	0.0	0.1	0.6	0.0	0.1
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	0.3	1.9	2.2	0.5	2.1	2.3	0.3	0.0	0.4	0.1	0.0	0.1
LnGrp Delay(d),s/veh	18.7	13.7	14.3	15.3	10.9	11.1	18.7	0.0	9.9	18.8	0.0	15.2
LnGrp LOS	B	B	B	B	B	B	B		A	B		B
Approach Vol, veh/h		637			776			77			24	
Approach Delay, s/veh		14.1			11.2			12.6			17.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	10.0	6.5	17.0	6.1	10.5	10.0	13.4
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	16.5	4.5	27.5	4.5	16.5	16.0	16.0
Max Q Clear Time (g_c+I1), s	2.5	2.3	2.5	6.4	2.3	3.0	3.0	6.1
Green Ext Time (p_c), s	0.0	0.0	0.0	2.8	0.0	0.1	0.1	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes
User approved changes to right turn type.

HCM 6th AWSC
1: Oliver St & John F Kennedy Dr 01/30/2018

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	44	66	25	61	59
Future Vol, veh/h	41	44	66	25	61	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	48	72	27	66	64
Number of Lanes	1	1	2	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8	7.7	8.8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	51%
Vol Thru, %	100%	47%	0%	0%	49%
Vol Right, %	0%	53%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	47	41	44	120
LT Vol	0	0	41	0	61
Through Vol	44	22	0	0	59
RT Vol	0	25	0	44	0
Lane Flow Rate	48	51	45	48	130
Geometry Grp	7	7	7	7	4
Degree of Util (X)	0.065	0.064	0.069	0.058	0.173
Departure Headway (Hd)	4.876	4.502	5.587	4.383	4.777
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	737	798	644	819	754
Service Time	2.587	2.213	3.301	2.097	2.788
HCM Lane V/C Ratio	0.065	0.064	0.07	0.059	0.172
HCM Control Delay	7.9	7.5	8.7	7.4	8.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.2	0.6

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 6th TWSC
2: Via Entrada & John F Kennedy Dr 01/30/2018

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	36	2	43	79	8	11	0	20	11	0	11
Future Vol, veh/h	6	36	2	43	79	8	11	0	20	11	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	145	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	39	2	47	86	9	12	0	22	12	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	95	0	0	41	0	0	245	243	40	250	240	91
Stage 1	-	-	-	-	-	-	54	54	-	185	185	-
Stage 2	-	-	-	-	-	-	191	189	-	65	55	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1499	-	-	1568	-	-	709	659	1031	703	661	967
Stage 1	-	-	-	-	-	-	958	850	-	817	747	-
Stage 2	-	-	-	-	-	-	811	744	-	946	849	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1499	-	-	1568	-	-	681	636	1031	670	638	967
Mov Cap-2 Maneuver	-	-	-	-	-	-	681	636	-	670	638	-
Stage 1	-	-	-	-	-	-	953	846	-	813	725	-
Stage 2	-	-	-	-	-	-	777	722	-	921	845	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	2.4	9.3	9.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	872	1499	-	-	1568	-	-	792
HCM Lane V/C Ratio	0.039	0.004	-	-	0.03	-	-	0.03
HCM Control Delay (s)	9.3	7.4	-	-	7.4	-	-	9.7
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

HCM 2010 Signalized Intersection Summary
3: Moreno Beach Dr & John F Kennedy Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	31	10	318	52	71	33	279	222	119	536	80
Future Volume (veh/h)	92	31	10	318	52	71	33	279	222	119	536	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	100	34	11	346	57	77	36	303	241	129	583	87
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	108	35	378	397	337	414	1254	728	438	1164	171
Arrive On Green	0.08	0.08	0.06	0.21	0.21	0.21	0.23	0.25	0.25	0.33	0.35	0.32
Sat Flow, veh/h	1774	1349	437	1774	1863	1583	1774	5085	1583	1774	4478	659
Grp Volume(v), veh/h	100	0	45	346	57	77	36	303	241	129	439	231
Grp Sat Flow(s),veh/h/ln	1774	0	1786	1774	1863	1583	1774	1695	1583	1774	1695	1746
Q Serve(g_s), s	4.1	0.0	1.8	14.3	1.9	1.5	1.2	3.6	1.5	4.1	7.7	7.9
Cycle Q Clear(g_c), s	4.1	0.0	1.8	14.3	1.9	1.5	1.2	3.6	1.5	4.1	7.7	7.9
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	142	0	143	378	397	337	414	1254	728	438	881	454
V/C Ratio(X)	0.70	0.00	0.32	0.91	0.14	0.23	0.09	0.24	0.33	0.29	0.50	0.51
Avail Cap(c_a), veh/h	142	0	417	378	683	581	414	1254	728	438	881	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	33.6	0.0	32.7	28.8	24.0	6.1	22.5	22.6	4.0	20.3	20.7	21.1
Incr Delay (d2), s/veh	14.6	0.0	1.3	26.2	0.2	0.3	0.1	0.5	1.2	0.4	1.9	3.8
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	2.6	0.0	0.9	9.8	1.0	0.7	0.6	1.7	1.9	2.0	3.8	4.3
LnGrp Delay(d),s/veh	48.3	0.0	34.0	55.0	24.1	6.4	22.6	23.1	5.3	20.7	22.6	24.9
LnGrp LOS	D		C	D	C	A	C	C	A	C	C	C
Approach Vol, veh/h		145			480			580			799	
Approach Delay, s/veh		43.8			43.5			15.6			23.0	
Approach LOS		D			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.5	22.5	20.0	10.0	21.5	23.5	10.0	20.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	5.5	17.0	14.5	16.0	4.5	18.0	4.5	26.0
Max Q Clear Time (g_c+I1), s	6.1	5.6	16.3	3.8	3.2	9.9	6.1	3.9
Green Ext Time (p_c), s	0.0	1.8	0.0	0.1	0.0	1.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Championship Dr & John F Kennedy Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	229	32	23	315	9	19	0	10	8	1	17
Future Volume (veh/h)	33	229	32	23	315	9	19	0	10	8	1	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	36	249	35	25	342	10	21	0	11	9	1	18
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	797	111	148	858	25	393	43	114	250	49	223
Arrive On Green	0.09	0.26	0.20	0.08	0.24	0.19	0.22	0.00	0.17	0.22	0.22	0.17
Sat Flow, veh/h	1774	3122	434	1774	3512	102	792	193	516	340	221	1010
Grp Volume(v), veh/h	36	140	144	25	172	180	32	0	0	28	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1786	1774	1770	1845	1501	0	0	1571	0	0
Q Serve(g_s), s	0.5	1.7	1.8	0.4	2.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	1.7	1.8	0.4	2.2	2.2	0.4	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.06	0.66		0.34	0.32		0.64
Lane Grp Cap(c), veh/h	168	452	456	148	432	451	550	0	0	521	0	0
V/C Ratio(X)	0.21	0.31	0.32	0.17	0.40	0.40	0.06	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	391	1137	1148	391	1137	1186	1268	0	0	1278	0	0
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	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.4	8.2	8.4	11.6	8.6	8.7	8.6	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.4	0.5	0.6	0.6	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.9	0.9	0.2	1.1	1.2	0.2	0.0	0.0	0.2	0.0	0.0
LnGrp Delay(d),s/veh	12.0	8.6	8.8	12.1	9.2	9.2	8.7	0.0	0.0	8.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A			A		
Approach Vol, veh/h		320			377			32			28	
Approach Delay, s/veh		9.1			9.4			8.7			8.8	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	6.3	11.0		10.0	6.6	10.7
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		18.0	4.5	16.0		18.0	4.5	16.0
Max Q Clear Time (g_c+I1), s		2.4	2.4	3.8		2.4	2.5	4.2
Green Ext Time (p_c), s		0.0	0.0	0.8		0.0	0.0	1.0

Intersection Summary		
HCM 2010 Ctrl Delay		9.2
HCM 2010 LOS		A

HCM 6th AWSC
5: Redlands Blvd & Cactus Ave 01/30/2018

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	118	10	30	6	2	7	17	213	5	15	370	94
Future Vol, veh/h	118	10	30	6	2	7	17	213	5	15	370	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	128	11	33	7	2	8	18	232	5	16	402	102
Number of Lanes	0	2	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	11.3	9.8	10.1	11.6
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	14%	0%	96%	0%	40%	7%	0%
Vol Thru, %	86%	96%	4%	14%	13%	93%	66%
Vol Right, %	0%	4%	0%	86%	47%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	112	123	35	15	200	279
LT Vol	17	0	118	0	6	15	0
Through Vol	107	107	5	5	2	185	185
RT Vol	0	5	0	30	7	0	94
Lane Flow Rate	134	121	134	38	16	217	303
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.218	0.194	0.257	0.061	0.03	0.335	0.444
Departure Headway (Hd)	5.852	5.751	6.91	5.817	6.533	5.551	5.276
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	615	625	520	616	548	652	685
Service Time	3.579	3.478	4.641	3.548	4.571	3.251	2.976
HCM Lane V/C Ratio	0.218	0.194	0.258	0.062	0.029	0.333	0.442
HCM Control Delay	10.2	9.9	12	8.9	9.8	11	12.1
HCM Lane LOS	B	A	B	A	A	B	B
HCM 95th-tile Q	0.8	0.7	1	0.2	0.1	1.5	2.3

HCM 2010 Signalized Intersection Summary
6: Moreno Beach Dr & Cactus Ave

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	168	157	32	111	29	115	418	33	73	578	99
Future Volume (veh/h)	68	168	157	32	111	29	115	418	33	73	578	99
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	74	183	171	35	121	32	125	454	36	79	628	108
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	289	254	91	391	100	580	1760	868	136	1080	183
Arrive On Green	0.07	0.16	0.14	0.05	0.14	0.12	0.11	0.16	0.16	0.08	0.25	0.23
Sat Flow, veh/h	1774	1786	1569	1774	2791	715	1774	3539	1583	1774	4379	743
Grp Volume(v), veh/h	74	181	173	35	75	78	125	454	36	79	484	252
Grp Sat Flow(s),veh/h/ln	1774	1770	1586	1774	1770	1736	1774	1770	1583	1774	1695	1732
Q Serve(g_s), s	3.0	7.2	7.8	1.4	2.9	3.0	4.8	8.4	1.3	3.2	9.4	9.7
Cycle Q Clear(g_c), s	3.0	7.2	7.8	1.4	2.9	3.0	4.8	8.4	1.3	3.2	9.4	9.7
Prop In Lane	1.00		0.99	1.00		0.41	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	130	287	257	91	248	243	580	1760	868	136	836	427
V/C Ratio(X)	0.57	0.63	0.67	0.39	0.30	0.32	0.22	0.26	0.04	0.58	0.58	0.59
Avail Cap(c_a), veh/h	213	484	433	189	460	451	580	1760	868	189	836	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	29.3	30.3	34.4	29.0	29.3	24.7	19.3	13.2	33.5	24.8	25.2
Incr Delay (d2), s/veh	3.9	2.3	3.1	2.7	0.7	0.7	0.2	0.3	0.1	3.9	2.9	5.9
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	1.6	3.7	3.6	0.8	1.4	1.5	2.4	4.2	0.6	1.7	4.7	5.3
LnGrp Delay(d),s/veh	37.5	31.6	33.3	37.1	29.7	30.1	24.8	19.6	13.3	37.4	27.7	31.1
LnGrp LOS	D	C	C	D	C	C	C	B	B	D	C	C
Approach Vol, veh/h		428			188			615			815	
Approach Delay, s/veh		33.3			31.2			20.3			29.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	41.3	7.8	16.1	28.5	22.5	9.5	14.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	6.5	21.0	6.5	19.0	10.5	17.0	7.5	18.0				
Max Q Clear Time (g_c+I1), s	5.2	10.4	3.4	9.8	6.8	11.7	5.0	5.0				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.9	0.1	1.5	0.0	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			27.8									
HCM 2010 LOS			C									

Intersection						
Int Delay, s/veh	0.7					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	15	614	17	38	735
Future Vol, veh/h	15	15	614	17	38	735
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	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	667	18	41	799

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1078	343	0	0	685	0
Stage 1	676	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	284	557	-	-	554	-
Stage 1	380	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	263	557	-	-	554	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	352	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	357	554	-
HCM Lane V/C Ratio	-	-	0.091	0.075	-
HCM Control Delay (s)	-	-	16.1	12	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HCM 2010 Signalized Intersection Summary
8: Via del Lago & Iris Ave/Moreno Beach Dr

01/30/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	543	28	54	656	14	22	0	54	11	1	10
Future Volume (veh/h)	20	543	28	54	656	14	22	0	54	11	1	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	590	30	59	713	15	24	0	59	12	1	11
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	1227	62	169	1426	30	119	323	426	96	22	237
Arrive On Green	0.06	0.25	0.21	0.10	0.28	0.24	0.07	0.00	0.17	0.05	0.16	0.12
Sat Flow, veh/h	1774	4958	251	1774	5126	108	1774	1863	1583	1774	134	1470
Grp Volume(v), veh/h	22	402	218	59	471	257	24	0	59	12	0	12
Grp Sat Flow(s),veh/h/ln	1774	1695	1818	1774	1695	1844	1774	1863	1583	1774	0	1603
Q Serve(g_s), s	0.4	3.8	3.8	1.2	4.3	4.4	0.5	0.0	1.1	0.2	0.0	0.2
Cycle Q Clear(g_c), s	0.4	3.8	3.8	1.2	4.3	4.4	0.5	0.0	1.1	0.2	0.0	0.2
Prop In Lane	1.00		0.14	1.00		0.06	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	115	839	450	169	943	513	119	323	426	96	0	258
V/C Ratio(X)	0.19	0.48	0.48	0.35	0.50	0.50	0.20	0.00	0.14	0.12	0.00	0.05
Avail Cap(c_a), veh/h	286	1637	878	286	1637	890	286	949	958	286	0	817
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.5	12.0	12.1	15.8	11.3	11.3	16.5	0.0	10.3	16.8	0.0	13.8
Incr Delay (d2), s/veh	0.8	0.4	0.8	1.2	0.4	0.8	0.8	0.0	0.1	0.6	0.0	0.1
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	0.2	1.8	2.0	0.6	2.1	2.3	0.3	0.0	0.5	0.1	0.0	0.1
LnGrp Delay(d),s/veh	17.3	12.4	12.9	17.0	11.7	12.1	17.3	0.0	10.5	17.4	0.0	13.9
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		642			787			83			24	
Approach Delay, s/veh		12.7			12.2			12.5			15.6	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	10.0	6.4	14.4	6.0	10.5	7.6	13.2
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	4.5	17.5	4.5	16.5	4.5	17.5	4.5	16.5
Max Q Clear Time (g_c+I1), s	2.5	2.2	2.4	6.4	2.2	3.1	3.2	5.8
Green Ext Time (p_c), s	0.0	0.0	0.0	2.2	0.0	0.1	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

HCM 6th TWSC
9: Dwy A & John F Kennedy Dr 01/30/2018

Intersection						
Int Delay, s/veh	2.3					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↱
Traffic Vol, veh/h	71	34	0	79	0	62
Future Vol, veh/h	71	34	0	79	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	77	37	0	86	0	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	96
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	960
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	960
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	960	-	-	-
HCM Lane V/C Ratio	0.07	-	-	-
HCM Control Delay (s)	9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

HCM 6th TWSC
10: Moreno Beach Dr & Dwy B

01/30/2018

Intersection						
Int Delay, s/veh	0.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	21	0	511	819	68
Future Vol, veh/h	0	21	0	511	819	68
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, %	2	2	2	2	2	2
Mvmt Flow	0	23	0	555	890	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	482	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	454	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	454	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	454	-	-
HCM Lane V/C Ratio	-	0.05	-	-
HCM Control Delay (s)	-	13.3	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

HCM 6th TWSC
11: Via Entrada & Dwy C 01/30/2018

Intersection						
Int Delay, s/veh	2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑			↑
Traffic Vol, veh/h	10	10	21	11	0	34
Future Vol, veh/h	10	10	21	11	0	34
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, %	2	2	2	2	2	2
Mvmt Flow	11	11	23	12	0	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	66	29	0	0	-	-
Stage 1	29	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	939	1046	-	-	0	-
Stage 1	994	-	-	-	0	-
Stage 2	985	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	939	1046	-	-	-	-
Mov Cap-2 Maneuver	939	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	985	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	990	-
HCM Lane V/C Ratio	-	-	0.022	-
HCM Control Delay (s)	-	-	8.7	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

APPENDIX D

QUEUE ANALYSIS

Queues
3: Moreno Beach Dr & John F Kennedy Dr

01/30/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	35	220	22	71	36	379	235	38	346
v/c Ratio	0.27	0.09	0.37	0.04	0.11	0.12	0.26	0.18	0.13	0.24
Control Delay	24.0	19.9	16.3	14.1	0.3	22.7	15.2	1.6	23.0	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	19.9	16.3	14.1	0.3	22.7	15.2	1.6	23.0	15.0
Queue Length 50th (ft)	14	5	21	3	0	6	20	0	6	17
Queue Length 95th (ft)	64	32	126	19	0	36	65	25	37	60
Internal Link Dist (ft)		104		749			177			2624
Turn Bay Length (ft)	100		320		200	285		250	314	
Base Capacity (vph)	294	894	759	1357	1228	299	2884	1333	294	2869
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.04	0.29	0.02	0.06	0.12	0.13	0.18	0.13	0.12

Intersection Summary

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

Queues
4: Championship Dr & John F Kennedy Dr

01/30/2018

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	8	272	2	187	38	2
v/c Ratio	0.02	0.22	0.00	0.15	0.05	0.00
Control Delay	10.4	7.1	10.5	7.0	0.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	7.1	10.5	7.0	0.1	0.0
Queue Length 50th (ft)	1	9	0	6	0	0
Queue Length 95th (ft)	8	37	4	27	0	0
Internal Link Dist (ft)		2037		1061	677	101
Turn Bay Length (ft)	200		200			
Base Capacity (vph)	423	2458	423	2463	1272	1288
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.11	0.00	0.08	0.03	0.00

Intersection Summary

Queues
6: Moreno Beach Dr & Cactus Ave 01/30/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	73	118	36	197	88	437	35	23	352
v/c Ratio	0.25	0.15	0.12	0.24	0.26	0.24	0.03	0.08	0.17
Control Delay	22.9	12.6	21.8	12.8	21.8	10.4	0.1	21.8	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	12.6	21.8	12.8	21.8	10.4	0.1	21.8	11.6
Queue Length 50th (ft)	19	9	9	17	22	37	0	6	24
Queue Length 95th (ft)	56	29	34	44	64	95	0	25	46
Internal Link Dist (ft)		932		5194		2624			768
Turn Bay Length (ft)	150		150		200		150	205	
Base Capacity (vph)	288	1619	288	1639	336	2121	1134	288	2832
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.07	0.13	0.12	0.26	0.21	0.03	0.08	0.12

Intersection Summary

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

Queues
8: Via del Lago & Iris Ave/Moreno Beach Dr

01/30/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	554	23	490	34	3	45	15	28
v/c Ratio	0.03	0.32	0.05	0.25	0.10	0.01	0.07	0.04	0.07
Control Delay	18.1	11.6	17.6	9.4	19.7	16.0	0.2	19.9	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	11.6	17.6	9.4	19.7	16.0	0.2	19.9	10.3
Queue Length 50th (ft)	1	14	2	12	3	0	0	2	0
Queue Length 95th (ft)	14	78	23	71	32	7	0	18	18
Internal Link Dist (ft)		477		611		532			193
Turn Bay Length (ft)	110		300		95			50	
Base Capacity (vph)	366	2867	1000	4155	343	1083	1049	343	943
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.19	0.02	0.12	0.10	0.00	0.04	0.04	0.03

Intersection Summary

Queues
3: Moreno Beach Dr & John F Kennedy Dr 01/30/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	100	45	346	57	77	36	303	241	129	670
v/c Ratio	0.71	0.21	0.89	0.14	0.15	0.26	0.14	0.21	0.78	0.28
Control Delay	62.4	31.6	56.9	22.7	0.6	37.2	15.4	1.1	54.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	31.6	56.9	22.7	0.6	37.2	15.4	1.1	54.9	5.7
Queue Length 50th (ft)	46	19	158	20	0	16	34	0	61	26
Queue Length 95th (ft)	#121	47	#309	46	0	43	55	14	#152	41
Internal Link Dist (ft)		114		749			177			2624
Turn Bay Length (ft)	100		320		200	285		250	314	
Base Capacity (vph)	141	418	387	683	704	141	2118	1122	165	2429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.11	0.89	0.08	0.11	0.26	0.14	0.21	0.78	0.28

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
4: Championship Dr & John F Kennedy Dr

01/30/2018

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	36	284	25	352	32	28
v/c Ratio	0.09	0.22	0.06	0.28	0.06	0.06
Control Delay	11.8	6.7	11.7	7.5	0.2	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	6.7	11.7	7.5	0.2	7.3
Queue Length 50th (ft)	3	9	2	12	0	1
Queue Length 95th (ft)	24	40	18	51	0	15
Internal Link Dist (ft)		2037		1061	677	101
Turn Bay Length (ft)	200		200			
Base Capacity (vph)	405	2331	405	2356	1142	1192
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.12	0.06	0.15	0.03	0.02

Intersection Summary

Queues
6: Moreno Beach Dr & Cactus Ave

01/30/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	354	35	153	125	454	36	79	736
v/c Ratio	0.37	0.48	0.19	0.30	0.47	0.28	0.04	0.33	0.33
Control Delay	36.1	16.1	33.4	23.6	29.9	11.7	0.4	32.3	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	16.1	33.4	23.6	29.9	11.7	0.4	32.3	15.9
Queue Length 50th (ft)	32	41	15	26	55	48	0	34	84
Queue Length 95th (ft)	71	74	41	50	m102	74	m0	69	126
Internal Link Dist (ft)		932		5194		2624			768
Turn Bay Length (ft)	150		150		200		150	205	
Base Capacity (vph)	212	1028	188	915	283	1617	1021	244	2241
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.34	0.19	0.17	0.44	0.28	0.04	0.32	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
8: Via del Lago & Iris Ave/Moreno Beach Dr

01/30/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	22	620	59	728	24	59	12	12
v/c Ratio	0.07	0.34	0.18	0.31	0.07	0.07	0.04	0.03
Control Delay	18.6	10.2	18.9	7.5	18.7	0.2	18.5	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	10.2	18.9	7.5	18.7	0.2	18.5	11.4
Queue Length 50th (ft)	4	33	10	19	4	0	2	0
Queue Length 95th (ft)	23	77	46	92	25	0	16	12
Internal Link Dist (ft)		477		611				193
Turn Bay Length (ft)	110		300		95		50	
Base Capacity (vph)	324	2787	324	3039	324	805	324	938
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.22	0.18	0.24	0.07	0.07	0.04	0.01

Intersection Summary

APPENDIX E

PEAK-HOUR SIGNAL WARRANT

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 3/21/17
CALC dk DATE 1/30/18
CHK kh DATE 1/30/18

DIST ____ CO ____ RTE ____ PM ____

Major St: Oliver St   Critical Approach Speed 30 mph
Minor St: John F Kennedy Dr   Critical Approach Speed 35 mph

Speed limit or critical speed on major street traffic > 40 mph........................ ☐
or
In built up area of isolated community of < 10,000 population....................... ☐ } RURAL (R)

[x] URBAN (U)

INTERSECTION #1

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)

SATISFIED YES ☐ NO ☒

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐	No ☒

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More (AM)	PM / Hour
Both Approaches - Major Street		110	211
Higher Approach - Minor Street	67		85

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

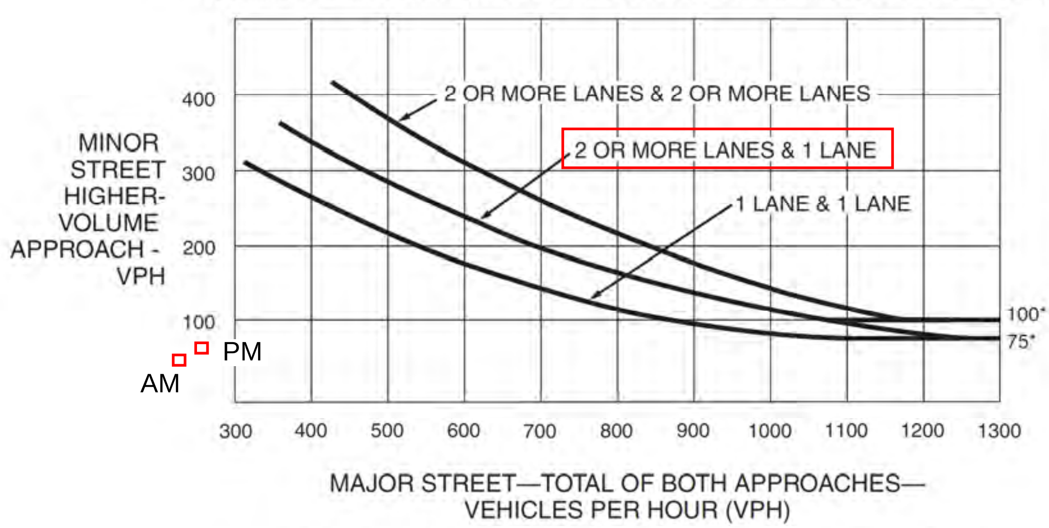
Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

Figure 4C-3. Warrant 3, Peak Hour

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

INTERSECTION #1
MAJOR ST: Oliver St
MINOR ST: John F Kennedy Dr

Warrant 3: Peak Hour- NOT SATISFIED
Warrant 3: Peak Hour (70%)- NOT SATISFIED

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 3/21/17
CALC dk DATE 1/30/18
CHK kh DATE 1/30/18

DIST ____ CO ____ RTE ____ PM ____

Major St: John F Kennedy Dr — Critical Approach Speed 35 mph
Minor St: Via Entrada — Critical Approach Speed 25 mph

Speed limit or critical speed on major street traffic > 40 mph.......................... ☐
or
In built up area of isolated community of < 10,000 population........................ ☐ } RURAL (R)

[x] URBAN (U)

INTERSECTION #2

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 3 - Peak Hour SATISFIED YES ☐ NO ☒
(Part A or Part B must be satisfied)

PART A SATISFIED YES ☐ NO ☒
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐ No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐ No ☒
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐ No ☒

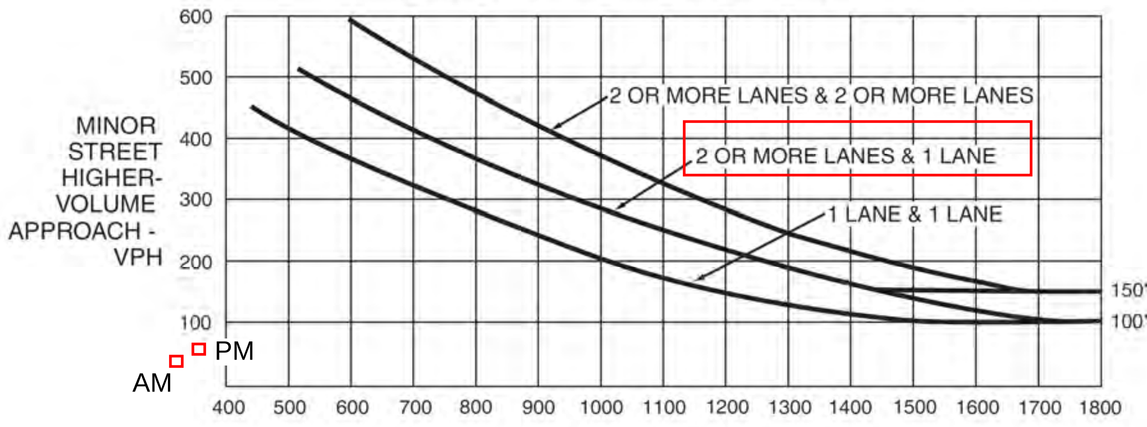
PART B SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More (AM)	Hour (PM)
Both Approaches - Major Street		91	174
Higher Approach - Minor Street	29		31

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐ No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

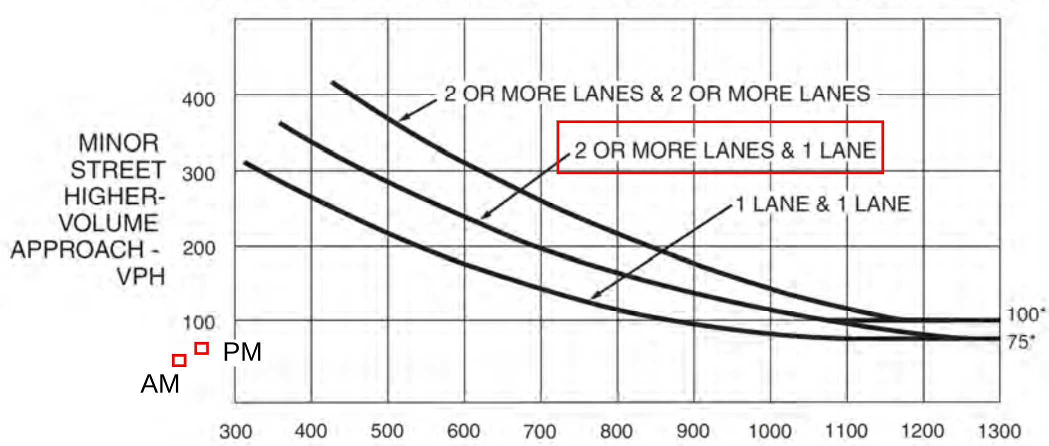
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

INTERSECTION #2
MAJOR ST: John F Kennedy Dr
MINOR ST: Via Entrada

Warrant 3: Peak Hour- NOT SATISFIED
Warrant 3: Peak Hour (70%)- NOT SATISFIED

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 3/21/17
CALC dk DATE 1/30/18
CHK kh DATE 1/30/18

DIST ____ CO ____ RTE ____ PM ____

Major St: John F Kennedy Dr/Redland Blvd — Critical Approach Speed 45 mph
Minor St: Cactus Ave — Critical Approach Speed 50 mph

Speed limit or critical speed on major street traffic > 40 mph.......................... [x]
or
In built up area of isolated community of < 10,000 population....................... [ ]
} **RURAL (R)**

[ ] **URBAN (U)**

INTERSECTION #5

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied) — SATISFIED YES ☐ NO ☒

PART A — SATISFIED YES ☐ NO ☒
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐ No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐ No ☒
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐ No ☒

PART B — SATISFIED YES ☐ NO ☒

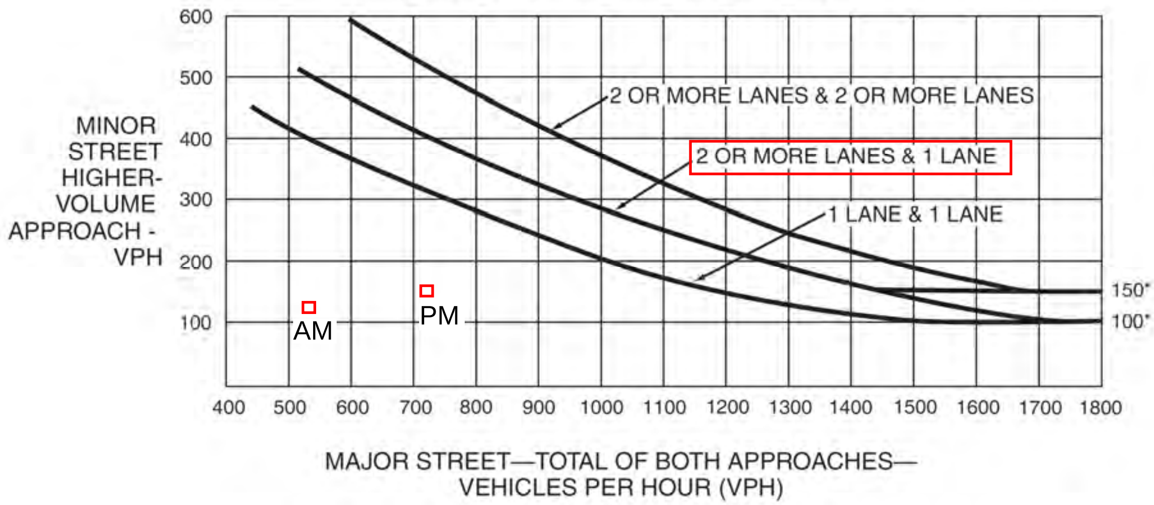
APPROACH LANES	One	2 or More (AM)	PM / Hour
Both Approaches - Major Street		539	714
Higher Approach - Minor Street	123		158

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐ No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

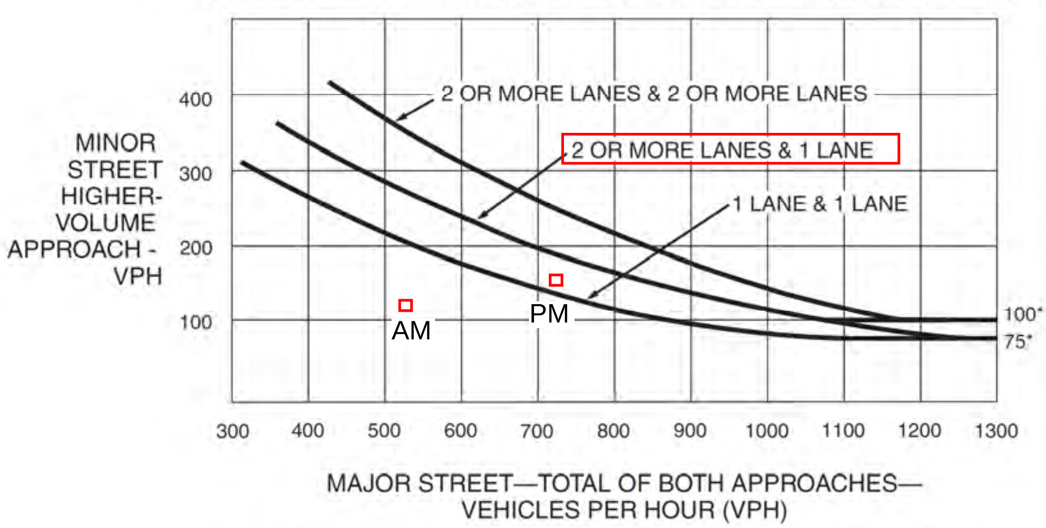
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

INTERSECTION #5
MAJOR ST: John F Kennedy Dr/Redland Dr
MINOR ST: Cactus Ave

Warrant 3: Peak Hour- NOT SATISFIED
Warrant 3: Peak Hour (70%)- NOT SATISFIED

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 3/21/17
CALC dk DATE 1/30/18
CHK kh DATE 1/30/18

DIST ____ CO ____ RTE ____ PM ____

Major St: Moreno Beach Dr — Critical Approach Speed 50 mph
Minor St: Championship Dr — Critical Approach Speed 25 mph

Speed limit or critical speed on major street traffic > 40 mph........................ ☐
or
In built up area of isolated community of < 10,000 population...................... ☐
} **RURAL (R)**

☒ **URBAN (U)**

INTERSECTION #7

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)

SATISFIED YES ☐ NO ☒

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

SATISFIED YES ☐ NO ☒

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐ No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐ No ☒
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐ No ☒

PART B

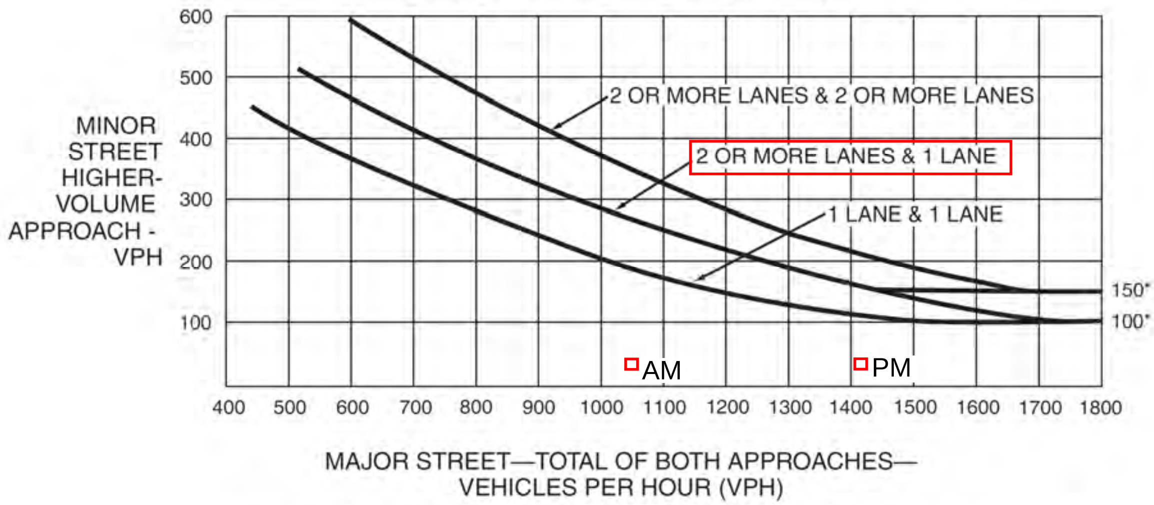
SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More (AM)	PM
			Hour
Both Approaches - Major Street		1054	1403
Higher Approach - Minor Street	33		31

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐ No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

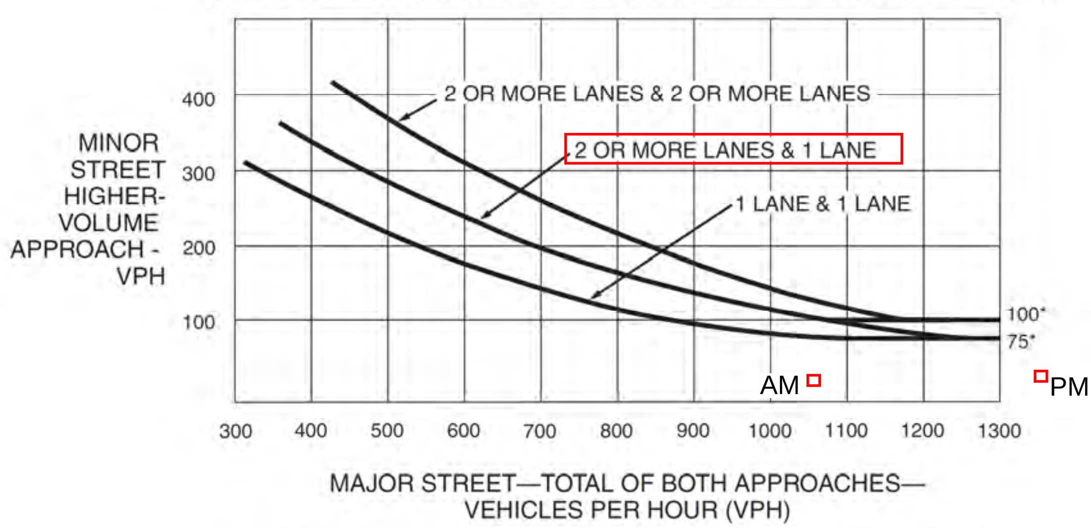
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

INTERSECTION #7
MAJOR ST: Moreno Beach Dr
MINOR ST: Championship Dr

Warrant 3: Peak Hour- NOT SATISFIED
Warrant 3: Peak Hour (70%)- NOT SATISFIED

Attachment: Focused Traffic Impact [Revision 1] (3058 : Moreno Beach Commercial Center)

HYDROLOGY STUDY

Southwest corner of Moreno Beach Drive & John F. Kennedy Drive
In the City of Moreno Valley, California
PEN17-0044/ LST 17-0017

Property:
Southwest corner of Moreno Beach Drive
& John F. Kennedy Drive
In the City of Moreno Valley, California

Prepared by:
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Western States Engineering. Inc
4887 E. La Palma Avenue
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Owner:
Royal Excel Enterprises
7033 Canoga Ave#2
Canoga Park, CA 91303

April 2, 2018

TABLE OF CONTENTS

Hydrology Study
For
Southwest corner of Moreno Beach Drive
& John F. Kennedy Drive
In the City of Moreno Valley, California

ACKNOWLEDGEMENT AND SIGNATURE PAGE

This Hydrology Study has been prepared by Kamal B. Mchantaf.

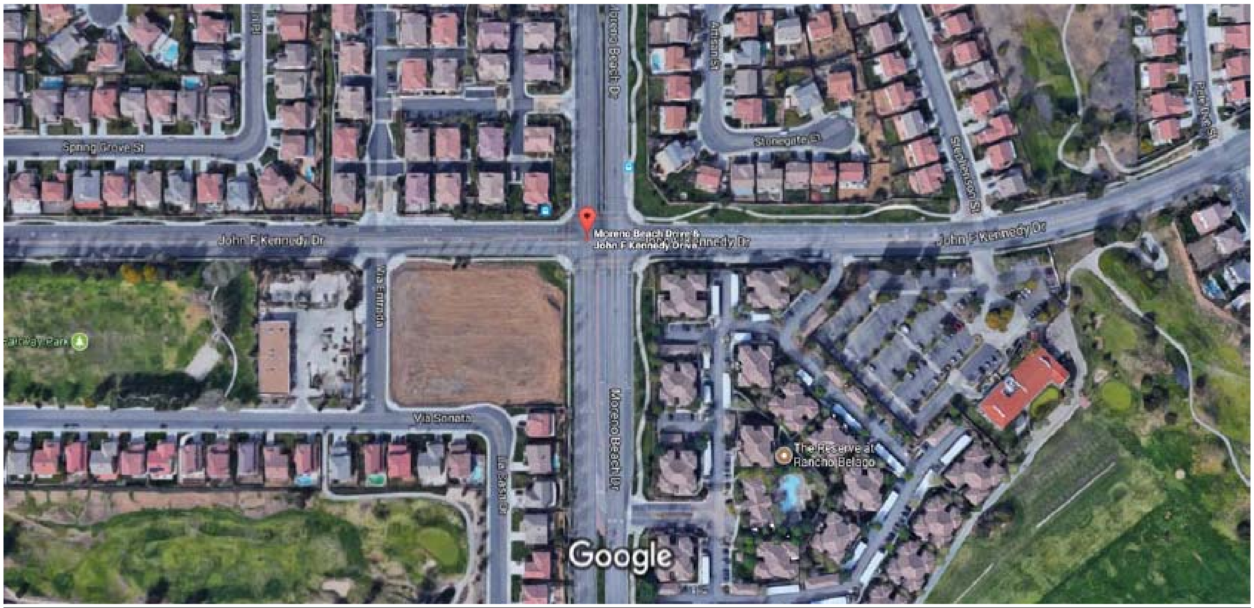
Kamal B. Mchantaf Lic: C051050 Exp. 9/30/2019

Introduction & Methodology:

The purpose of this study is to provide a hydrology calculation for the drainage of the corner lot located at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive. The below study wll utilize the Riverside Hydrology Manual and rational method to determine flooding conditions onsite. The project site consists of approximately 2.42 acres of generally flat graded land which is currently zoned as "CMU" a Commercial Mixed Use. Per the City of Moreno Valley Zoning Map, zoning map dated November 11, 2016. The property is located at the south-west corner of Moreno Beach Drive and John F. Kennedy drive as depicted in Figure 1. This analysis is to determine the existing and developed runoff so that a drainage system can be sized in addition to proposed basins, parkway drains and other drainage structures may be designed.

Figure 1 – Site Location Map

Figure 2 – Existing Condition Location Map



Existing Condition:

The site is currently a previousely graded, vacant dirt lot and and occupies 2.45 acres at the southwest corner of Moreno Beach Drive and John F. Kennedy Drive. The subject project is located in Riverside County and resides in the City of Moreno Valley. The site is currently bounded John F. Kennedy drive to the north and Moreno Beach Drive to the east. The Site is further bounded by Via Entrada and Via Sonata to the west and east. Surrounding developments include a commercial lot to the west on the adjoining side of Via Entrada and single family residential to the south. The site currently does not take on any offsite flows. Flows currently flow from the south to the northwest and flow directly into the public right of way and into John F. Kennedy Drive. There is no storm drain in John F. Kennedy Drive and flows outlet into the public right of way and flows continue west until entering a County of Riverside Flood Control Facility.

Proposed Condition:

The proposed development will consist of one commercial building, one car wash and a parking lot and vegetated, pervious portions along the southwest, west and northwest property frontage. Overall, the developed site is estimated to be 85% impervious, which is an increase in the impervious area in the proposed condition. The onsite runoff will flow south and west and north by curb and gutter to onsite area drains and channel drain that will convey flow to four onsite infiltration basins. The primary method of site draingage is infiltration for the water quality volume and the Q10 and Q100 storm events. In major storm events, emergency flows will then overflow through “overflow catch basins” that are located in each bio-infiltration basin where they drain in major storm events and are outleted onto John F. Kennedy Drive. Thus, the infiltration basins will fill up and then over flow and outlet into the r/w. The difference in volume between the existing and proposed storm events will be infiltrated onsite within the infiltration basins along the north, south and westerly landscaping areas of the site.

In large storm events the site will drain similarly to the existing condition, runoff will flow north to the main drive aisle of the site and will then overflow into the right of way that will convey flows into the street.

Design Criteria:

1. The drainage area was analyzed using Rational Method Analysis per the 1978 Riverside County Flood Control and Water Conservation District Hydrology Manual.
2. The drainage subareas are located in Soil Group B according to the Riverside County soils group map (Plate C-1.17).
3. Antecedent Moisture Condition (AMC) of II was assumed for all calculations per the County recommendation on page C-4 of the Hydrology Manual.
4. The development is assumed to have an Intensity-Duration slope of 0.45 according to Plate D-4.6 of the Hydrology Manual.
5. The runoff index (RI) for Commercial Landscaped areas is 78 (AMCII).
6. The imperviousness of the area in proposed development condition has been conservatively estimated to be 85%.
7. This site has been analyzed by comparing the 10 year-1 hr. storm and the 100 year-1 hr storm, pre and post development conditions.
8. The Manning Equation is used to verify pipe capacities based on flow, the slope of pipe, and the pipe material.
9. The Hydrology Map attached to this study is part of this study.

   Note: Additional Calculation Assumptions May Have Been Noted Throughout Report

Conclusions:

- The results from this hydrology and hydraulic analysis demonstrate the following:
- The drainage design for this site meets or exceeds the level of urban flood protection as described in the Riverside Hydrology Manual. Finished floor elevations are over 1 foot above the maximum 100 year flood elevations in the street.
- Refer to the table below for a summary of the pre- and post-developed flow rates.
- The drainage design for the Site has been designed to meet the County of Riverside Flood Control Standards.
- The street section is designed to manage runoff from a 100-year storm.
- Building Pads will be protected and will be above the theoretical 100 year flood elevation
- as determined in this study.
- The results from this hydrology and hydraulic analysis demonstrate the following:
- The two parkway drains will only discharging flow in an emergency overlow storm event. The remainder of the storm event will infiltrate.
- The 10 yr – 1 hr and 100 yr – 1 hr storm event for the pre and post development conditions has been analyzed and hydrographs and volumes were compiled using civildesign/civilcadd software. See following tables:

HYDROLOGY STUDY
Southwest corner of Moreno Beach Drive
& John F. Kennedy Drive
In the City of Moreno Valley, California

Summary of Flow Rates & Volumes:

Storm Event	Pre-Developed Condition	Post-Developed Condition				
	X-1 (cfs) 2.45 AC	A-1 (cfs) 2.45 ac	INSERT-1 (cfs)	B-1A (cfs)	B-2 (cfs)	B-3 (cfs
10 yr -1 hr	***3.82***	***4.64***	***1.149***	***0.837***	***2.04***	***1.06***
100 yr 1-hr	5.88	6.84	2.273	1.233	3.02	1.56

*Based on Nomograph and Riverside County Nomograph Sheets in Appendix.

Hydrograph Summary Table:

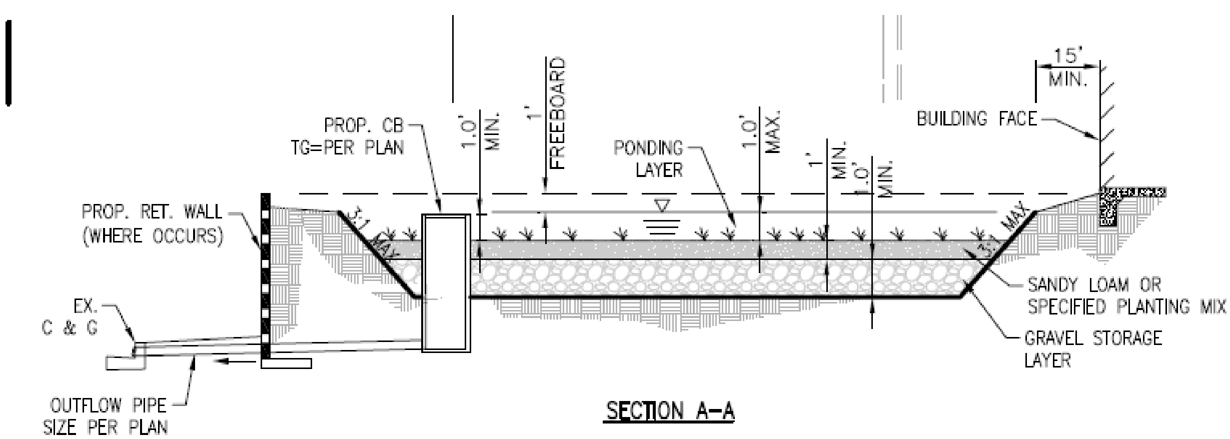
		EXISTING (cf)	PROPOSED (cf) A-1 Hydrograph
		1-hr	1-hr
10-yr	Q	**4,419**	**6,239**
100-yr	Q	**8,292**	**10,112.7**

Total: 16,351 cf Maximum for 10 yr and 100 year storm. <18,036ins cf of onsite infiltration volume**

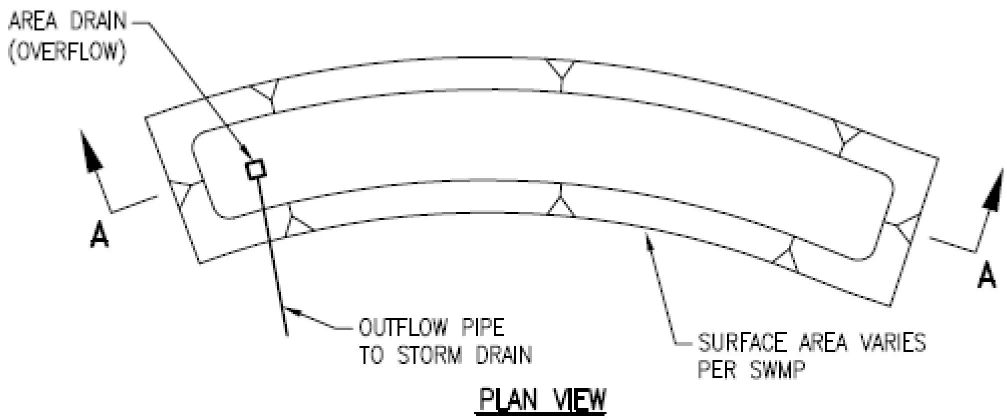
Onsite Storage Volume:

Onsite Volume	Onsite S.F. (Bio-Infiltration) Average Depth 1.5'	Volume (cf)
Onsite Volume	**8,756**	**13,134 cf**
Total Volume:	**With 2 feet of infiltration depth**	***18,036 cf *****

*Based on attached Bio-infiltration section



SECTION A-A



TYPICAL INFILTRATION BASIN DETAIL
NOT TO SCALE

Note: The proposed Catch basin is 1" below sidewalk grade and serves as a emergency overflow only.

Summary (continued):

This project will meet the Riverside County discharge requirements by detaining the required onsite 10-yr detainment volume.

*CF represents onsite storage available and will be stored onsite for 24 hrs. Excess water will drain through the two driveways drains depicted on the hydrology map.

Drainage Basin (depth-1.5')			
BIO	**SF**	**GRADED DEPTH**	**VOLUME (CF)**
1	2679	1.5	4018.5
2	3641	1.5	5461.5
3	700	1.5	1050
4	1736	1.5	2604
TOTAL:	8756		13134

Total onsite infiltration: 13,134 cf

4" overflow parkway drain pipes Overflow Pipe:

D=DEPTH OF MATERIAL *SEE ATTACHED SECTION

* ASSUMES PIPE FLOWS AT MAX CAPACITY. ACTUAL CONDITIONS ARE HALF-FULL.

4"=0.12 cfs-See Pipe Sections in appendix

CALCULATIONS:

0.48 CFS=28.8=1728 CF PER HR

References:

1. County of Riverside, "Hydrology Manual" dated January 2008.
2. Civilcadd/civildesign Engineering Software, 1989-2014 (c) , Version 9.0.
3. Precise Grading Plan (See attached plans)

APPENDIX A

REFERENCE MATERIALS

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
NATURAL COVERS -					
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
URBAN COVERS -					
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
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

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HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

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
AGRICULTURAL COVERS (cont.) -					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.)		See Note 4			
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87
Vineyard		See Note 4			

Notes:

1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.
2. Quality of cover definitions:
   Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
3. See Plate C-2 for a detailed description of cover types.
4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.
5. Reference Bibliography item 17.

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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

85% IMPERVIOUS, CALCULATED BY USING RATIO OF VEGETATION TO CONCRETE AND ASPHALT. WILL USE 85%.

Notes:

1. Land use should be based on ultimate d
Long range master plans for the County
should be reviewed to insure reasonabl

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.

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HYDROLOGY MANUAL

IMPERVIOUS COVER
FOR
DEVELOPED AREAS

PLATE D-5.6

RUNOFF COEFFICIENT CURVE DATA

The data in the following tables may be used to develop runoff coefficient (C) curves for any combination of runoff index (RI) number and antecedent mositure condition (AMC). For an RI number with an AMC of II (from Plate D-5.5) enter the tables on the following pages and plot the "C" curve data directly on Plate D-5.8. "C" curve data is given for even RI numbers only, but values may easily be interpolated for odd RI numbers.

For an AMC of I or III enter the tabulation on this page with the RI for AMC II, and read the appropriate RI for AMC I or III. Use this revised RI to enter the tables on the following pages to determine "C". For example if RI = 40 for AMC II, then RI = 22 for AMC I and RI = 60 for AMC III.

AMC ADJUSTMENT RELATIONSHIPS

RI FOR AMC II	RI FOR OTHER AMC CONDITIONS: AMC I	AMC III	RI FOR AMC II	RI FOR OTHER AMC CONDITIONS: AMC I	AMC III
10	--	22	55	35	74
11	--	24	56	36	75
12	--	25	57	37	75
13	--	27	58	38	76
14	--	28	59	39	77
15	--	30	60	40	78
16	--	31	61	41	78
17	--	33	62	42	79
18	--	34	63	43	80
19	--	36	64	44	81
20	--	37	65	45	82
21	10	38	66	46	82
22	10	39	67	47	83
23	11	41	68	48	84
24	11	42	69	50	84
25	12	43	70	51	85
26	12	44	71	52	86
27	13	46	72	53	86
28	14	47	73	54	87
29	14	49	74	55	88
30	15	50	75	57	88
31	16	51	76	58	89
32	16	52	77	59	89
33	17	53	78	60	90
34	18	54	79	62	91
35	18	55	80	63	91
36	19	56	81	64	92
37	20	57	82	66	92
38	21	58	83	67	93
39	21	59	84	68	93
40	22	60	85	70	94
41	23	61	86	72	94
42	24	62	87	73	95
43	25	63	88	75	95
44	25	64	89	76	96
45	26	65	90	78	96
46	27	66	91	80	97
47	28	67	92	81	97
48	29	68	93	83	98
49	30	69	94	85	98
50	31	70	95	87	98
51	31	70	96	89	99
52	32	71	97	91	99
53	33	72	98	94	99
54	34	73	99	97	--

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF COEFFICIENT CURVE DATA

RUNOFF COEFFICIENTS FOR RI INDEX NO. = 12

IMPERVIOUS PERCENT	INTENSITY - INCHES/HOUR										
	.0	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0	6.0
0.	.00	.04	.08	.12	.15	.18	.21	.24	.26	.30	.34
5.	.04	.09	.12	.16	.19	.22	.25	.27	.29	.33	.37
10.	.09	.13	.17	.20	.23	.25	.28	.30	.33	.36	.40
15.	.13	.17	.21	.24	.26	.29	.31	.34	.36	.39	.43
20.	.18	.22	.25	.28	.30	.33	.35	.37	.39	.42	.45
25.	.22	.26	.29	.31	.34	.36	.38	.40	.42	.45	.48
30.	.27	.30	.33	.35	.38	.40	.42	.44	.45	.48	.51
35.	.31	.34	.37	.39	.41	.43	.45	.47	.48	.51	.54
40.	.36	.39	.41	.43	.45	.47	.49	.50	.52	.54	.57
45.	.40	.43	.45	.47	.49	.51	.52	.54	.55	.57	.59
50.	.45	.47	.49	.51	.53	.54	.56	.57	.58	.60	.62
55.	.49	.51	.53	.55	.56	.58	.59	.60	.61	.63	.65
60.	.54	.56	.57	.59	.60	.61	.62	.63	.64	.66	.68
65.	.58	.60	.61	.63	.64	.65	.66	.67	.68	.69	.70
70.	.63	.64	.66	.67	.68	.68	.69	.70	.71	.72	.73
75.	.67	.69	.70	.70	.71	.72	.73	.73	.74	.75	.76
80.	.72	.73	.74	.74	.75	.76	.76	.77	.77	.78	.79
85.	.76	.77	.78	.78	.79	.79	.80	.80	.80	.81	.82
90.	.81	.81	.82	.82	.83	.83	.83	.83	.84	.84	.84
95.	.86	.86	.86	.86	.86	.86	.87	.87	.87	.87	.87
100.	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90

RUNOFF COEFFICIENTS FOR RI INDEX NO. = 14

IMPERVIOUS PERCENT	INTENSITY - INCHES/HOUR										
	.0	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0	6.0
0.	.00	.05	.10	.14	.18	.21	.24	.27	.30	.34	.38
5.	.04	.09	.14	.18	.21	.24	.27	.30	.33	.37	.41
10.	.09	.14	.18	.22	.25	.28	.31	.33	.36	.40	.43
15.	.13	.18	.22	.25	.29	.31	.34	.36	.39	.42	.46
20.	.18	.22	.26	.29	.32	.35	.37	.40	.42	.45	.48
25.	.22	.26	.30	.33	.36	.38	.41	.43	.45	.48	.51
30.	.27	.31	.34	.37	.39	.42	.44	.46	.48	.51	.54
35.	.31	.35	.38	.41	.43	.45	.47	.49	.51	.54	.56
40.	.36	.39	.42	.44	.47	.49	.50	.52	.54	.56	.59
45.	.40	.43	.46	.48	.50	.52	.54	.55	.57	.59	.61
50.	.45	.48	.50	.52	.54	.56	.57	.58	.60	.62	.64
55.	.49	.52	.54	.56	.57	.59	.60	.62	.63	.65	.67
60.	.54	.56	.58	.60	.61	.62	.64	.65	.66	.68	.69
65.	.58	.60	.62	.63	.65	.66	.67	.68	.69	.70	.72
70.	.63	.65	.66	.67	.68	.69	.70	.71	.72	.73	.74
75.	.67	.69	.70	.71	.72	.73	.74	.74	.75	.76	.77
80.	.72	.73	.74	.75	.76	.76	.77	.77	.78	.79	.80
85.	.76	.77	.78	.79	.79	.80	.80	.81	.81	.82	.82
90.	.81	.82	.82	.82	.83	.83	.83	.84	.84	.84	.85
95.	.86	.86	.86	.86	.86	.87	.87	.87	.87	.87	.87
100.	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90

RUNOFF COEFFICIENTS FOR RI INDEX NO. = 16

IMPERVIOUS PERCENT	INTENSITY - INCHES/HOUR										
	.0	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0	6.0
0.	.00	.06	.11	.16	.20	.24	.27	.30	.33	.38	.42
5.	.04	.10	.15	.20	.23	.27	.30	.33	.36	.40	.44
10.	.09	.14	.19	.23	.27	.30	.33	.36	.38	.43	.46
15.	.13	.19	.23	.27	.31	.34	.36	.39	.41	.45	.49
20.	.18	.23	.27	.31	.34	.37	.40	.42	.44	.48	.51
25.	.22	.27	.31	.34	.38	.40	.43	.45	.47	.51	.54
30.	.27	.31	.35	.38	.41	.44	.46	.48	.50	.53	.56
35.	.31	.35	.39	.42	.45	.47	.49	.51	.53	.56	.58
40.	.36	.40	.43	.46	.48	.50	.52	.54	.56	.58	.61
45.	.40	.44	.47	.49	.51	.54	.55	.57	.58	.61	.63
50.	.45	.48	.51	.53	.55	.57	.58	.60	.61	.64	.66
55.	.49	.52	.55	.57	.58	.60	.62	.63	.64	.66	.68
60.	.54	.56	.58	.60	.62	.63	.65	.66	.67	.69	.71
65.	.58	.61	.62	.64	.65	.67	.68	.69	.70	.72	.73
70.	.63	.65	.66	.68	.69	.70	.71	.72	.73	.74	.75
75.	.67	.69	.70	.71	.73	.73	.74	.75	.76	.77	.78
80.	.72	.73	.74	.75	.76	.77	.77	.78	.79	.79	.80
85.	.76	.77	.78	.79	.79	.80	.81	.81	.81	.82	.83
90.	.81	.82	.82	.83	.83	.83	.84	.84	.84	.85	.85
95.	.86	.86	.86	.86	.87	.87	.87	.87	.87	.87	.88
100.	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90

RUNOFF COEFFICIENTS FOR RI INDEX NO. = 18

IMPERVIOUS PERCENT	INTENSITY - INCHES/HOUR										
	.0	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0	6.0
0.	.00	.07	.13	.18	.22	.26	.30	.33	.36	.41	.45
5.	.04	.11	.17	.21	.26	.29	.33	.36	.38	.43	.47
10.	.09	.15	.20	.25	.29	.33	.36	.39	.41	.46	.49
15.	.13	.19	.24	.29	.32	.36	.39	.41	.44	.48	.52
20.	.18	.23	.28	.32	.36	.39	.42	.44	.47	.51	.54
25.	.22	.28	.32	.36	.39	.42	.45	.47	.49	.53	.56
30.	.27	.32	.36	.39	.43	.45	.48	.50	.52	.55	.58
35.	.31	.36	.40	.43	.46	.49	.51	.53	.55	.58	.61
40.	.36	.40	.44	.47	.49	.52	.54	.56	.57	.60	.63
45.	.40	.44	.47	.50	.53	.55	.57	.59	.60	.63	.65
50.	.45	.48	.51	.54	.56	.58	.60	.61	.63	.65	.67
55.	.49	.53	.55	.58	.60	.61	.63	.64	.66	.68	.70
60.	.54	.57	.59	.61	.63	.64	.66	.67	.68	.70	.72
65.	.58	.61	.63	.65	.66	.68	.69	.70	.71	.73	.74
70.	.63	.65	.67	.68	.70	.71	.72	.73	.74	.75	.76
75.	.67	.69	.71	.72	.73	.74	.75	.76	.76	.78	.79
80.	.72	.73	.75	.76	.76	.77	.78	.79	.79	.80	.81
85.	.76	.78	.78	.79	.80	.80	.81	.81	.82	.83	.83
90.	.81	.82	.82	.83	.83	.84	.84	.84	.85	.85	.85
95.	.86	.86	.86	.86	.87	.87	.87	.87	.87	.88	.88
100.	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF COEFFICIENT CURVE DATA

APPENDIX B

HYDROLOGY CALCULATIONS

A100

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                  Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study       Date: 03/28/18  File:A100.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------
A-1
100 YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(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 = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      102.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   407.000(Ft.)
Top (of initial area) elevation =   559.590(Ft.)
Bottom (of initial area) elevation =   556.000(Ft.)
Difference in elevation =     3.590(Ft.)
Slope =    0.00882  s(percent)=       0.88
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.548 min.
Rainfall intensity =      3.179(In/Hr) for a   100.0 year storm
```

```
                              A100
COMMERCIAL subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      6.837(CFS)
Total initial stream area =        2.450(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =           2.45 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

a110

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study   Date: 04/02/18 File:a110.out

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

A-1
10-YEAR

Program License Serial Number 6394

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Sunnymead-Moreno] area used.
10 year storm 10 minute intensity = 2.010(In/Hr)
10 year storm 60 minute intensity = 0.820(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.820(In/Hr)
Slope of intensity duration curve = 0.5000

++
Process from Point/Station   103.000 to Point/Station   102.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance =   407.000(Ft.)
Top (of initial area) elevation =   559.590(Ft.)
Bottom (of initial area) elevation =   556.000(Ft.)
Difference in elevation =   3.590(Ft.)

```
                                a110
Slope =    0.00882  s(percent)=      0.88
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.548 min.
Rainfall intensity =      2.173(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.871
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      4.635(CFS)
Total initial stream area =        2.450(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =           2.45 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

```
                          B1A10

            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study        Date: 03/28/18  File:B1B10.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------
B-1A
10 YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.820(In/Hr)
Slope of intensity duration curve = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   200.000(Ft.)
Top (of initial area) elevation =   559.200(Ft.)
Bottom (of initial area) elevation =   556.000(Ft.)
Difference in elevation =     3.200(Ft.)
Slope =    0.01600  s(percent)=      1.60
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.711 min.
Rainfall intensity =      2.658(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
```

B1A10

```
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.837(CFS)
Total initial stream area =        0.360(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

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                              B1A100

                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study        Date: 03/28/18  File:B1A100.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------
B-1A
100 YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(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 = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   200.000(Ft.)
Top (of initial area) elevation =   559.200(Ft.)
Bottom (of initial area) elevation =   556.000(Ft.)
Difference in elevation =     3.200(Ft.)
Slope =    0.01600  s(percent)=       1.60
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.711 min.
Rainfall intensity =      3.890(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
```

```
                                B1A100
Runoff Coefficient = 0.881
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.233(CFS)
Total initial stream area =        0.360(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

```
                        B100

               Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study       Date: 03/28/18  File:B100.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------
B-1
100 YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(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 = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance =   307.000(Ft.)
Top (of initial area) elevation =   557.260(Ft.)
Bottom (of initial area) elevation =   226.000(Ft.)
Difference in elevation =   331.260(Ft.)
Slope =    1.07902  s(percent)=     107.90
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
```

```
                               B100
Rainfall intensity =      4.157(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.882
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.273(CFS)
Total initial stream area =        0.620(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.62 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

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                              B110

                 Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study       Date: 03/28/18  File:B110.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------


B-1
10 YEAR
Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.820(In/Hr)
Slope of intensity duration curve = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   307.000(Ft.)
Top (of initial area) elevation =   557.260(Ft.)
Bottom (of initial area) elevation =   556.000(Ft.)
Difference in elevation =     1.260(Ft.)
Slope =    0.00410  s(percent)=       0.41
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.899 min.
Rainfall intensity =      2.129(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
```

B110

```
Runoff Coefficient = 0.870
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.149(CFS)
Total initial stream area =        0.620(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.62 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

```
                              B210

                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study        Date: 03/28/18  File:B210.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------
B-2
10 YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.820(In/Hr)
Slope of intensity duration curve = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   559.590(Ft.)
Bottom (of initial area) elevation =   556.200(Ft.)
Difference in elevation =     3.390(Ft.)
Slope =    0.01130  s(percent)=       1.13
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.200 min.
Rainfall intensity =      2.367(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
```

B210

```
Runoff Coefficient = 0.872
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.044(CFS)
Total initial stream area =        0.990(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.99 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

```
                              B310

              Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study        Date: 03/28/18  File:B310.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------
B-3
10 -YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.820(In/Hr)
Slope of intensity duration curve = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   248.000(Ft.)
Top (of initial area) elevation =   558.460(Ft.)
Bottom (of initial area) elevation =   556.000(Ft.)
Difference in elevation =     2.460(Ft.)
Slope =    0.00992  s(percent)=       0.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.849 min.
Rainfall intensity =      2.427(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
```

B310

```
Runoff Coefficient = 0.873
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.059(CFS)
Total initial stream area =        0.500(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.50 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

```
                              B2100

              Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study        Date: 03/28/18  File:B2100.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------
B-2
100 YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(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 = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   559.590(Ft.)
Bottom (of initial area) elevation =   556.200(Ft.)
Difference in elevation =     3.390(Ft.)
Slope =    0.01130  s(percent)=       1.13
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.200 min.
Rainfall intensity =      3.464(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
```

```
Runoff Coefficient = 0.879
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      3.015(CFS)
Total initial stream area =        0.990(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.99 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

```
                              B3100

                  Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study       Date: 03/28/18  File:B3100.out
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------

B-3
100 YEAR

Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(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 = 0.5000

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   248.000(Ft.)
Top (of initial area) elevation =   558.460(Ft.)
Bottom (of initial area) elevation =   556.000(Ft.)
Difference in elevation =     2.460(Ft.)
Slope =    0.00992  s(percent)=      0.99
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.849 min.
Rainfall intensity =      3.552(In/Hr) for a   100.0 year storm
```

```
                              B3100
COMMERCIAL subarea type
Runoff Coefficient = 0.880
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.562(CFS)
Total initial stream area =        0.500(Ac.)
Pervious area fraction = 0.100
End of computations, total study area =            0.50 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  56.0
```

X110

Riverside County Rational Hydrology Program

```
CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study        Date: 04/03/18  File:X110.out
------------------------------------------------------------------------
X-1
10-YEAR




------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------


Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =   10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.820(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.000 to Point/Station      302.000
**** INITIAL AREA EVALUATION ****
```

X110

```
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   570.000(Ft.)
Bottom (of initial area) elevation =   556.200(Ft.)
Difference in elevation =    13.800(Ft.)
Slope =    0.04600  s(percent)=      4.60
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.607 min.
Rainfall intensity =      2.049(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.760
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  78.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      3.818(CFS)
Total initial stream area =        2.450(Ac.)
Pervious area fraction = 1.000
End of computations, total study area =            2.45 (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 =  78.0
```

```
                              X1100

                Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
        Rational Hydrology Study        Date: 04/03/18  File:X1100.out
------------------------------------------------------------------------
X-1
100 YEAR




------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------


Program License Serial Number 6394

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Sunnymead-Moreno ] area used.
10 year storm 10 minute intensity =  2.010(In/Hr)
10 year storm 60 minute intensity =  0.820(In/Hr)
100 year storm 10 minute intensity =  2.940(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 = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      301.000 to Point/Station      302.000
**** INITIAL AREA EVALUATION ****
```

```
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   570.000(Ft.)
Bottom (of initial area) elevation =   556.200(Ft.)
Difference in elevation =    13.800(Ft.)
Slope =    0.04600  s(percent)=       4.60
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.607 min.
Rainfall intensity =      2.999(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.800
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  78.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      5.876(CFS)
Total initial stream area =        2.450(Ac.)
Pervious area fraction = 1.000
End of computations, total study area =            2.45 (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 =  78.0
```

X110110

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 04/03/18 File: X110110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6394

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

X-1
10-YEAR

Drainage Area = 2.45(Ac.) = 0.004 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 2.45(Ac.) = 0.004 Sq. Mi.
Length along longest watercourse = 300.00(Ft.)
Length along longest watercourse measured to centroid = 150.00(Ft.)
Length along longest watercourse = 0.057 Mi.
Length along longest watercourse measured to centroid = 0.028 Mi.
Difference in elevation = 13.80(Ft.)
Slope along watercourse = 242.8800 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.022 Hr.
Lag time = 1.32 Min.
25% of lag time = 0.33 Min.
40% of lag time = 0.53 Min.
Unit time = 30.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 3.82(CFS)

X110110

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.45	0.46	1.13

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.45	1.20	2.94

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.460(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.764(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.764(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
2.450	78.00	0.000

Total Area Entered = 2.45(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
78.0	78.0	0.268	0.000	0.268	1.000	0.268
					Sum (F) =	0.268

Area averaged mean soil loss (F) (In/Hr) = 0.268
Minimum soil loss rate ((In/Hr)) = 0.134
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5000

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	0.500	2269.044	100.000	2.469

```
                                             X110110
                                             Sum = 100.000   Sum=       2.469
----------------------------------------------------------------------


----------------------------------------------------------------------
           Storm Event 5   Effective Rainfall =   0.076(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.047       (  0.268)       0.042        0.005
   2   1.00    69.20      0.106       (  0.268)       0.095        0.011
                (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     0.0
       Flood volume = Effective rainfall      0.01(In)
        times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
       Total soil loss =      0.07(In)
       Total soil loss =     0.014(Ac.Ft)
       Total rainfall =     0.08(In)
       Flood volume =          68.0 Cubic Feet
       Total soil loss =         611.9 Cubic Feet
----------------------------------------------------------------------
           Storm Event 4   Effective Rainfall =   0.115(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.071       (  0.268)       0.064        0.007
   2   1.00    69.20      0.159       (  0.268)       0.143        0.016
                (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     0.0
       Flood volume = Effective rainfall      0.01(In)
        times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
       Total soil loss =      0.10(In)
       Total soil loss =     0.021(Ac.Ft)
       Total rainfall =     0.11(In)
       Flood volume =         102.0 Cubic Feet
       Total soil loss =         917.8 Cubic Feet
----------------------------------------------------------------------
           Storm Event 3   Effective Rainfall =   0.145(In)
----------------------------------------------------------------------
```

```
                              X110110
 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   0.50    30.80      0.089       (  0.268)      0.081        0.009
   2   1.00    69.20      0.201       (  0.268)      0.181        0.020
                 (Loss Rate Not Used)
     Sum =     100.0                                   Sum =     0.0
        Flood volume = Effective rainfall      0.01(In)
         times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
        Total soil loss =      0.13(In)
        Total soil loss =     0.027(Ac.Ft)
        Total rainfall =      0.15(In)
        Flood volume =         129.2 Cubic Feet
        Total soil loss =        1162.5 Cubic Feet
----------------------------------------------------------------------
           Storm Event 2   Effective Rainfall =   0.275(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.170       (  0.268)      0.153        0.017
   2   1.00    69.20      0.381          0.268    (  0.343)       0.113
                 (Loss Rate Not Used)
     Sum =     100.0                                   Sum =     0.1
        Flood volume = Effective rainfall      0.07(In)
         times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
        Total soil loss =      0.21(In)
        Total soil loss =     0.043(Ac.Ft)
        Total rainfall =      0.28(In)
        Flood volume =         579.1 Cubic Feet
        Total soil loss =        1868.4 Cubic Feet
----------------------------------------------------------------------
           Storm Event 1   Effective Rainfall =   0.764(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.471          0.268    (  0.424)       0.203
   2   1.00    69.20      1.058          0.268    (  0.952)       0.790
                 (Loss Rate Not Used)
```

```
                                   X110110
    Sum =     100.0                                  Sum =     1.0
       Flood volume = Effective rainfall      0.50(In)
        times area       2.5(Ac.)/[(In)/(Ft.)] =       0.1(Ac.Ft)
       Total soil loss =      0.27(In)
       Total soil loss =     0.055(Ac.Ft)
       Total rainfall =      0.76(In)
       Flood volume =        4418.5 Cubic Feet
       Total soil loss =        2379.9 Cubic Feet
       --------------------------------------------------------------------
        Peak flow rate of this hydrograph =      5.773(CFS)
       --------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
         TOTAL OF: 5       1 - H O U R    S T O R M  E V E N T S
                      R u n o f f      H y d r o g r a p h
       --------------------------------------------------------------------
                   Hydrograph in  30   Minute intervals ((CFS))

       --------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 -----------------------------------------------------------------------
   0+30       0.1583      3.83     V      |    Q    |         |         |
   1+ 0       0.3173      3.85  |      V  |    Q    |         |         |
   1+30       0.4758      3.84  |         V    Q    |         |         |
   2+ 0       0.6353      3.86  |         |   VQ    |         |         |
   2+30       0.7941      3.84  |         |    Q  V |         |         |
   3+ 0       0.9540      3.87  |         |    Q       V      |         |
   3+30       1.1136      3.86  |         |    Q    |      V  |         |
   4+ 0       1.2830      4.10  |         |     Q   |         V         |
   4+30       1.4616      4.32  |         |      Q  |            V      |
   5+ 0       1.7001      5.77  |         |         |  Q      |        V|
-----------------------------------------------------------------------
```

X11001100

U n i t   H y d r o g r a p h   A n a l y s i s

Study date 04/03/18 File: X11001100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6394

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

X-1
100 YEAR

Drainage Area = 2.45(Ac.) = 0.004 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 2.45(Ac.) = 0.004 Sq. Mi.
Length along longest watercourse = 300.00(Ft.)
Length along longest watercourse measured to centroid = 150.00(Ft.)
Length along longest watercourse = 0.057 Mi.
Length along longest watercourse measured to centroid = 0.028 Mi.
Difference in elevation = 13.80(Ft.)
Slope along watercourse = 242.8800 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.022 Hr.
Lag time = 1.32 Min.
25% of lag time = 0.33 Min.
40% of lag time = 0.53 Min.
Unit time = 30.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 5.88(CFS)

X11001100

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.45	0.46	1.13

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.45	1.20	2.94

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.460(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.200(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
2.450	78.00	0.000

Total Area Entered = 2.45(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
78.0	78.0	0.268	0.000	0.268	1.000	0.268
					Sum (F) =	0.268

Area averaged mean soil loss (F) (In/Hr) = 0.268
Minimum soil loss rate ((In/Hr)) = 0.134
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5000

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	0.500	2269.044	100.000	2.469

```
                              X11001100
                               Sum = 100.000   Sum=       2.469
----------------------------------------------------------------------


----------------------------------------------------------------------
          Storm Event 5   Effective Rainfall =   0.120(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.074       (  0.268)       0.067        0.007
   2   1.00    69.20      0.166       (  0.268)       0.149        0.017
                 (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     0.0
       Flood volume = Effective rainfall      0.01(In)
        times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
       Total soil loss =      0.11(In)
       Total soil loss =     0.022(Ac.Ft)
       Total rainfall =     0.12(In)
       Flood volume =         106.7 Cubic Feet
       Total soil loss =        960.5 Cubic Feet
----------------------------------------------------------------------
          Storm Event 4   Effective Rainfall =   0.180(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.111       (  0.268)       0.100        0.011
   2   1.00    69.20      0.249       (  0.268)       0.224        0.025
                 (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     0.0
       Flood volume = Effective rainfall      0.02(In)
        times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
       Total soil loss =      0.16(In)
       Total soil loss =     0.033(Ac.Ft)
       Total rainfall =     0.18(In)
       Flood volume =         160.1 Cubic Feet
       Total soil loss =       1440.7 Cubic Feet
----------------------------------------------------------------------
          Storm Event 3   Effective Rainfall =   0.228(In)
----------------------------------------------------------------------
```

```
                              X11001100
 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   0.50    30.80      0.140       (  0.268)      0.126        0.014
   2   1.00    69.20      0.316          0.268    (  0.284)       0.048
                 (Loss Rate Not Used)
     Sum =     100.0                                  Sum =     0.1
        Flood volume = Effective rainfall      0.03(In)
         times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
        Total soil loss =      0.20(In)
        Total soil loss =     0.040(Ac.Ft)
        Total rainfall =      0.23(In)
        Flood volume =         275.7 Cubic Feet
        Total soil loss =        1752.0 Cubic Feet
----------------------------------------------------------------------
           Storm Event 2   Effective Rainfall =   0.432(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.266       (  0.268)      0.239        0.027
   2   1.00    69.20      0.598          0.268    (  0.538)       0.330
                 (Loss Rate Not Used)
     Sum =     100.0                                  Sum =     0.4
        Flood volume = Effective rainfall      0.18(In)
         times area       2.5(Ac.)/[(In)/(Ft.)] =       0.0(Ac.Ft)
        Total soil loss =      0.25(In)
        Total soil loss =     0.052(Ac.Ft)
        Total rainfall =      0.43(In)
        Flood volume =        1587.0 Cubic Feet
        Total soil loss =        2254.9 Cubic Feet
----------------------------------------------------------------------
           Storm Event 1   Effective Rainfall =   1.200(In)
----------------------------------------------------------------------

 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   0.50    30.80      0.739          0.268    (  0.665)       0.472
   2   1.00    69.20      1.661          0.268    (  1.495)       1.393
                 (Loss Rate Not Used)
```

```
                                    X11001100
     Sum =     100.0                                  Sum =     1.9
        Flood volume = Effective rainfall      0.93(In)
         times area       2.5(Ac.)/[(In)/(Ft.)] =       0.2(Ac.Ft)
        Total soil loss =      0.27(In)
        Total soil loss =     0.055(Ac.Ft)
        Total rainfall =      1.20(In)
        Flood volume =        8292.1 Cubic Feet
        Total soil loss =        2379.9 Cubic Feet
        --------------------------------------------------------------------
         Peak flow rate of this hydrograph =      9.322(CFS)
        --------------------------------------------------------------------
        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          TOTAL OF: 5       1 - H O U R    S T O R M  E V E N T S
                       R u n o f f      H y d r o g r a p h
        --------------------------------------------------------------------
                    Hydrograph in  30   Minute intervals ((CFS))

        --------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
  --------------------------------------------------------------------------
    0+30       0.2437      5.90     V      |         |  Q      |         |
    1+ 0       0.4884      5.92  |      V  |         |  Q      |         |
    1+30       0.7325      5.91  |         V         |  Q      |         |
    2+ 0       0.9780      5.94  |         |   V     |  Q      |         |
    2+30       1.2224      5.91  |         |       V |  Q      |         |
    3+ 0       1.4703      6.00  |         |          VQ       |         |
    3+30       1.7160      5.95  |         |         |  Q V    |         |
    4+ 0       1.9927      6.70  |         |         |     Q  V|         |
    4+30       2.2838      7.05  |         |         |       Q     V     |
    5+ 0       2.6690      9.32  |         |         |         |      Q  V
----------------------------------------------------------------------
```

LOCATION Southwest Corner of Moreno Beach Drive

ONE HOUR PRECIPITATION:

2-YR. 0.46 (PLATE D-4.3)

100-YR. 1.2 (PLATE D-4.4)

5-YR. 0.65 (PLATE D-4.5)

10-YR. 0.79 (PLATE D-4.5)

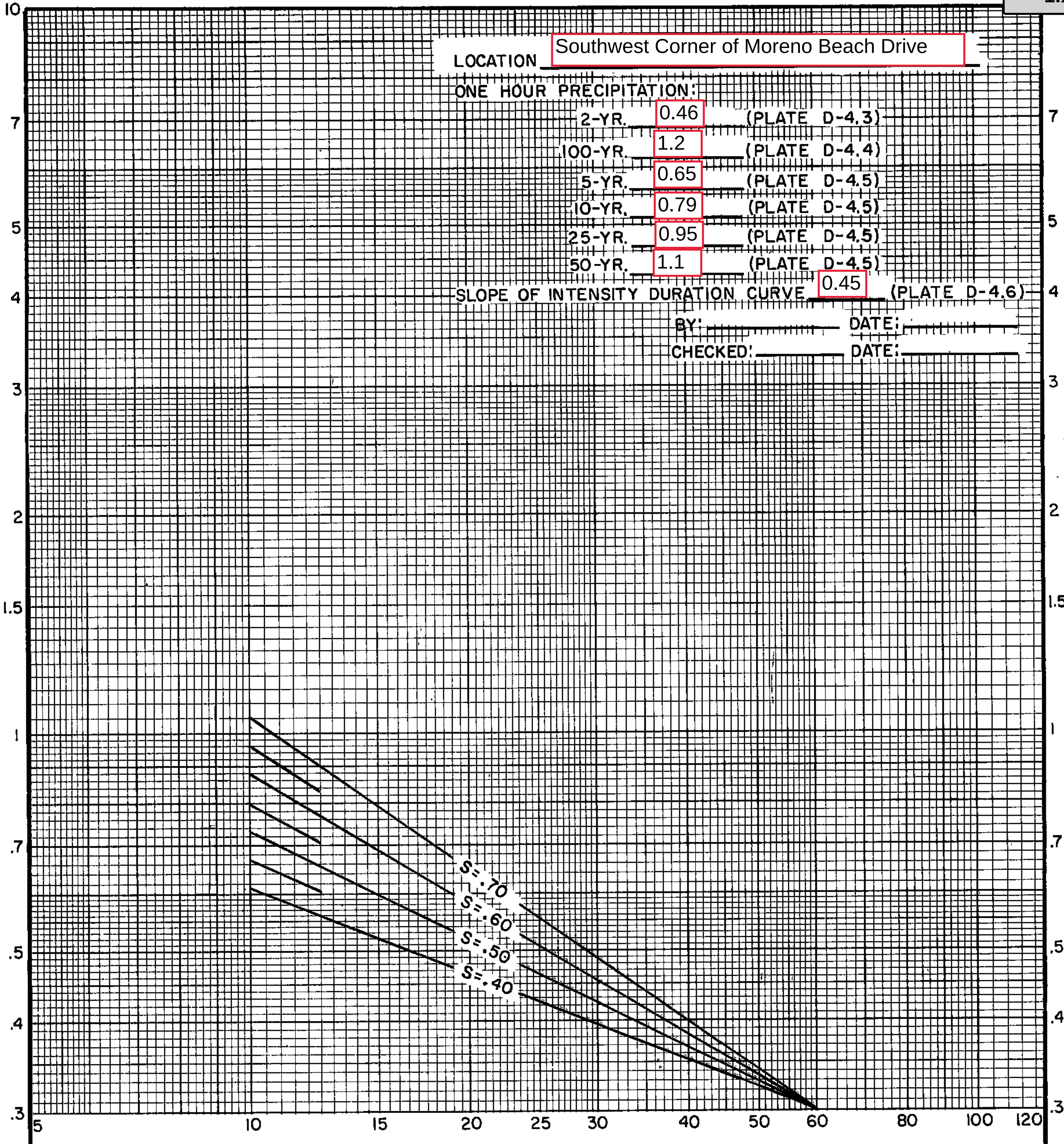
25-YR. 0.95 (PLATE D-4.5)

50-YR. 1.1 (PLATE D-4.5)

SLOPE OF INTENSITY DURATION CURVE 0.45 (PLATE D-4.6)

BY: ______ DATE: ______

CHECKED: ______ DATE: ______

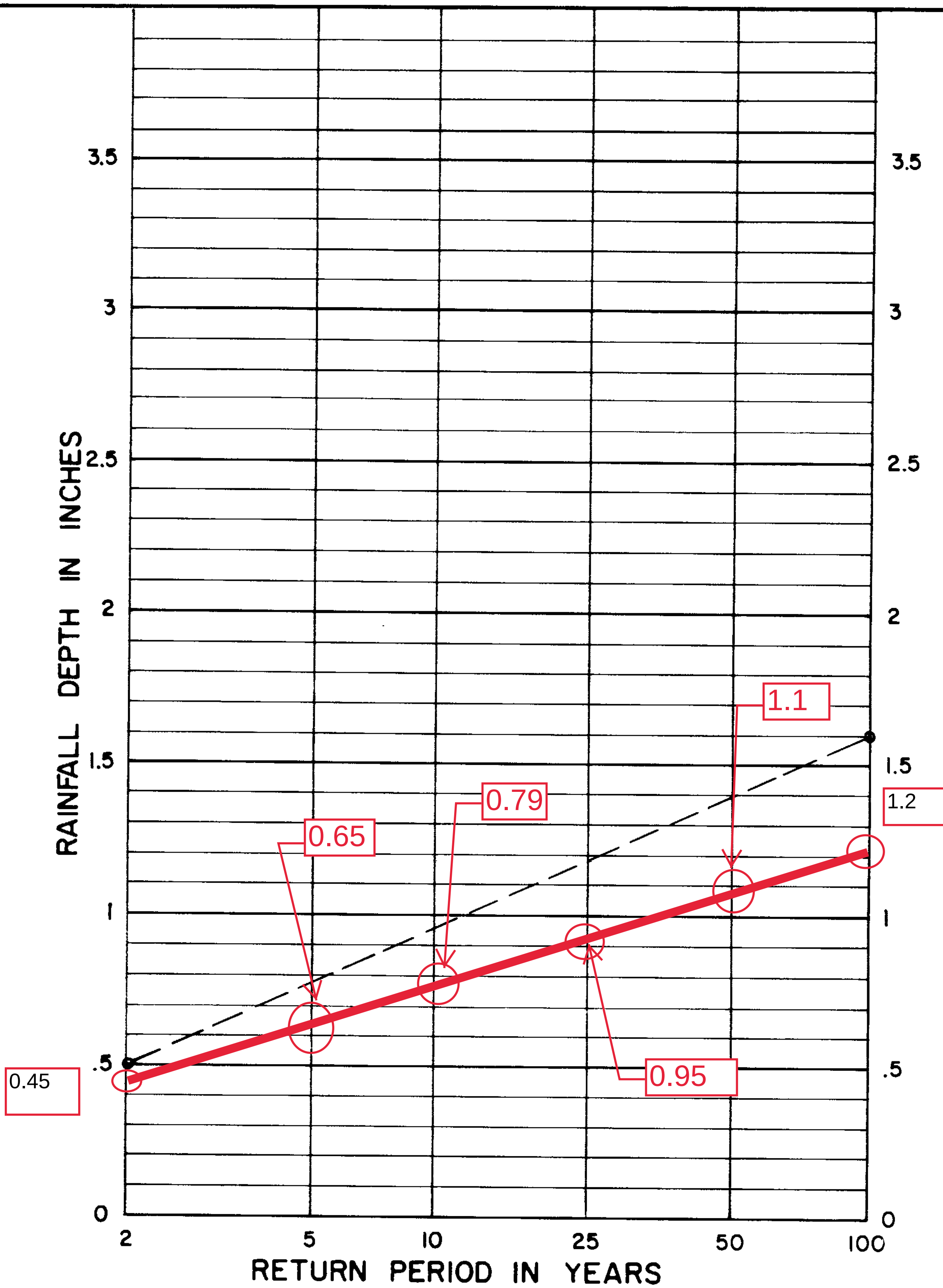


RCFC & WCD

HYDROLOGY MANUAL

INTENSITY–DURATION CURVES CALCULATION SHEET

PLAT



NOTE:

1. For intermediate return periods plot 2-year and 100-year one hour values from maps, then connect points and read value for desired return period. For example given 2-year one hour = .50" and 100-year one hour = 1.60", 25-year one hour = 1.18"

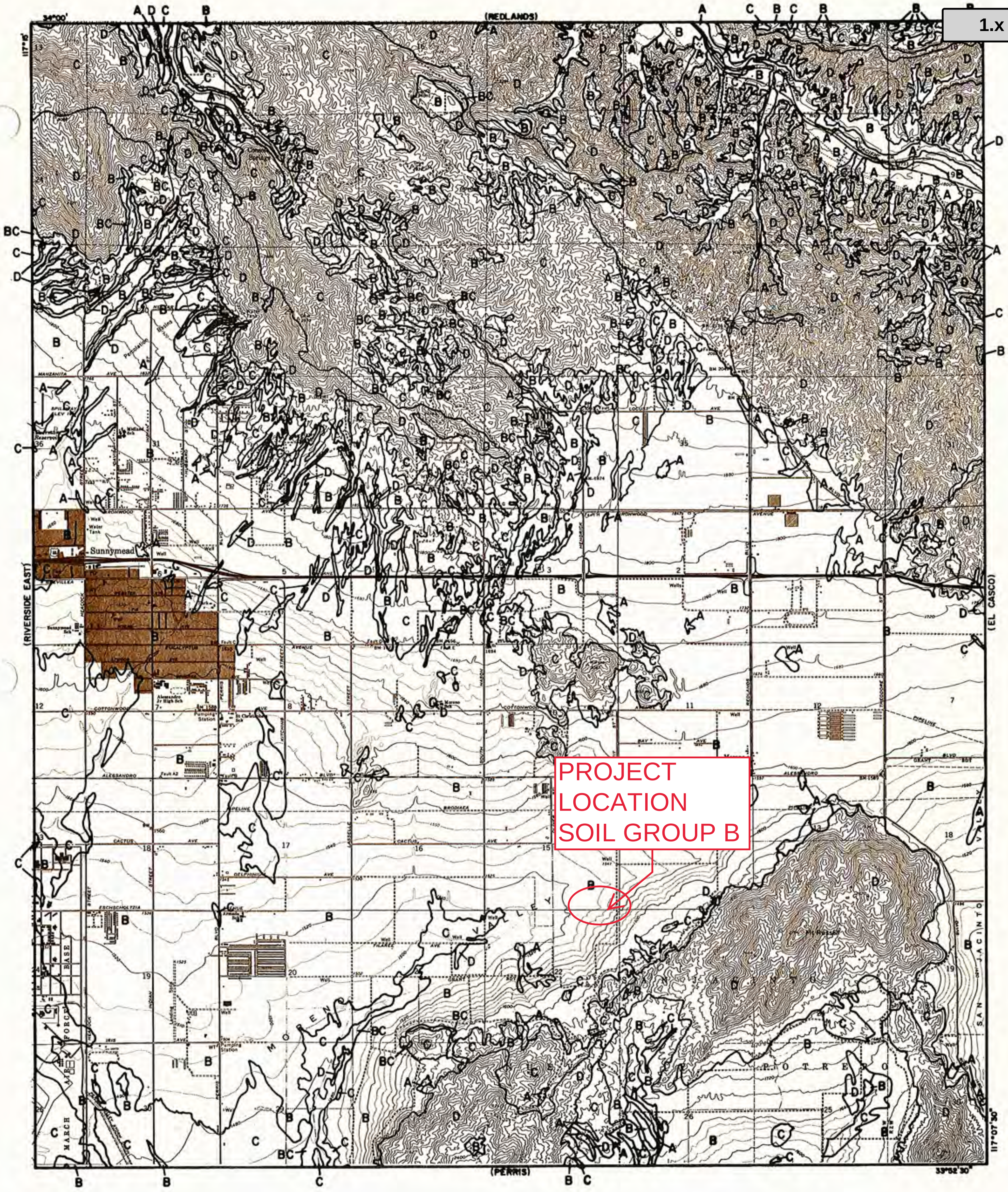
Reference: NOAA Atlas 2, Volume XI - California, 1973.

RCFC & WCD

HYDROLOGY MANUAL

RAINFALL DEPTH VERSUS RETURN PERIOD FOR PARTIAL DURATION SERIES

PLATE D-4.5



LEGEND

—— SOILS GROUP BOUNDARY

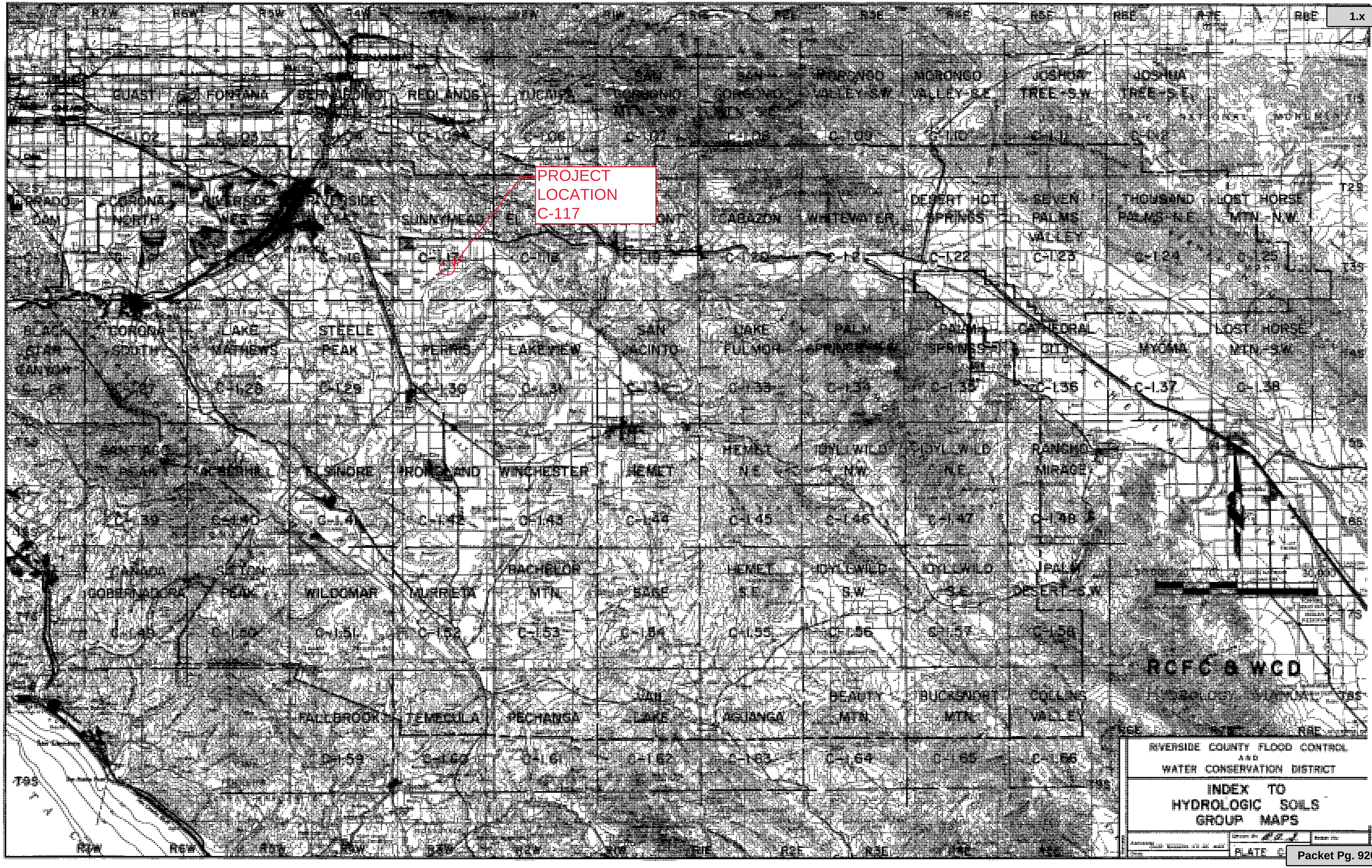
A SOILS GROUP DESIGNATION

RCFC & WCD
HYDROLOGY MANUAL

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP
FOR
SUNNYMEAD

PLATE C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YUCAIPA
PRADO DAM
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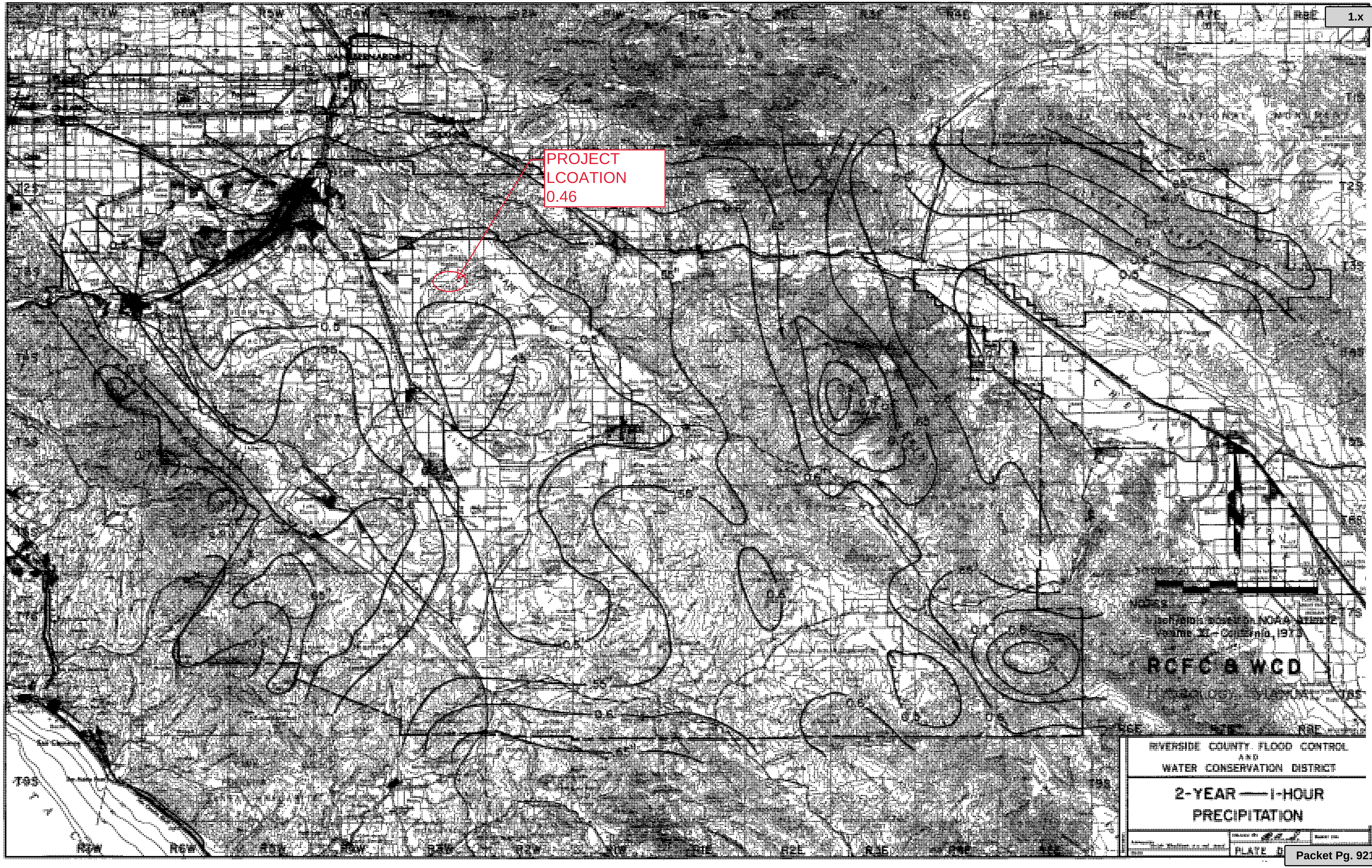
SUNNYMEAD
CABAZON
WHITEWATER
DESERT HOT SPRINGS
SEVEN PALMS VALLEY
THOUSAND PALMS N.E.
LOST HORSE MTN. N.W.
CORONA SOUTH
LAKE MATHEWS
STEELE PEAK
PERRIS
LAKEVIEW
SAN JACINTO
LAKE FULMOR
CATHEDRAL CITY
MYOMA
LOST HORSE MTN. S.W.
ELSINORE
ROMOLAND
WINCHESTER
HEMET
HEMET N.E.
IDYLLWILD N.W.
IDYLLWILD N.E.
RANCHO MIRAGE
CANADA GOBERNADORA
SEDCO PEAK
WILDOMAR
MURRIETA
BACHELOR MTN.
SAGE
HEMET S.E.
IDYLLWILD S.W.
IDYLLWILD S.E.
PALM DESERT S.W.
FALLBROOK
TEMECULA
PECHANGA
VAIL LAKE
AGUANGA
BEAUTY MTN.
BUCKSNORT MTN.
COLLINS VALLEY
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
INDEX TO HYDROLOGIC SOILS GROUP MAPS
PLATE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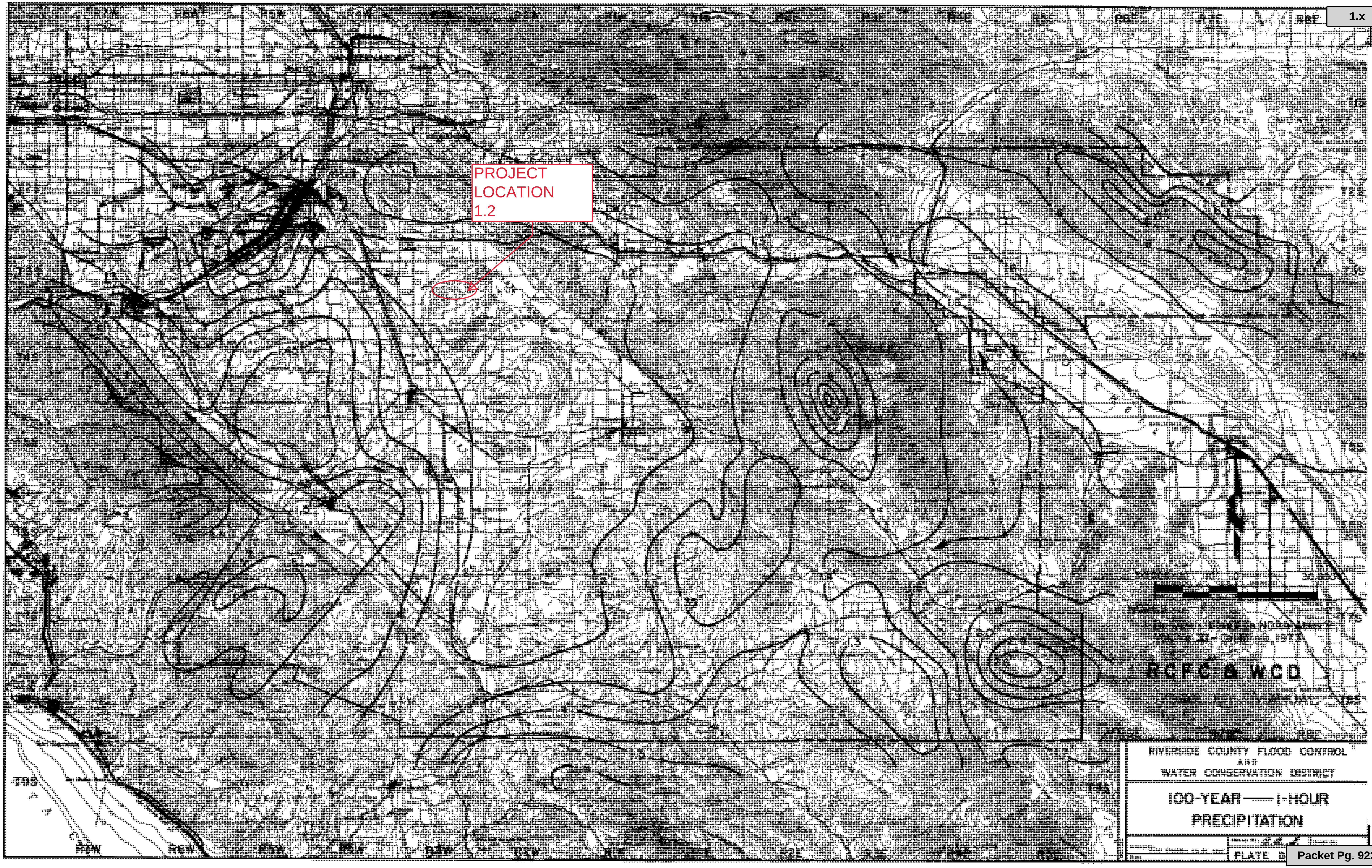
AND
WATER CONSERVATION DISTRICT
2-YEAR — 1-HOUR
PRECIPITATION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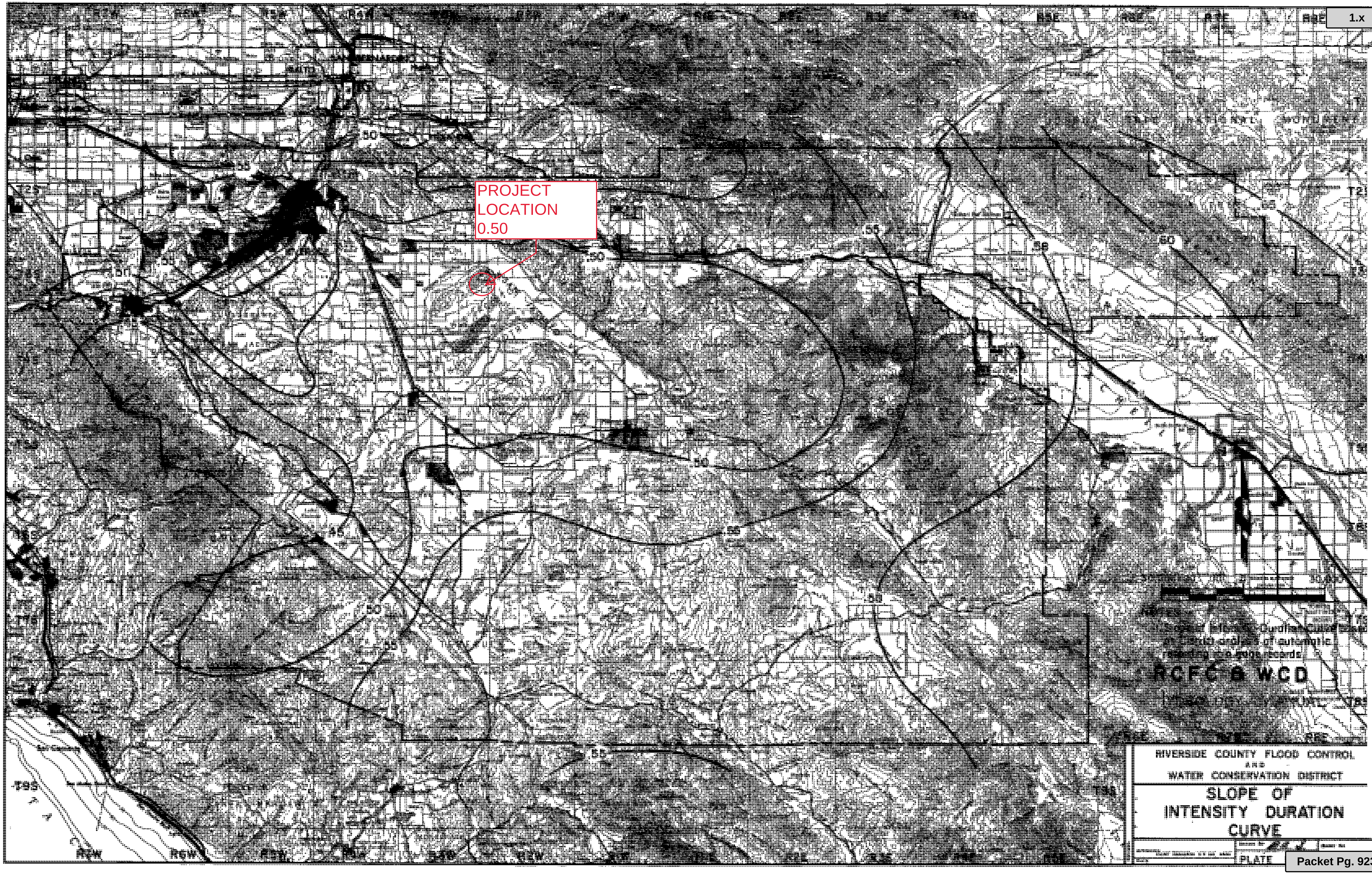
AND
WATER CONSERVATION DISTRICT
100-YEAR — 1-HOUR
PRECIPITATION
PLATE D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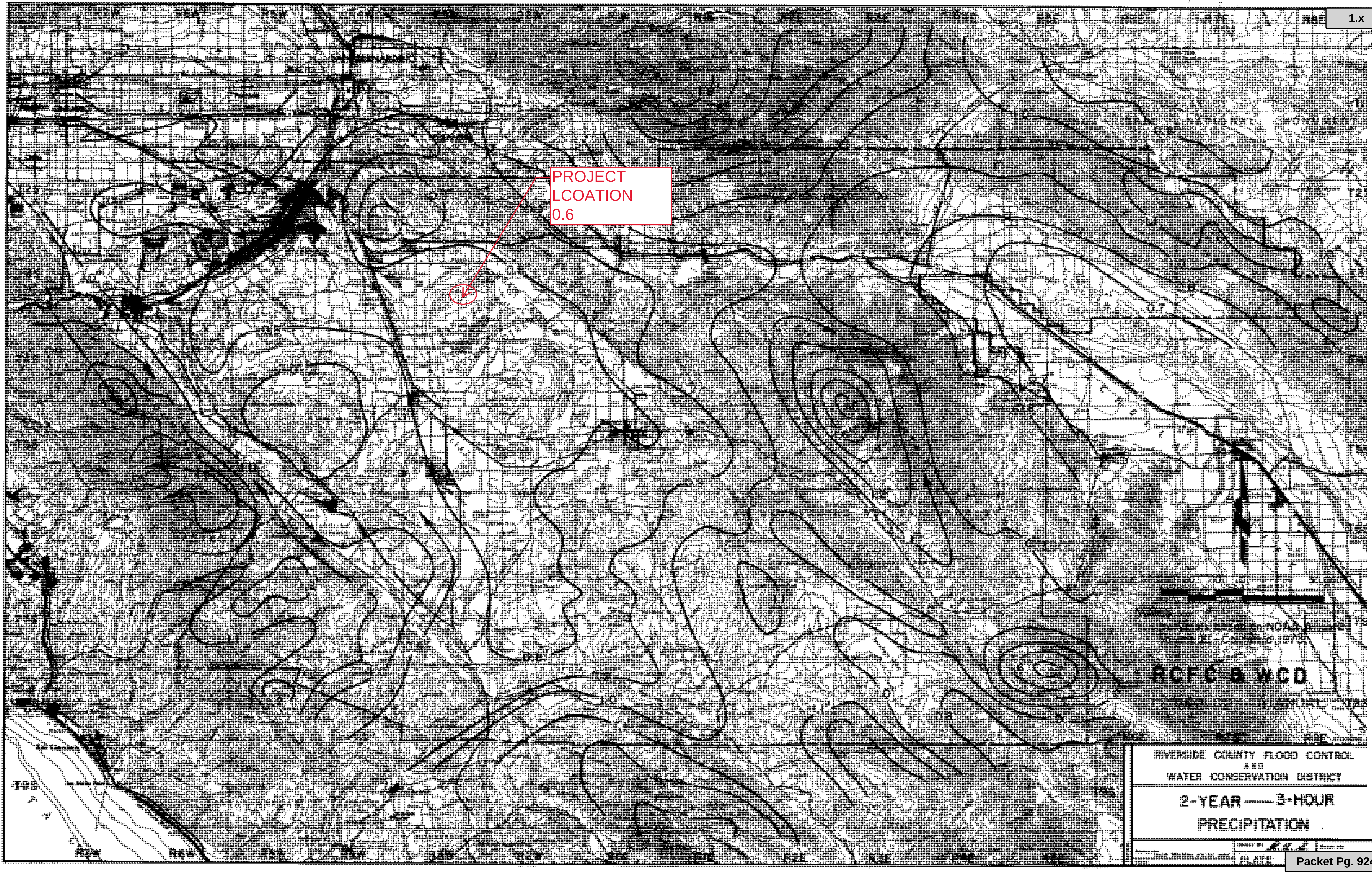
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
SLOPE OF
INTENSITY DURATION
CURVE
PLATE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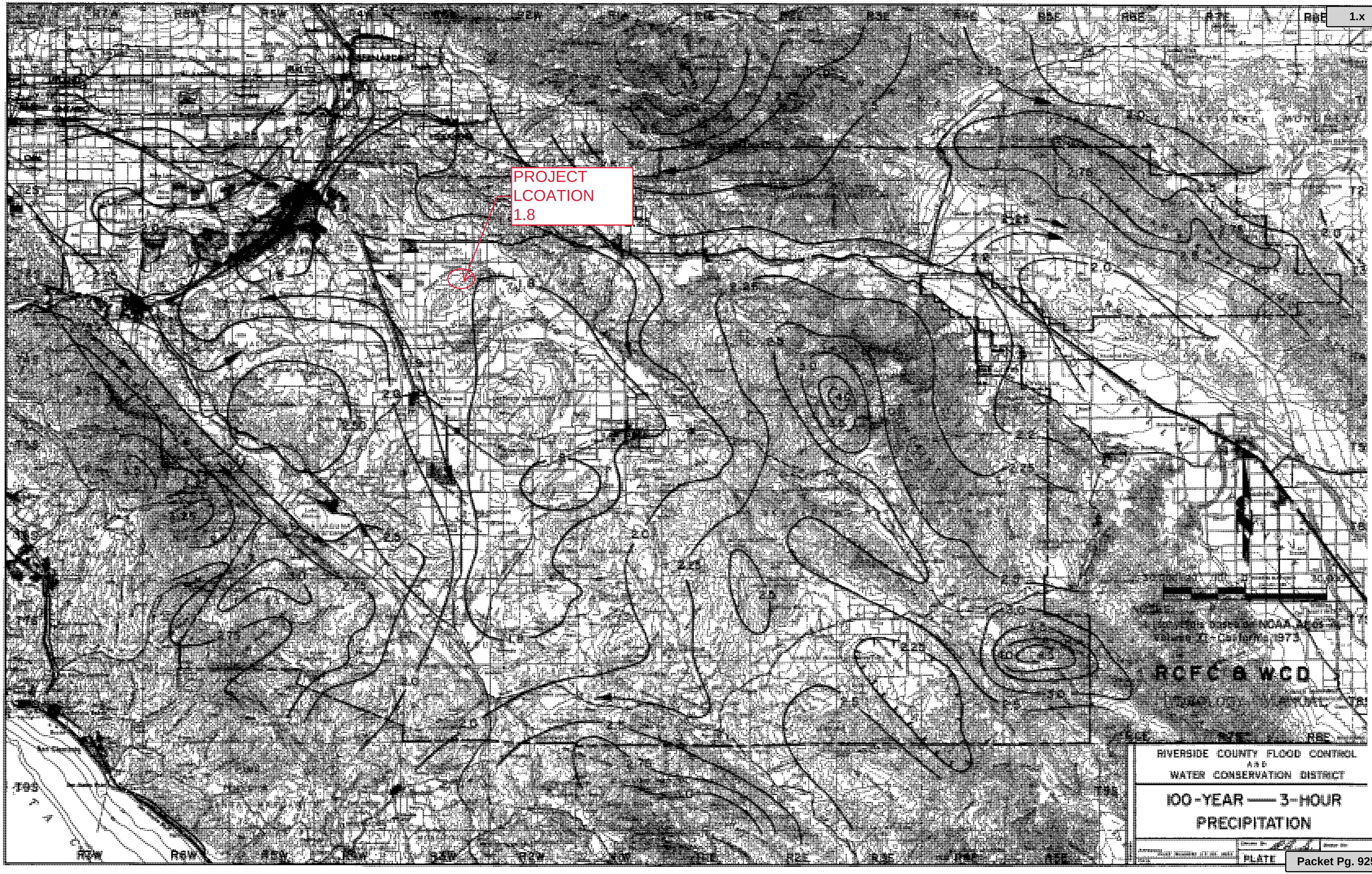
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
2-YEAR — 3-HOUR
PRECIPITATION
PLATE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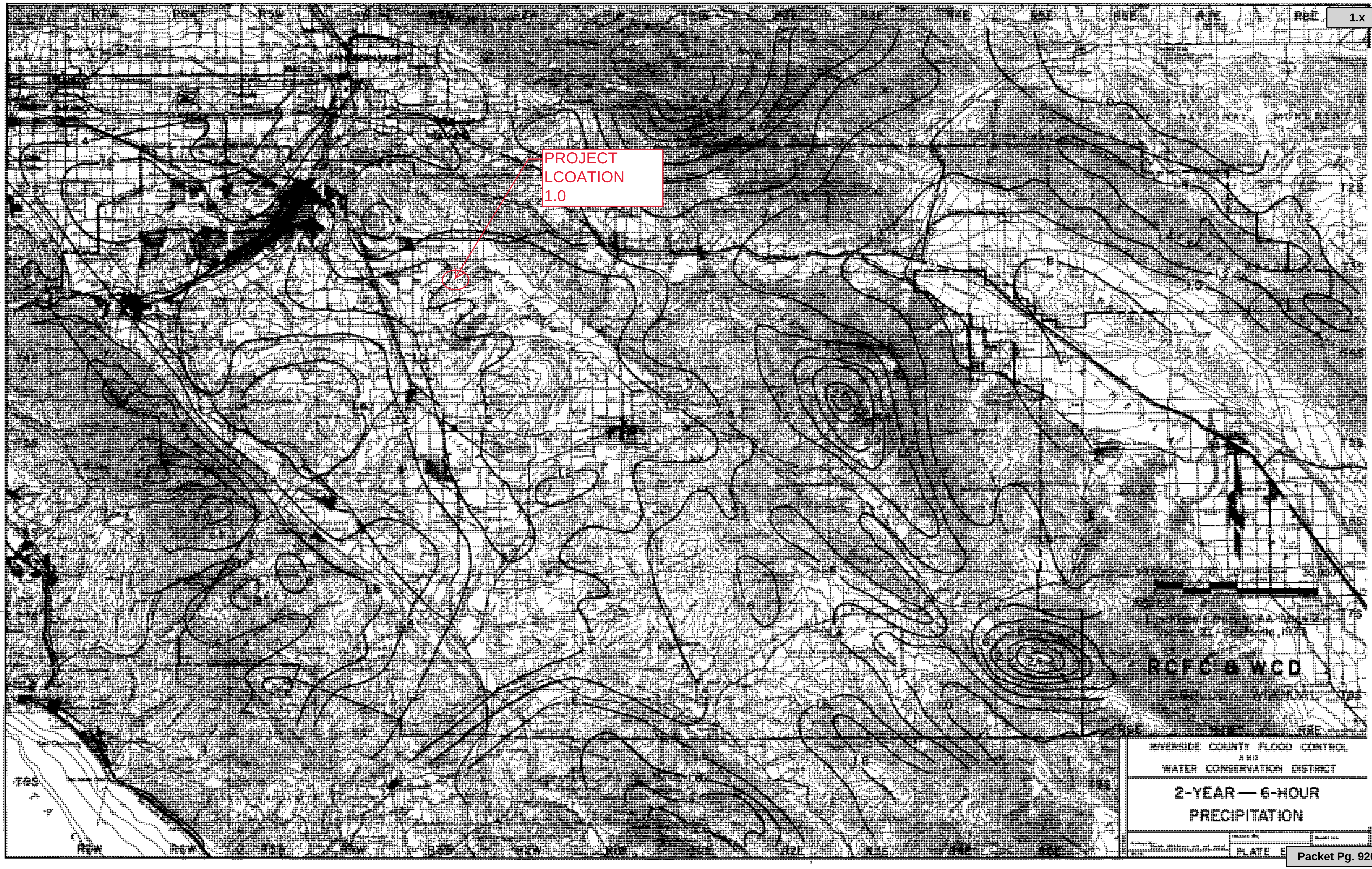
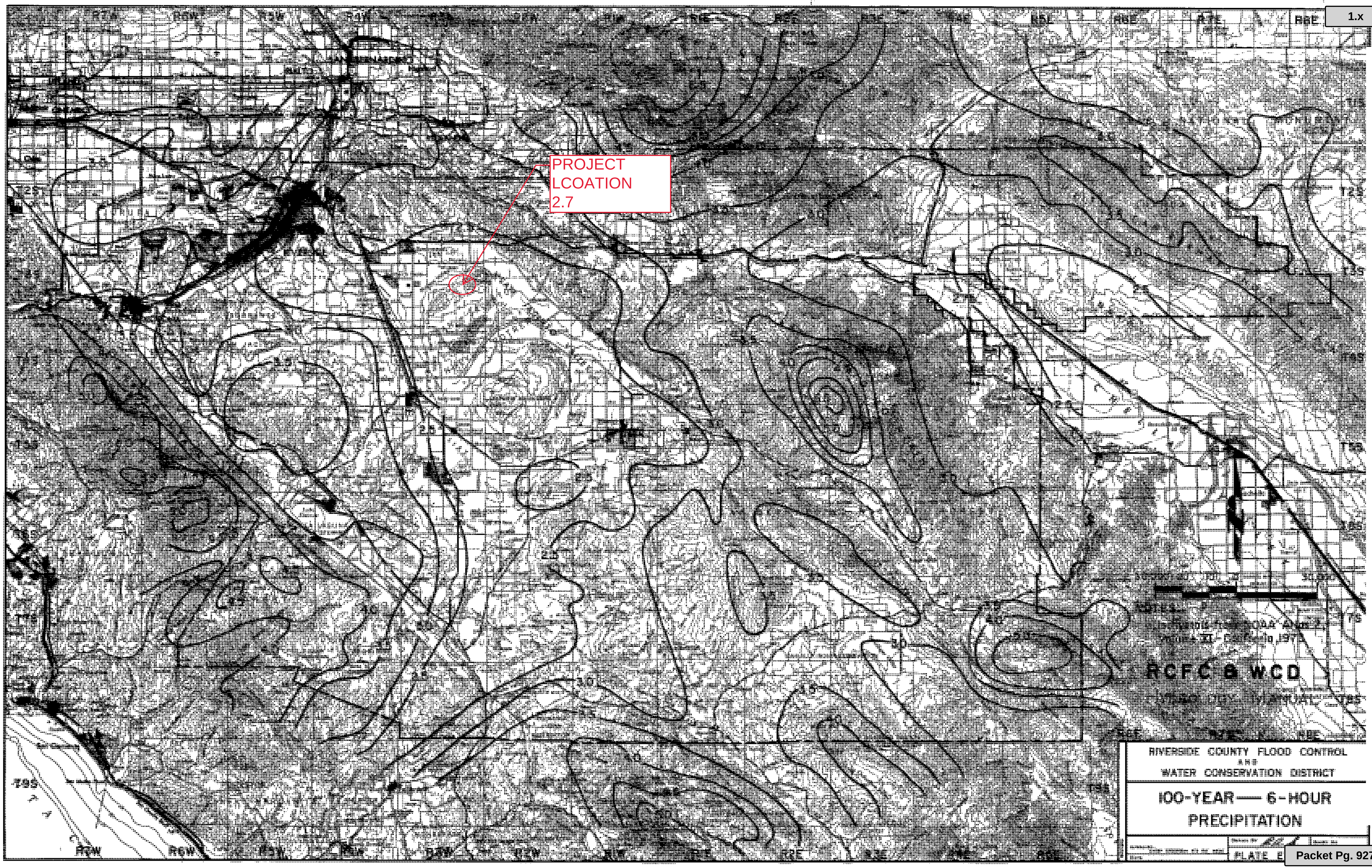
AND
WATER CONSERVATION DISTRICT
100-YEAR — 3-HOUR
PRECIPITATION
PLATE



Attachment: Hydrology Study [Revision 1] (3058 : Moreno Beach Commercial Center)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RCFC & WCD
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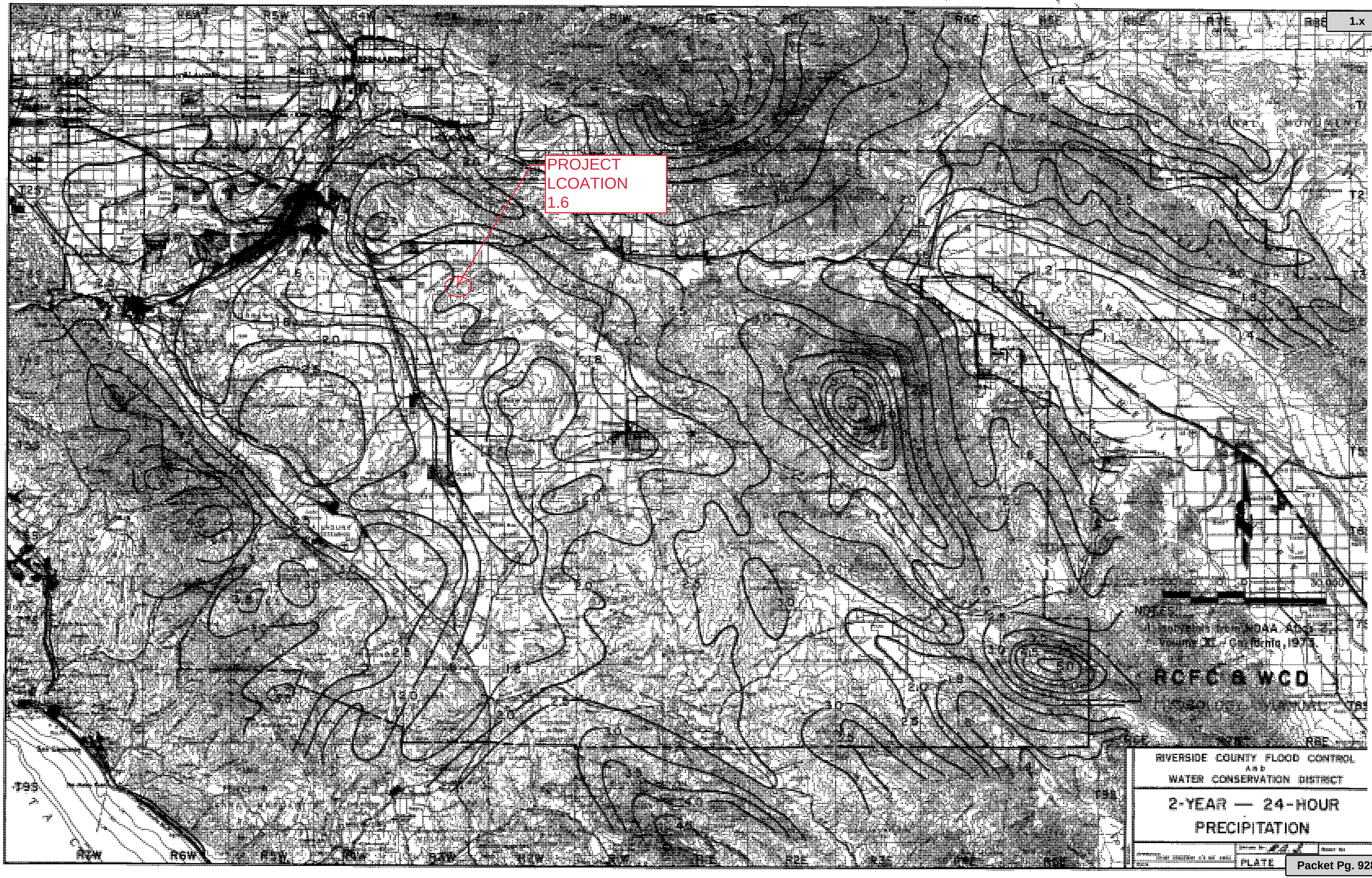
AND
WATER CONSERVATION DISTRICT
100-YEAR — 6-HOUR
PRECIPITATION



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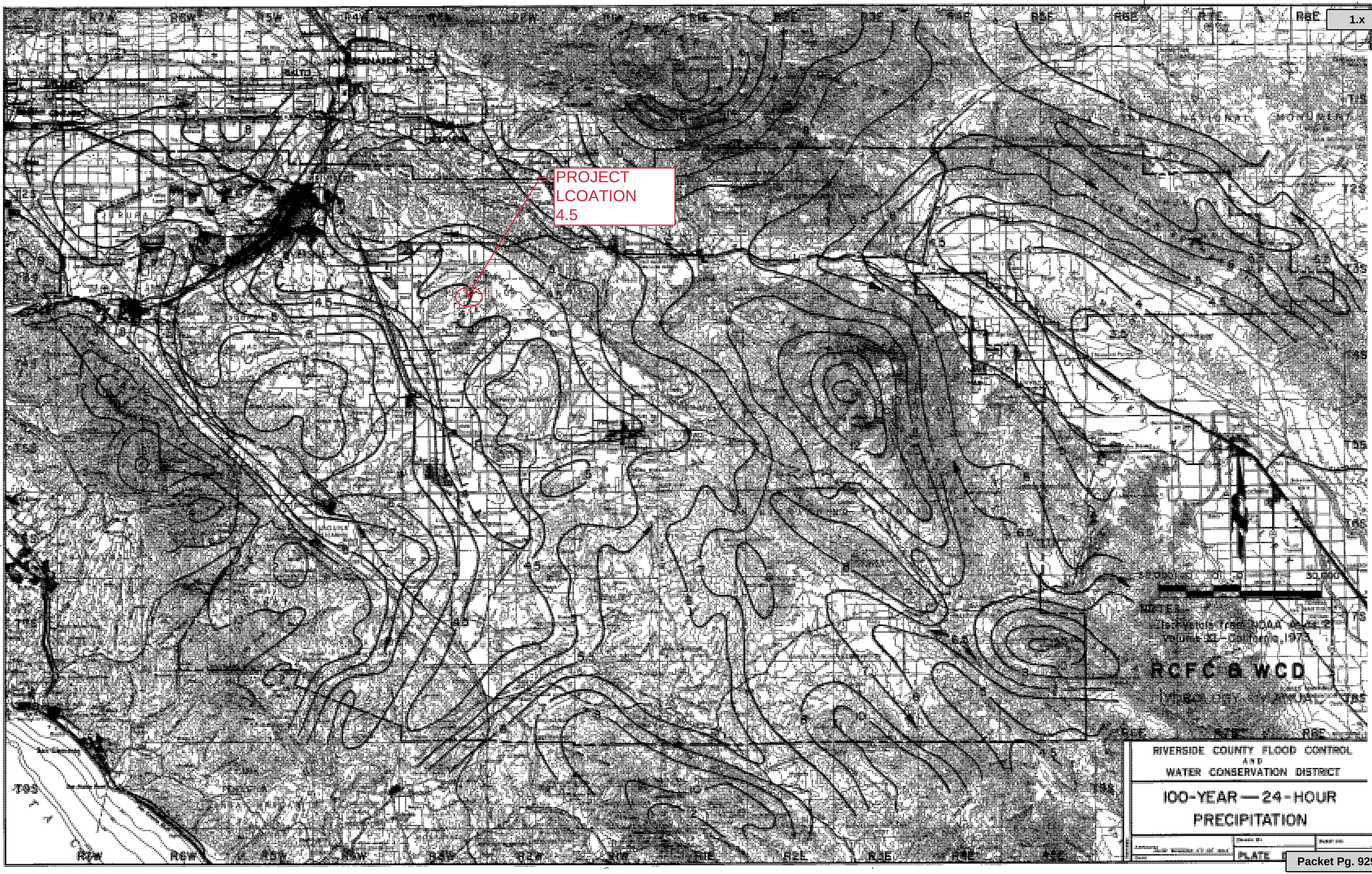

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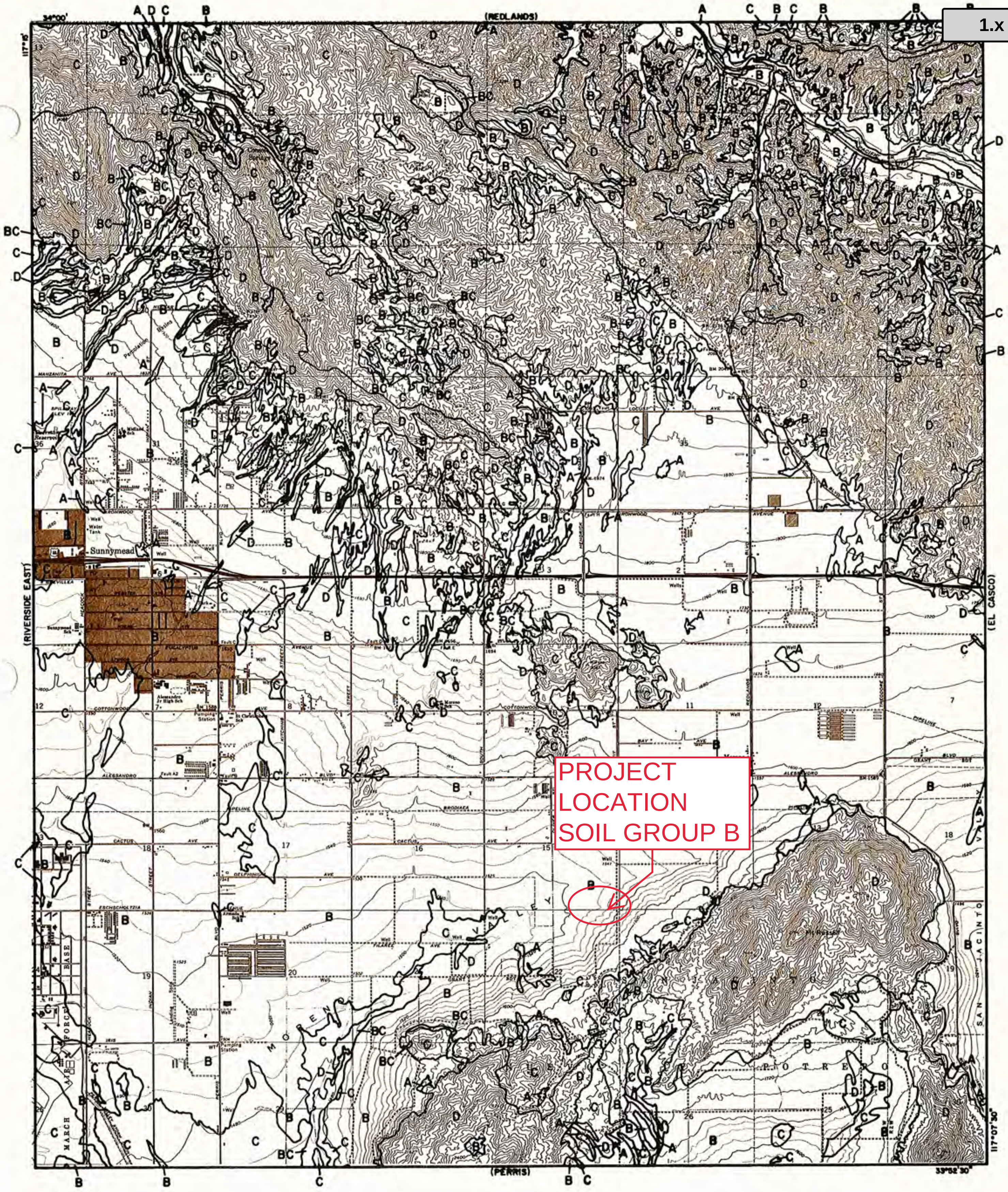


LEGEND

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

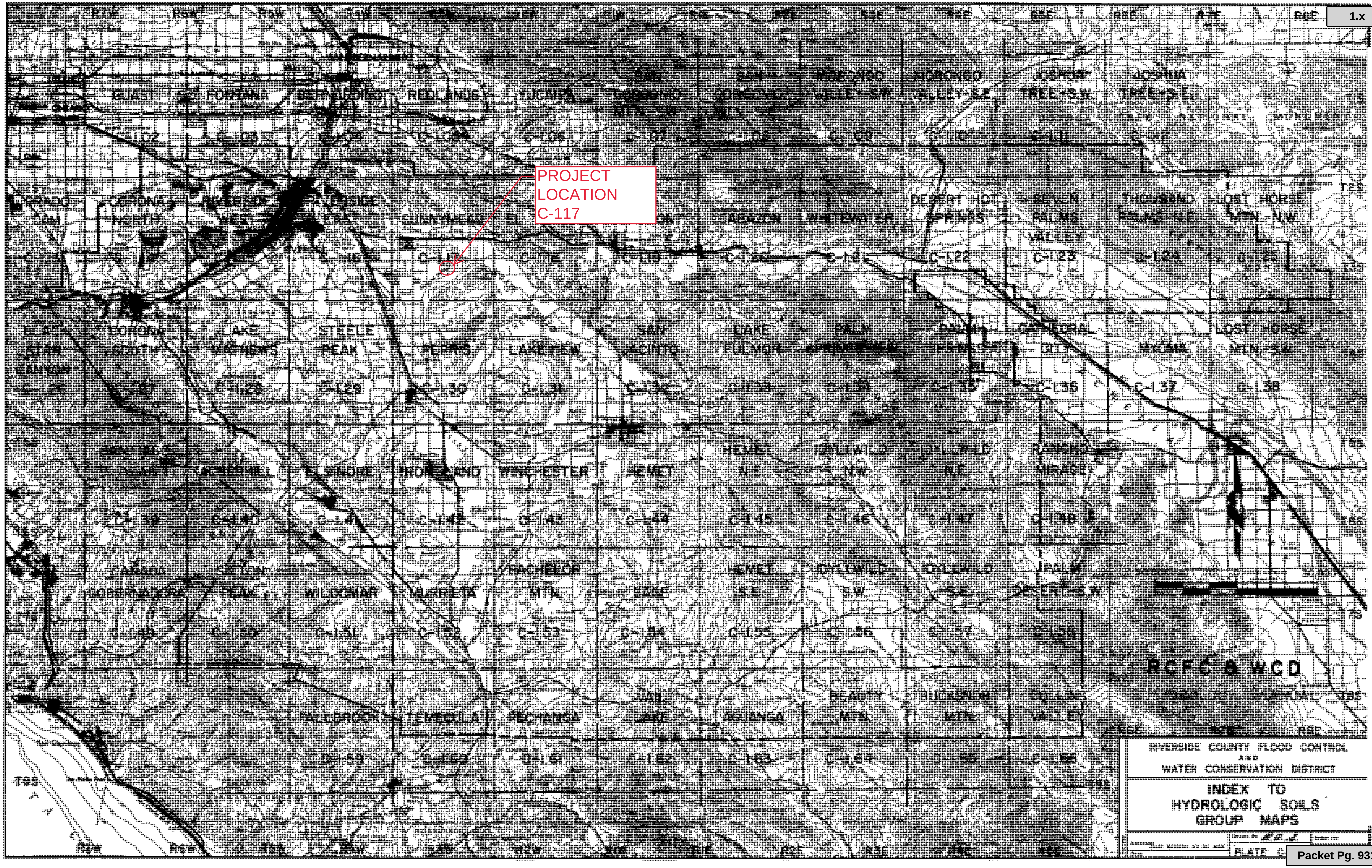
RCFC & WCD

HYDROLOGY MANUAL

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR SUNNYMEAD

PLATE C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FONTANA
REDLANDS
SAN GORGONIO MTN. S.W.
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JOSHUA TREE S.W.
JOSHUA TREE S.E.
C-102
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CORONA NORTH
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RIVERSIDE EAST
SUNNYMEAD
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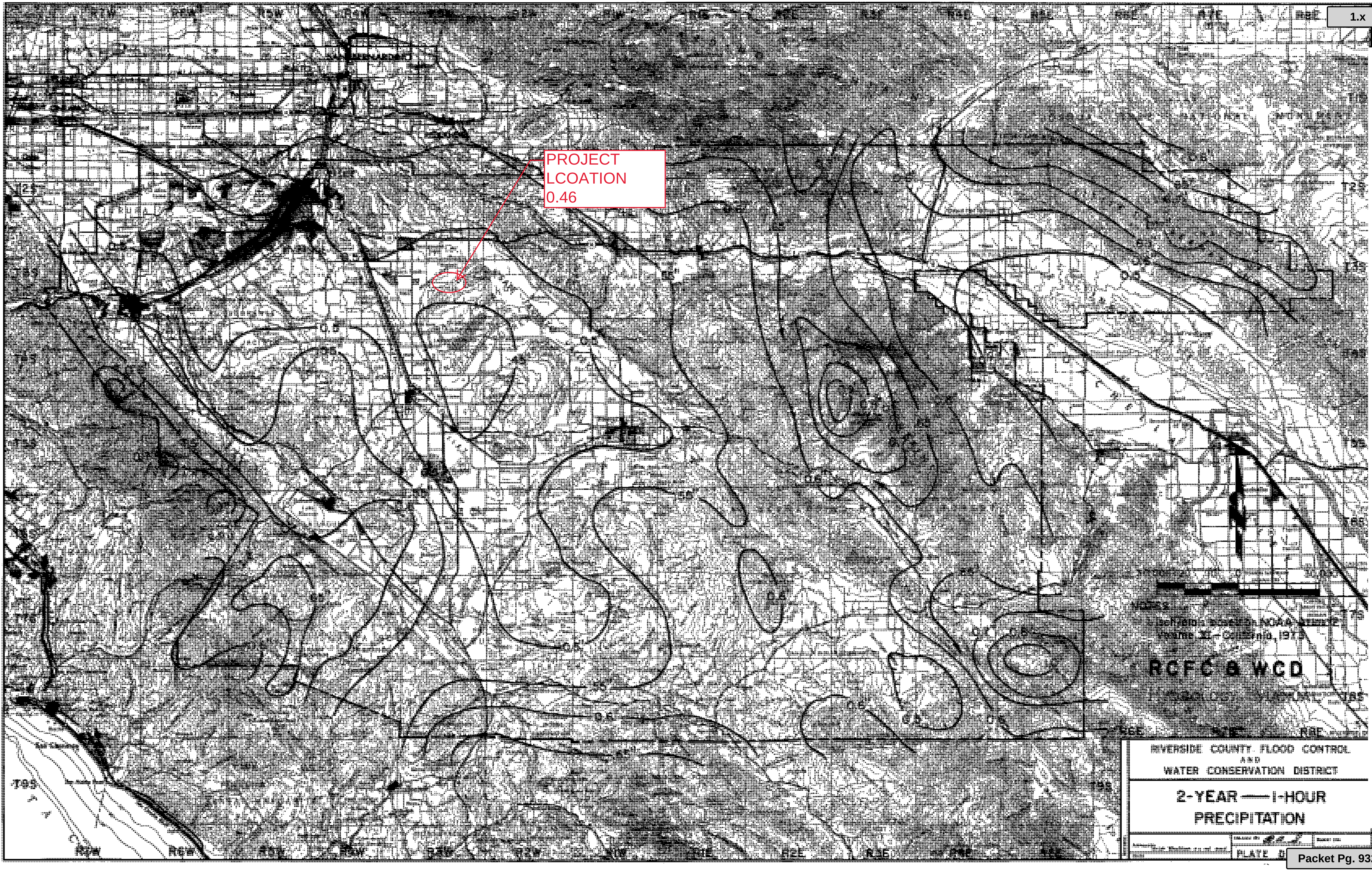
R C F C & W C D
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
INDEX TO
HYDROLOGIC SOILS
GROUP MAPS
PLATE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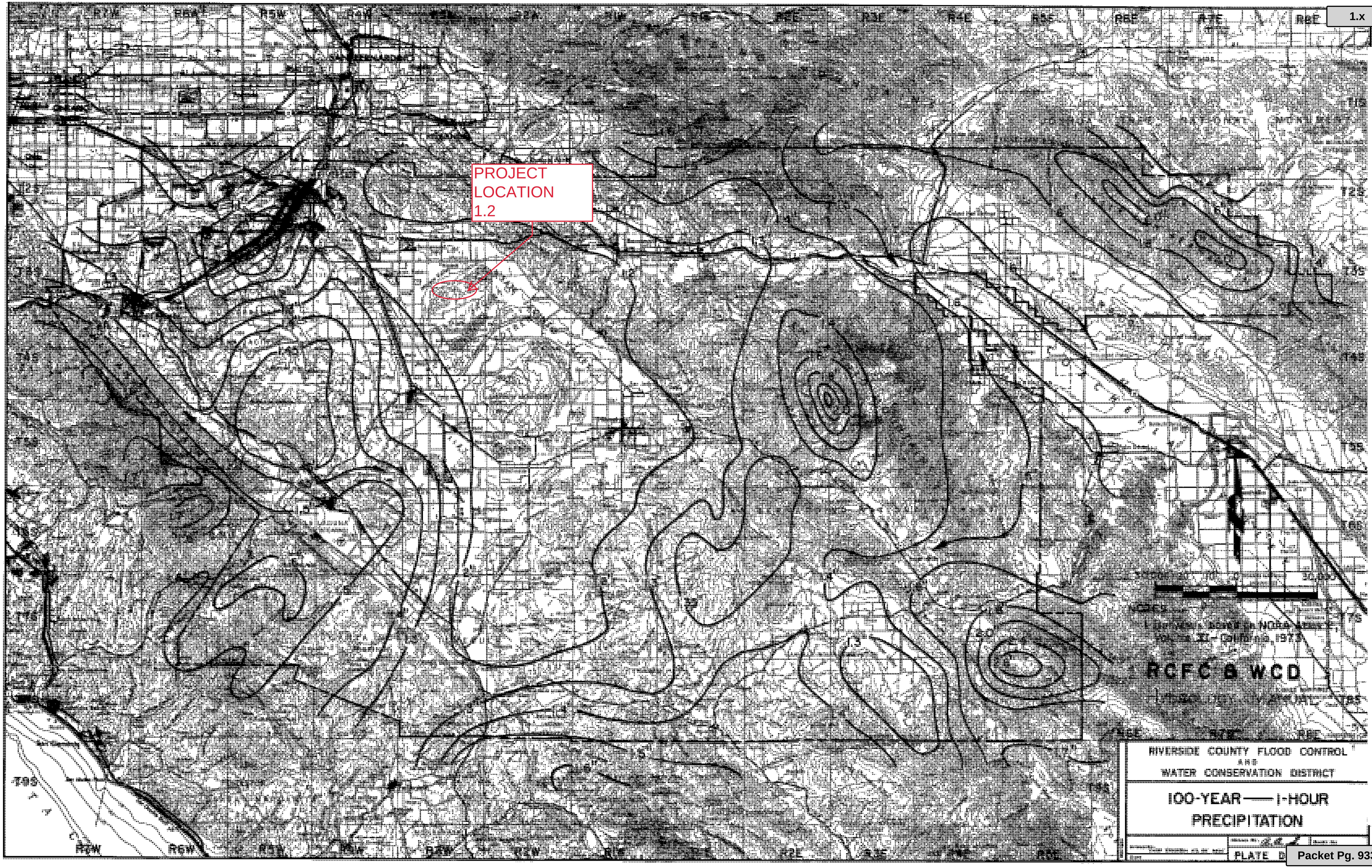
WATER CONSERVATION DISTRICT
2-YEAR — 1-HOUR
PRECIPITATION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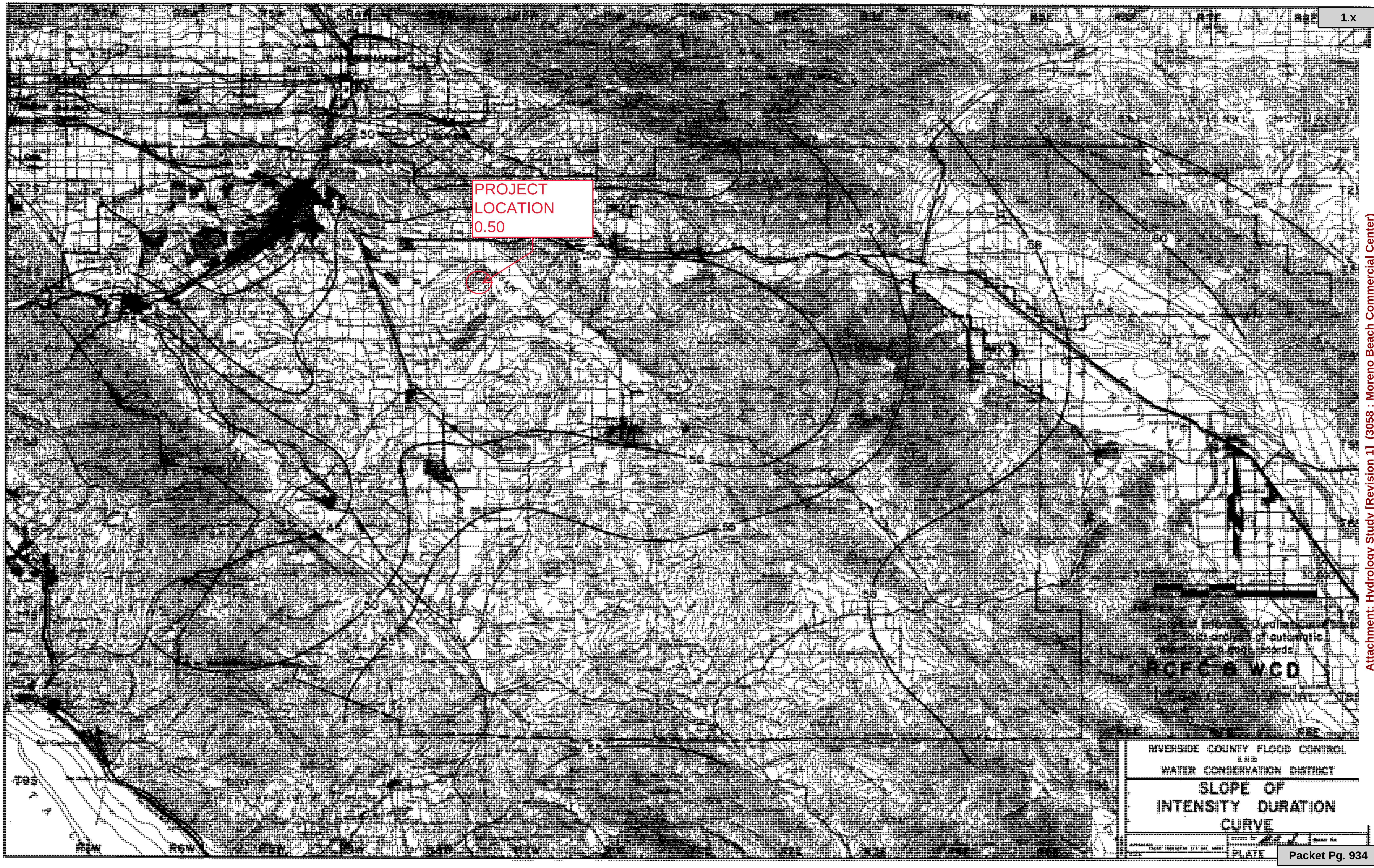
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 1-HOUR
PRECIPITATION
PLATE D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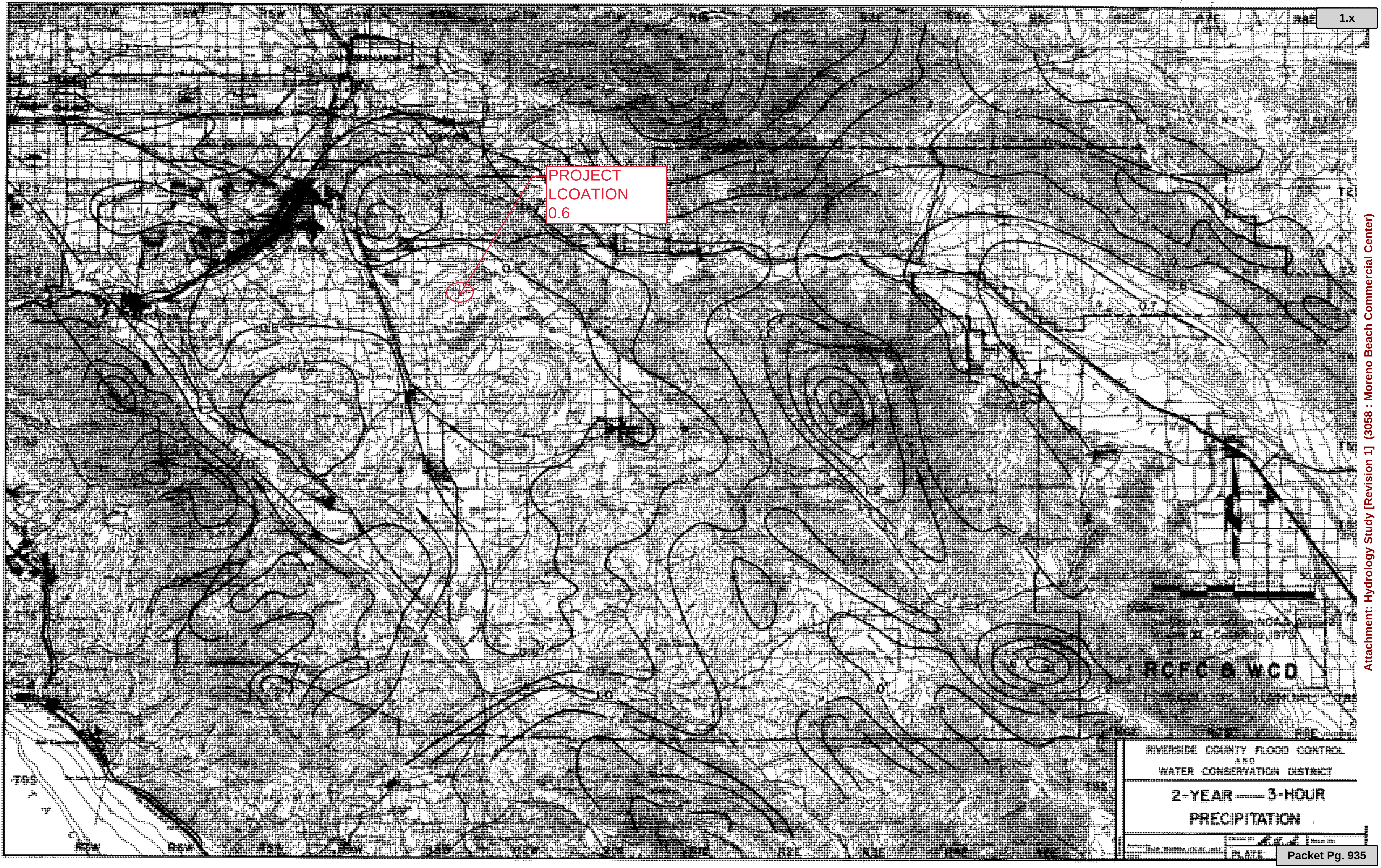
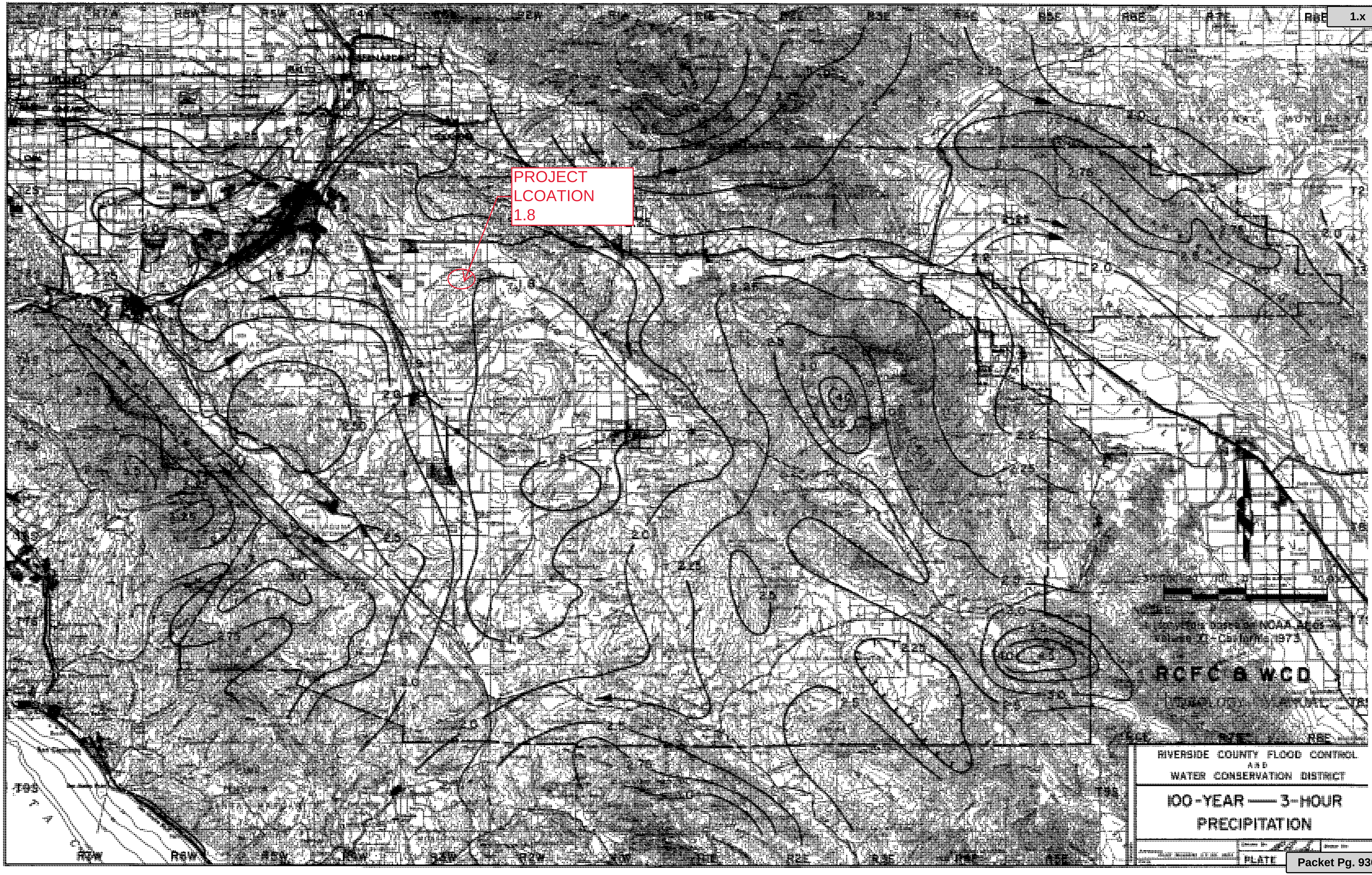
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
SLOPE OF
INTENSITY DURATION
CURVE
PLATE



Attachment: Hydrology Study [Revision 1] (3058 : Moreno Beach Commercial Center)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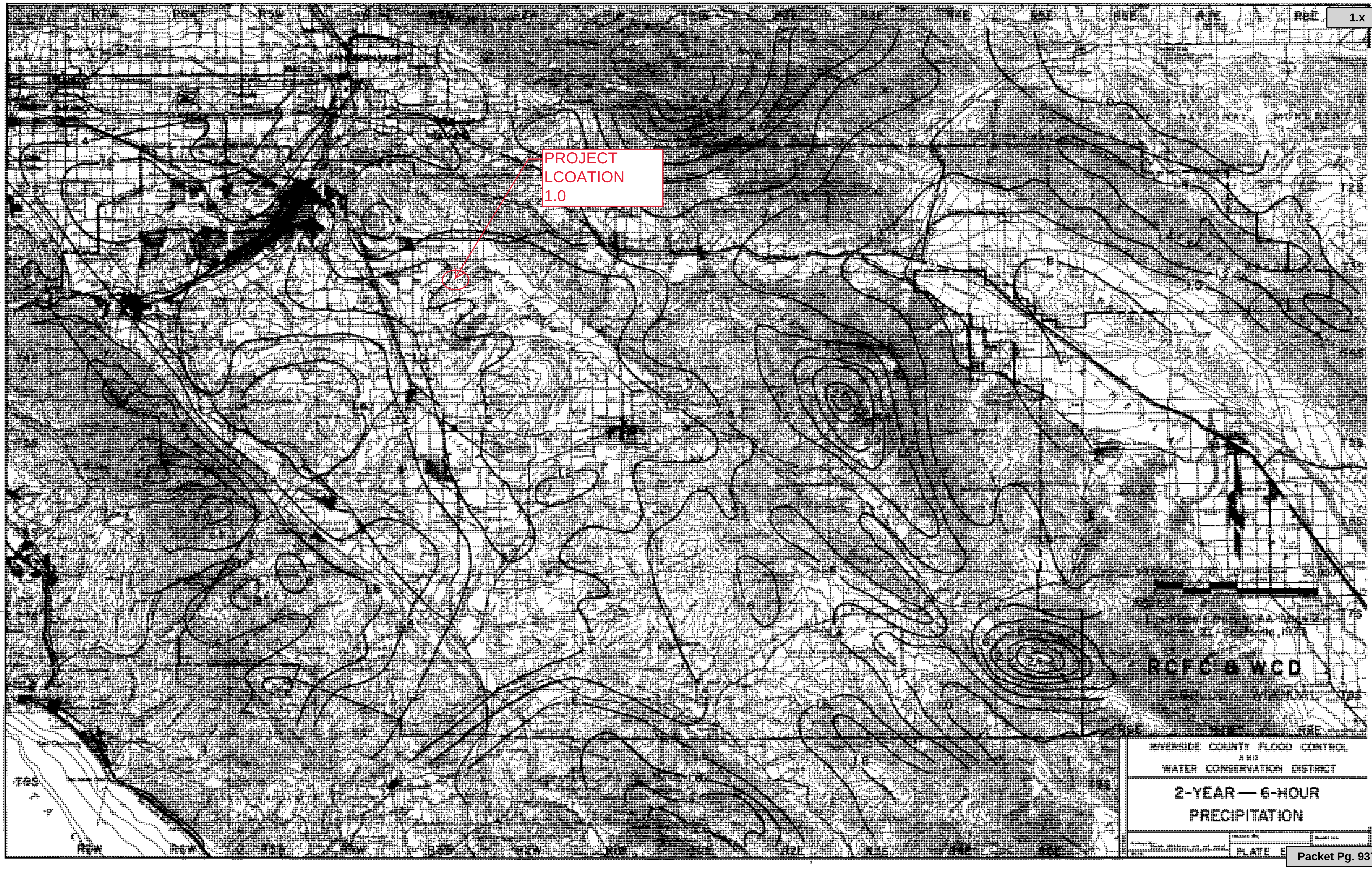
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 3-HOUR
PRECIPITATION
PLATE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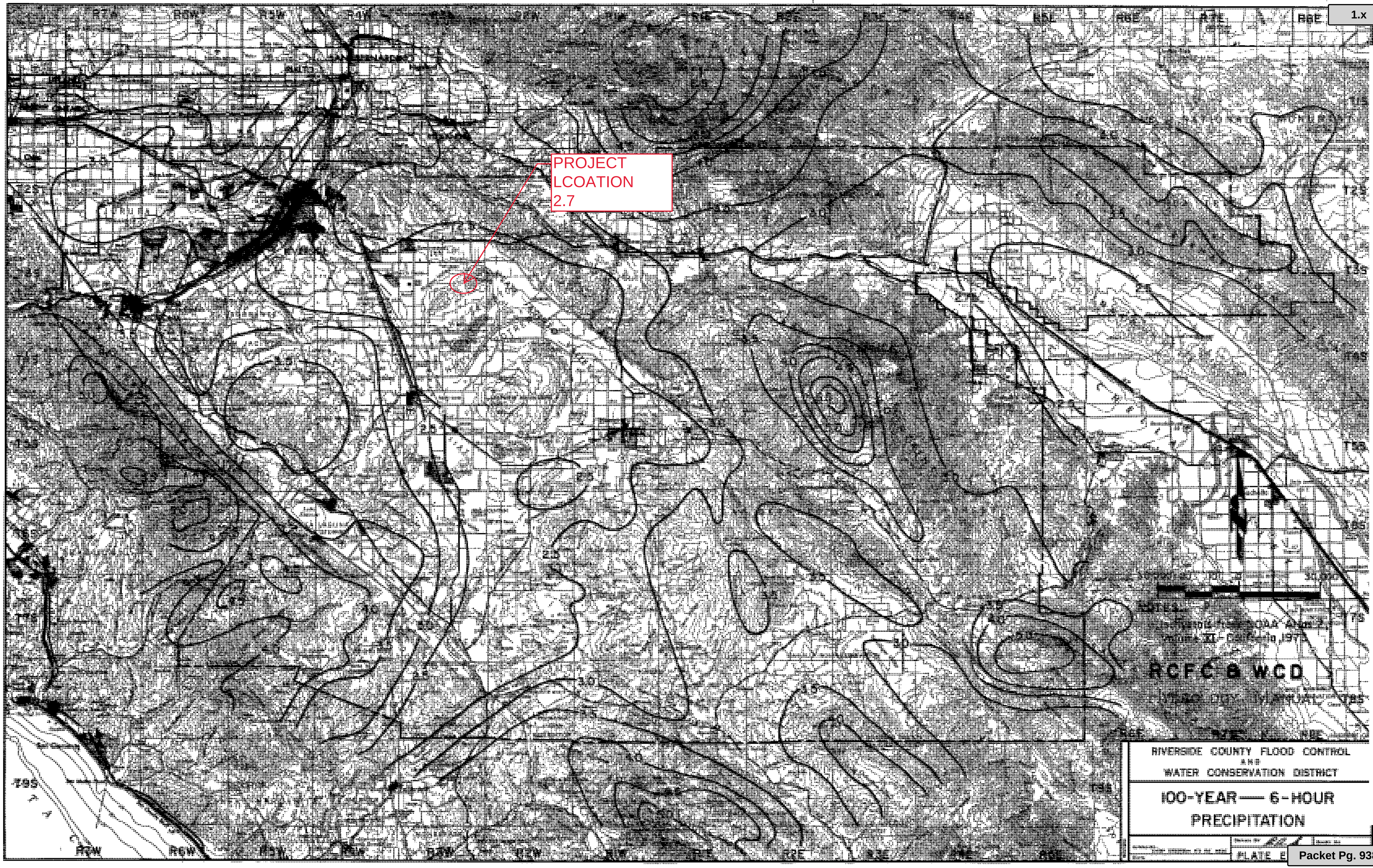
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
2-YEAR — 6-HOUR
PRECIPITATION
PLATE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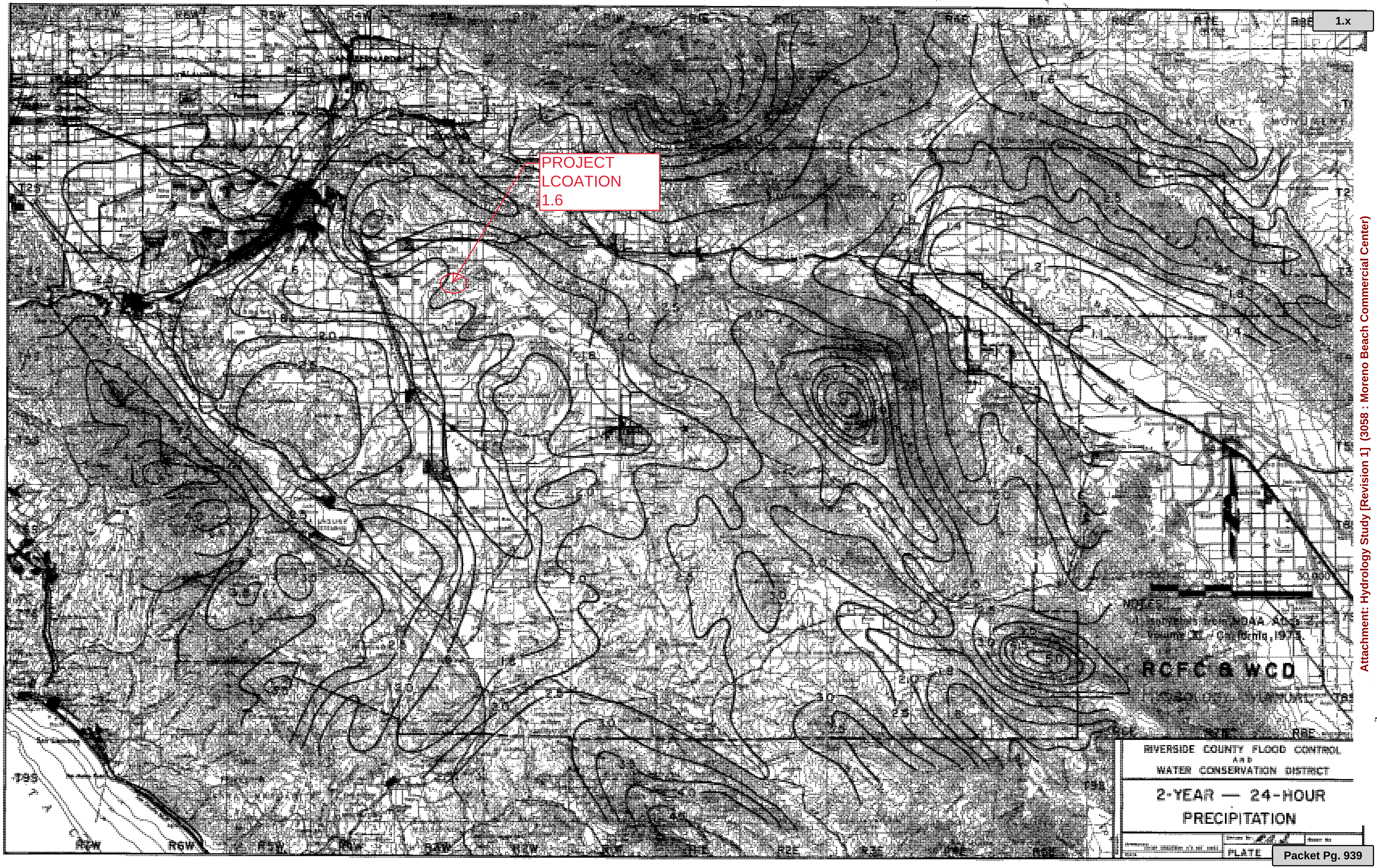
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 6-HOUR
PRECIPITATION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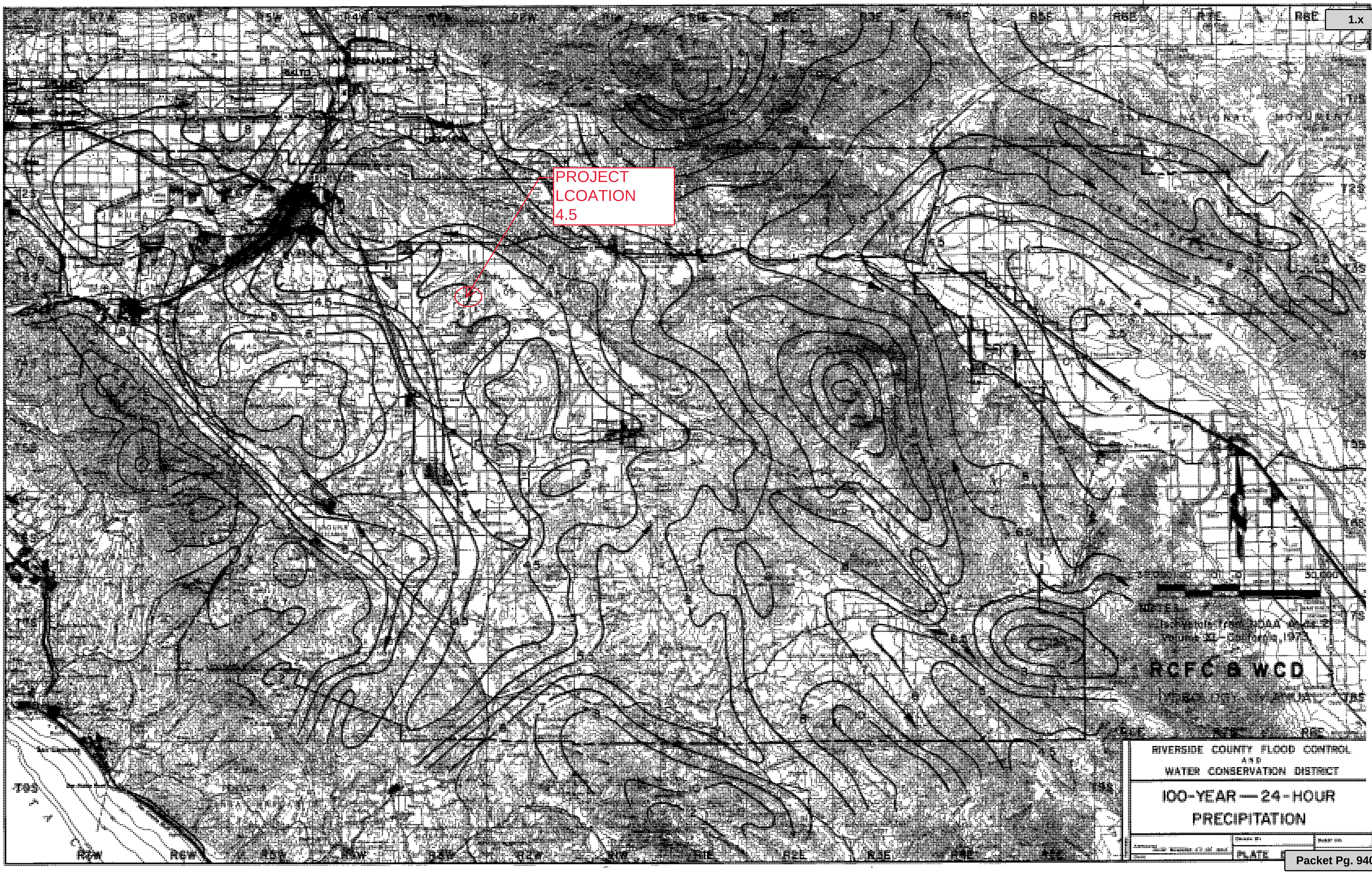
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
2-YEAR — 24-HOUR
PRECIPITATION
NOTES:
PLATE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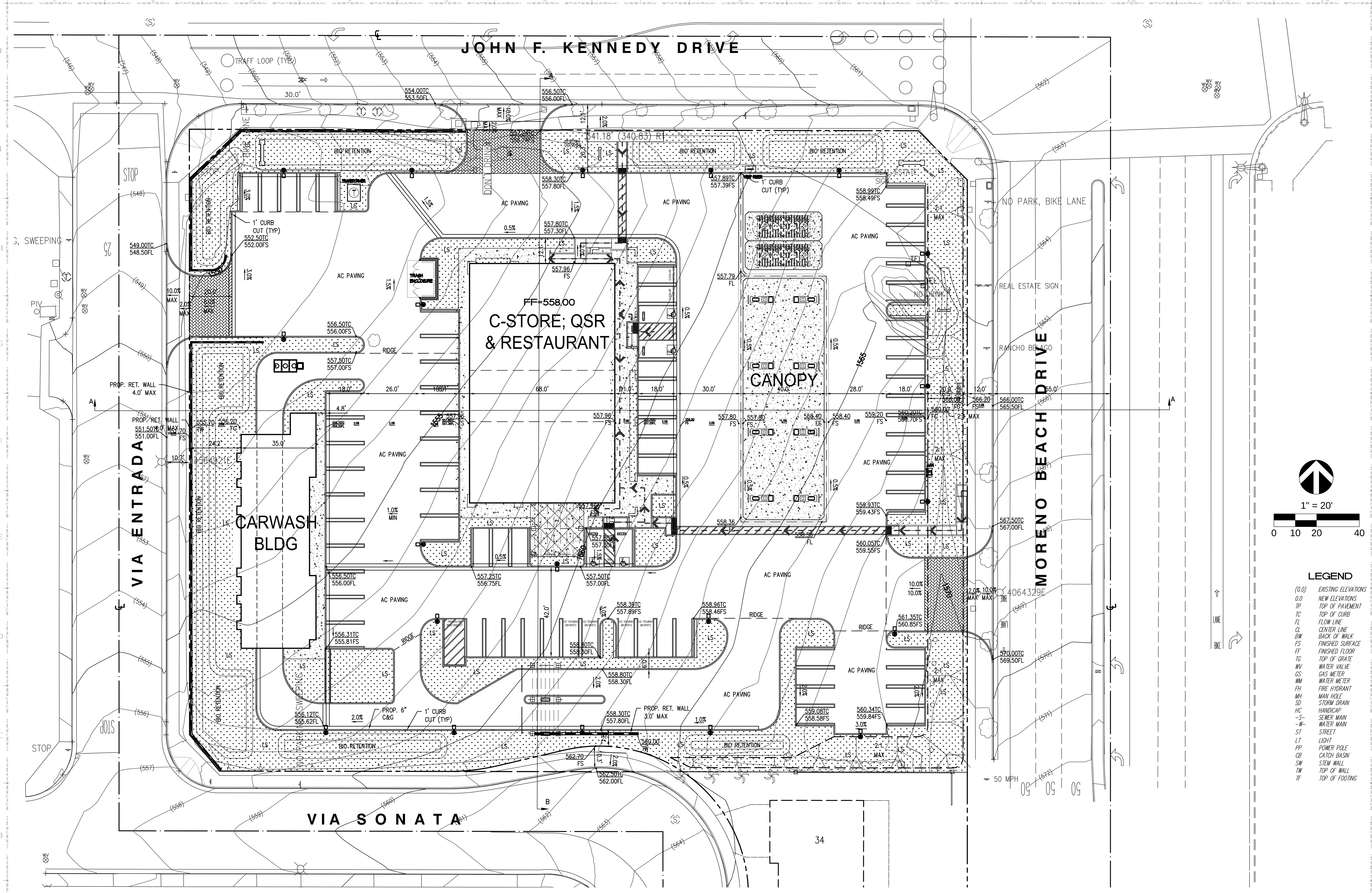
4.5
RCFC & WCD
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 24-HOUR
PRECIPITATION
PLATE

APPENDIX C

REFERENCE MAPS

1.x



LEGEND

(0.0)	EXISTING ELEVATIONS
0.0	NEW ELEVATIONS
TP	TOP OF PAVEMENT
TC	TOP OF CURB
FL	FLOW LINE
CL	CENTER LINE
BW	BACK OF WALK
FS	FINISHED SURFACE
FF	FINISHED FLOOR
TG	TOP OF GRATE
WV	WATER VALVE
GS	GAS METER
WM	WATER METER
FH	FIRE HYDRANT
MH	MAN HOLE
SD	STORM DRAIN
HC	HANDICAP
-S-	SEWER MAIN
-W-	WATER MAIN
ST	STREET
LT	LIGHT
PP	POWER POLE
CB	CATCH BASIN
SW	STEM WALL
TW	TOP OF WALL
TF	TOP OF FOOTING

KARAKI WSe

WESTERN STATES ENGINEERING
A DESIGN-BUILD COMPANY

4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

CONSULTANT/ SEALS

SUBMITTAL

NO. DESCRIPTION BY DATE
1
2
3
4

REVISIONS

NO. DESCRIPTION BY DATE

OWNER NAME & ADDRESS

ROYAL EXCEL ENTERPRISES

7033 CANOGA AVE #2
CANOGA PARK, CA 91303

PROJECT NAME & ADDRESS

76 GAS STATION
C-STORE / Q.S.R.
CARWASH

S.W.C. JFK & MORENO BEACH DRV
MORENO VALLEY, CA 92555

NOTE TO CONTRACTOR

CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES ON-SITE AND OFF-SITE PRIOR TO START OF CONSTRUCTION.

CONFIDENTIALITY STATEMENT

DESIGNED BY:

DRAWN BY:

CHECKED BY:

DATE DRAWN:

SCALE:

SHEET TITLE

PRELIMINARY
GRADING
PLAN

SHEET NUMBER

1 OF 2

JOB No E97617

CUP No -

APPENDIX D

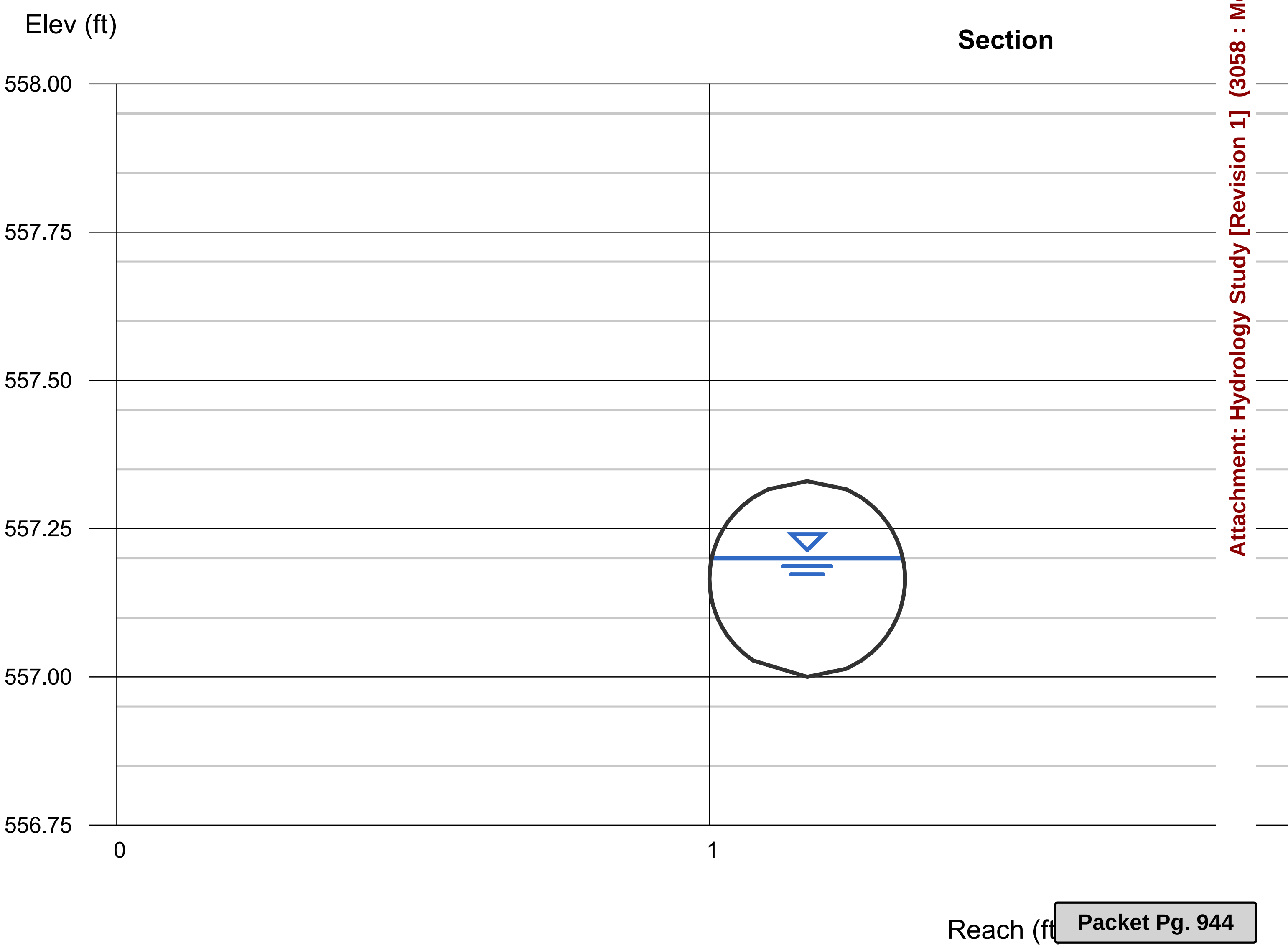
HYDRAULIC CALCULATIONS

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Sunday, Mar 4 2018

4 INCH CFS PIPE AT MAX CAPACITY

Circular		**Highlighted**	
Diameter (ft)	= 0.33	Depth (ft)	= 0.20
		Q (cfs)	= 0.120
		Area (sqft)	= 0.05
Invert Elev (ft)	= 557.00	Velocity (ft/s)	= 2.21
Slope (%)	= 1.00	Wetted Perim (ft)	= 0.59
N-Value	= 0.013	Crit Depth, Yc (ft)	= 0.20
		Top Width (ft)	= 0.32
Calculations		EGL (ft)	= 0.28
Compute by:	Known Q		
Known Q (cfs)	= 0.12		



APPENDIX E

RECORD PLANS

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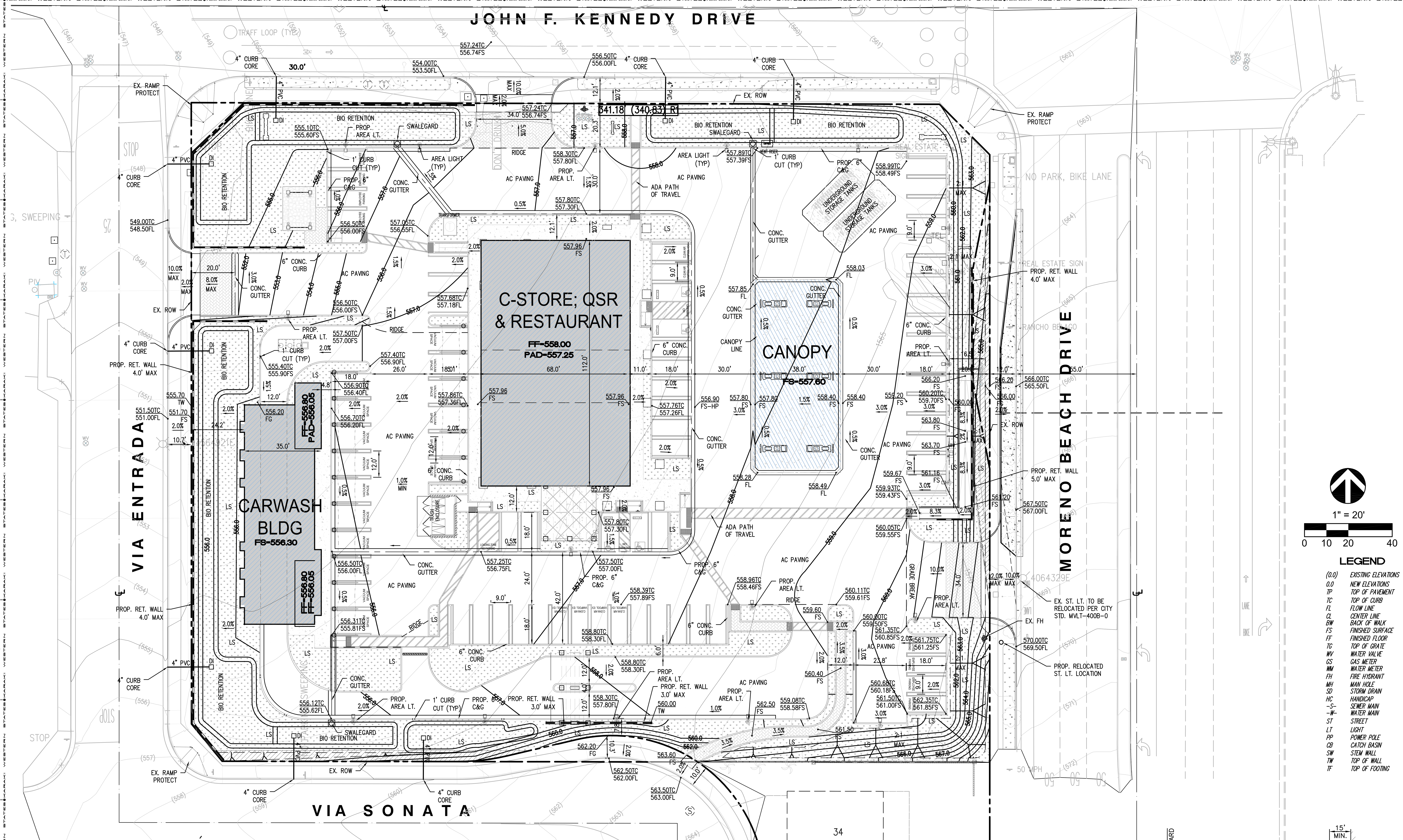
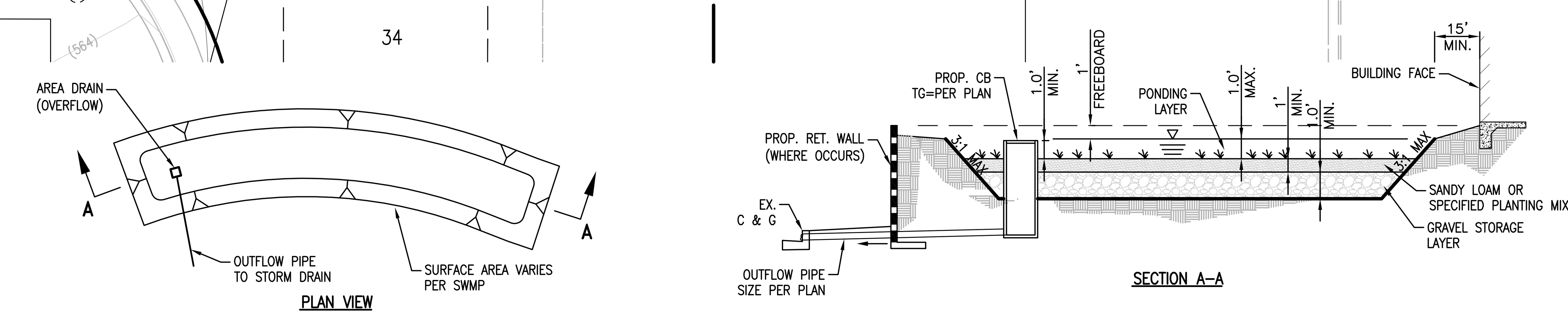


LEGEND

(0.0)	EXISTING ELEVATIONS
0.0	NEW ELEVATIONS
TP	TOP OF PAVEMENT
TC	TOP OF CURB
FL	FLOW LINE
CL	CENTER LINE
BW	BACK OF WALK
FS	FINISHED SURFACE
FF	FINISHED FLOOR
TG	TOP OF GRATE
WV	WATER VALVE
GS	GAS METER
WM	WATER METER
FH	FIRE HYDRANT
MH	MAN HOLE
SD	STORM DRAIN
HC	HANDICAP
—S—	SEWER MAIN
—W—	WATER MAIN
ST	STREET
LT	LIGHT
PP	POWER POLE
CB	CATCH BASIN
SW	STEM WALL
TW	TOP OF WALL
TF	TOP OF FOOTING



TYPICAL INFILTRATION BASIN DETAIL
NOT TO SCALE

KARAKI WSe
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REVISIONS

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PRELIMINARY
GRADING
PLAN

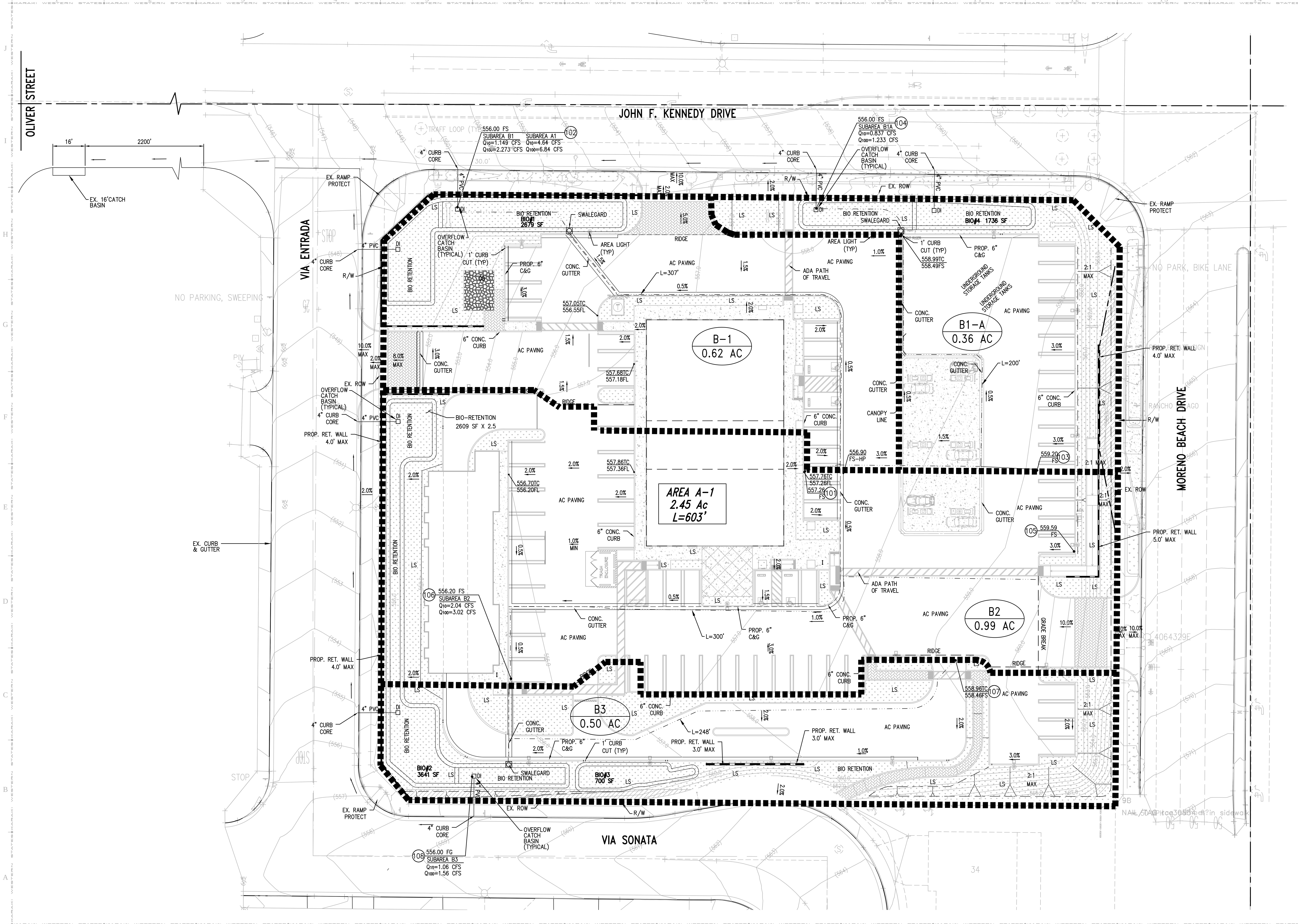
SHEET NUMBER

1 OF 1

JOB No	CUP No
E97617	-

APPENDIX F

HYDROLOGY EXHIBITS



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REGISTERED PROFESSIONAL ENGINEER
KAMAL B. MCHAMMAD
NO. C051050
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA

SUBMITTAL
NO. DESCRIPTION BY DATE

REVISIONS
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OWNER NAME & ADDRESS

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CARWASH

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MORENO VALLEY, CA 92555

NOTE TO CONTRACTOR

CONFIDENTIALITY STATEMENT

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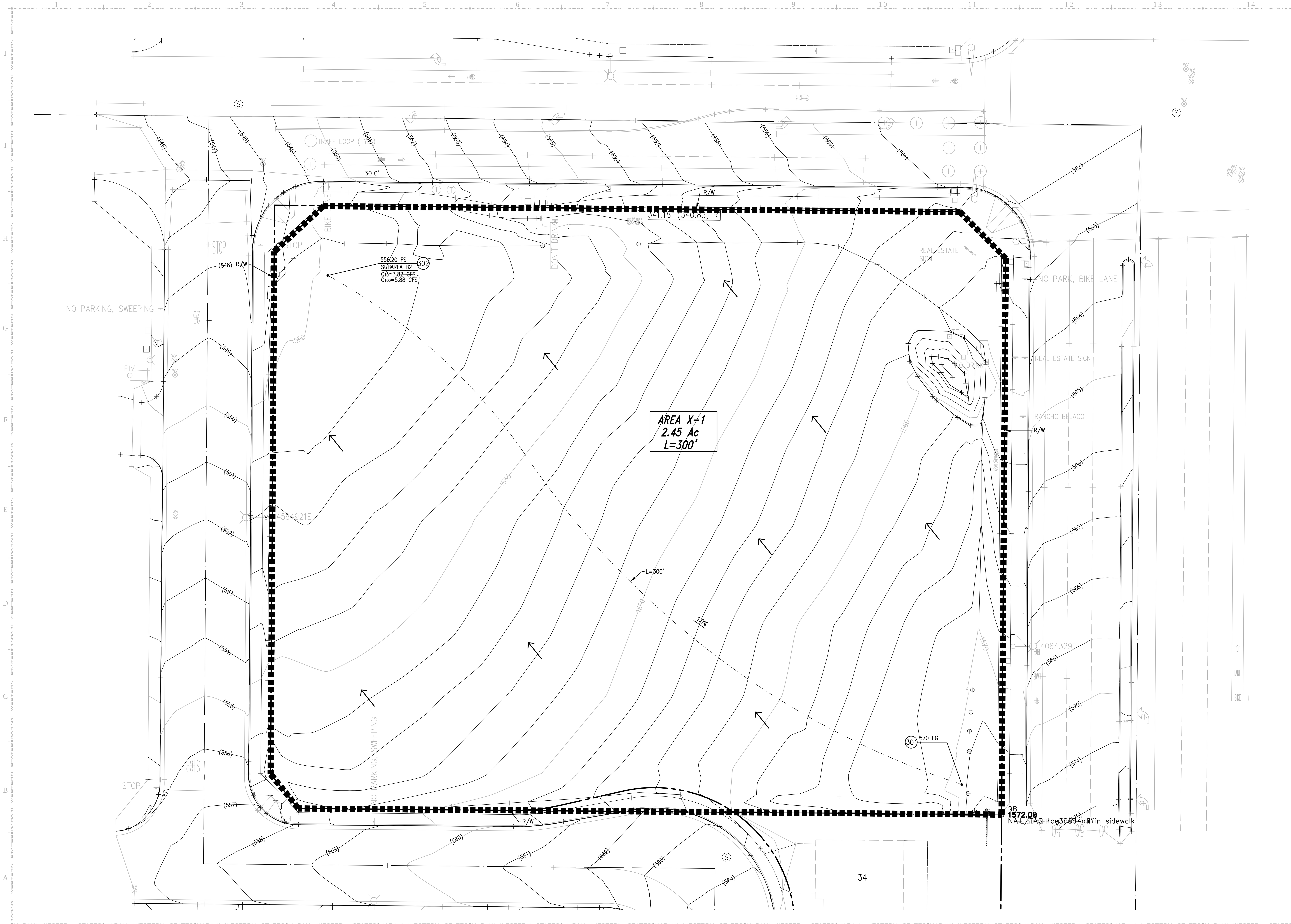
DATE DRAWN:
SCALE:

SHEET TITLE

PROPOSED
HYDROLOGY MAP

SHEET NUMBER

JOB No CUP No
E97617 1 - 1



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KARAKI WSe
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CONSULTANT/ SEALS

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KAMAL B. MCHAMTAF
NO. C051050
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA

SUBMITTAL

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DATE DRAWN:
SCALE:

SHEET TITLE

EXISTING
HYDROLOGY MAP

SHEET NUMBER

JOB No	CUP No
E97617	1 - 1

Attachment: Hydrology Study [Revision 1] [3058 : Moreno Beach Commercial Center]

APPENDIX G

GEOTECHNICAL REPORT

GEOBODEN, INC.
Geotechnical Consultants

December 12, 2017
Moreno Beach-1-01

Royal Excel Enterprises
7033 Canoga Avenue #2
Canoga Park, California 91303

Subject: **Infiltration/Percolation Testing for Stormwater Retention**
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

As requested, we have performed percolation/infiltration testing on the subject site in order to determine the infiltration potential of the surface soils. The percolation rates determined should be useful in assessing stormwater retention needs. It is our understanding that on-site stormwater retention will be required. It is proposed to collect the stormwater runoff within subsurface percolation swales/pits. This report presents the results of our study, discussion of our findings, and provides percolation rates for the subject system.

PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to determine the general percolation rates and physical characteristics of the onsite soils in order to provide design parameters for the proposed onsite infiltration system. Services provided for this study are in accordance with our agreement and consisted of the following:

- Site exploration consisting of the excavation and logging of three test holes;
- Percolation testing in the test holes (P-1, P-2 and P-3);
- Compilation of this report, which presents the results of our study and provides percolation rates for the design of an onsite infiltration system.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The site is located at southwest corner of John F. Kennedy and Moreno Beach Drive in Moreno Valley, California. The proposed project will consist of a 76 Gas Station with associated improvements. Further information regarding proposed development and test hole locations is shown on Figure 1, Percolation Test Holes Location Map.

5 Hodgenville | Irvine, CA 92620 | Off 949-872-9565 | Fax 949-743-2935

FIELD INVESTIGATION

Our field investigation consisted of excavating three shallow exploratory test holes, which were also used as percolation test holes. Hollow-stem drilling equipment was used to excavate the exploratory test holes. An engineer logged and observed the test holes excavations. Soil classification was based on visual observation. The approximate locations of the exploratory and percolation test holes are shown on Figure 1 (Percolation Test Holes Location Map). Logs of the exploratory test holes are presented in Appendix A.

SUBSURFACE SOILS CONDITIONS

SOIL PROFILE

The soils encountered within our test holes consisted of native soil materials. Native soils encountered within the exploratory test holes consisted primarily of silty sand and sand with gravel. A more detailed description of these materials is provided in the exploratory test holes logs included in the enclosed Appendix A. Soils encountered were classified according to the Unified Soil Classification System (USCS).

GROUNDWATER

Groundwater was not encountered within the exploratory test holes to the maximum explored depth of 5 feet below ground surface (bgs). Based on information from the Department of Water Resources, Water Data Library, ground water level in the site vicinity is at a depth of greater than 50 feet beneath the existing ground surface. Fluctuations of the groundwater table, localized zones of perched water, and rise in soil moisture content should be anticipated during the rainy season. Irrigation of landscaped areas can also lead to an increase in soil moisture content and fluctuations of intermittent shallow perched groundwater levels.

PERCOLATION TESTING AND PROCEDURE

Percolation testing was performed to assess the general percolation rates of the onsite soils for the design of an onsite infiltration system.

The continuous pre-soak (falling-head) test procedure was utilized for testing. Water was allowed to presoak in each test hole prior to obtaining test readings. Following the presoak period, the drop in water level in each hole was monitored every 10 minutes to determine the appropriate method for testing. Test holes were refilled following each reading or when the water depth was below 6 inches. Test times ranged from 120 minutes. The drop in water level was recorded to the nearest $1/10^{th}$ inch to produce conservative water level readings.

SUMMARY OF INFILTRATION TEST RESULTS

Tests results are summarized below:

Test Hole No.	Rate (Inch/Hour)
1	2.5
2	2.5-3
3	3-3.5

Based on the obtained field data, 2.5 inches per hour should be utilized in the design of the proposed onsite drain system. The base of the system should be founded into natural soils.

It should be noted that the infiltration rates determined are ultimate rates based upon field test results. An appropriate safety factor should be applied to account for subsoil inconsistencies and potential silting of the percolating soils. The safety factor should be determined with consideration to other factors in the storm water retention system design (particularly stormwater volume estimates) and the safety factors associated with those design components.

The Storm water Manager's Resource Center (SMRC) web site (http://www.stormwatercenter.net/) includes guidelines for disposal of storm water with respect to setback of structures. It is included in the criteria that infiltration facilities should be setback 10 feet down-gradient from structures. In order to avoid potential adversely impacting any existing structures, we recommend that any infiltration system be kept a horizontal distance of at least 10 feet from the edge of new building and the property line.

LIMITATIONS

The findings and recommendations of this report were prepared in accordance with generally accepted professional engineering and engineering geologic principals and practice within our opinion at this time in Southern California. Our conclusions and recommendations are based on the results of the field investigations, combined with an interpolation of subsurface conditions between and beyond exploration locations.

As the project evolves, our continued consultation and construction monitoring should be considered. GeoBoden should review plans and specifications to ensure the recommendations presented herein have been appropriately interpreted, and that the design assumptions used in this study are valid. Where significant design changes occur, GeoBoden may be required to augment or modify these recommendations. Subsurface conditions may differ in some locations from those encountered in the explorations, and may require additional analyses and/or modified recommendations. This report was written for Client, and the design team members, and only for the proposed development described herein. We are not responsible for technical interpretations made by others, or exploratory information that has not been described or documented in this report. Specific questions or interpretations concerning our findings and conclusions may require written clarification.

We appreciate the opportunity to provide service to you on this project. If you have questions regarding this letter or the data included, please contact the undersigned.

Sincerely,
GEOBODEN, INC.

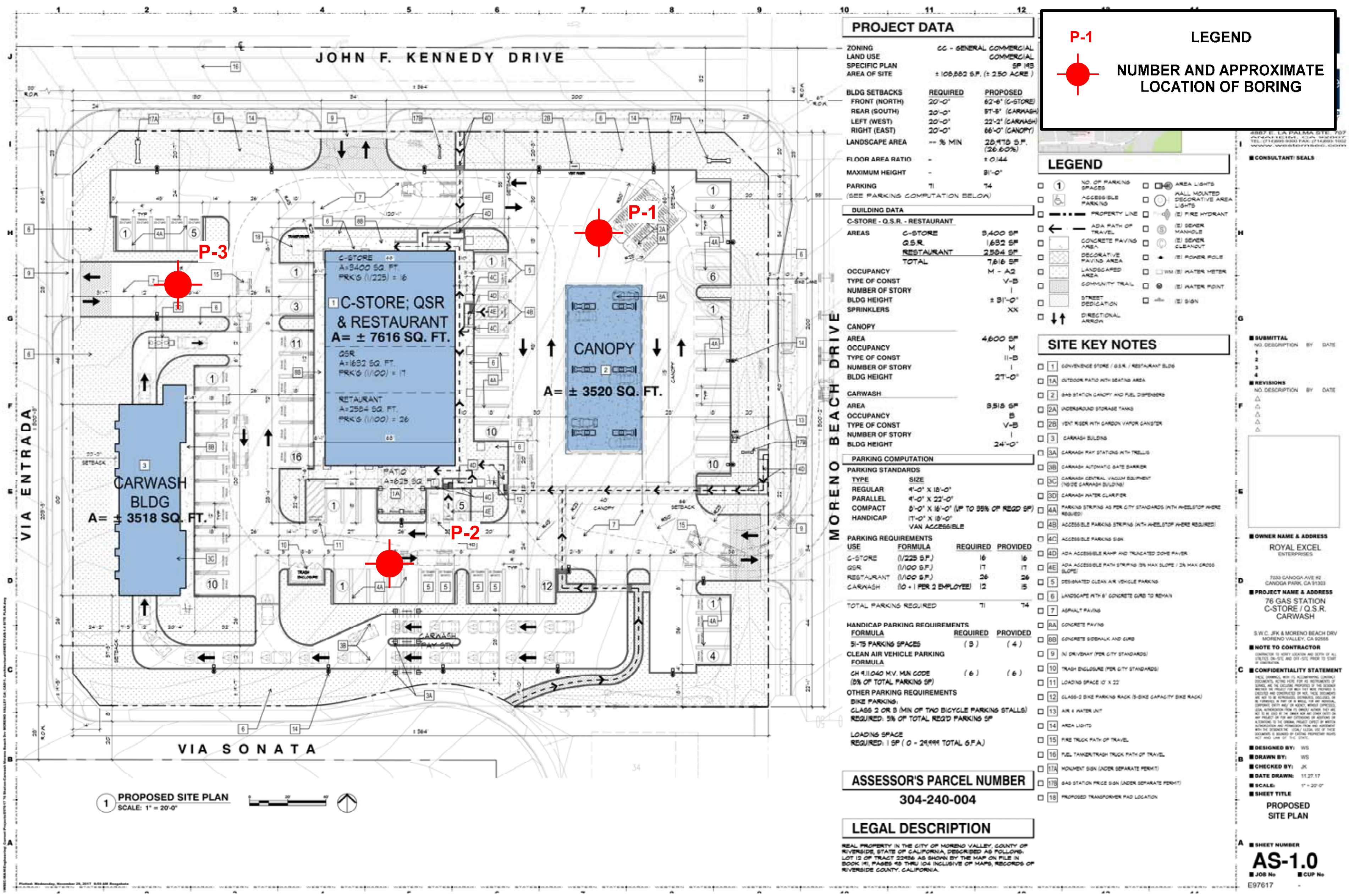
REGISTERED PROFESSIONAL ENGINEER
SHAHROKH E. RADVAR
2742
GEOTECHNICAL
STATE OF CALIFORNIA

Cyrus Radvar
Principal Engineer, G.E. 2742

Copies: 3/Addressee

Attachments:

Figure 1 – Percolation Test Holes Location Map
Appendix A – Test Holes Logs



GEOBODEN INC.

Geotechnical Consultants

PERCOLATION BORING LOCATION PLAN
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

Figure By S.R.	Project No.
Map No. XX	Figure No.
Date	

GEO-ETKA, INC.

BORING NUMBER P-1

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-2-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 12/10/17 **COMPLETED** 12/10/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0.0		SAND w. SILT (SP-SM): light gray, dry										
2.5												
5.0												

Bottom of borehole at 5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 5.0 feet.

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 12/12/17 11:12 - C:\PASSPORT\GBI\76 GAS STATION-JFK & MORENO BEACH DRIVE\PERCOLATION\LOGS.GPJ

Attachment: Hydrology Study [Revision 1] (3058 : Moreno Beach Commercial Center)

GEO-ETKA, INC.

BORING NUMBER P-2

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-2-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 12/10/17 **COMPLETED** 12/10/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT
0.0		POORLY-GRADED SAND w. SILT (SP-SM): olive, dry										
2.5												
5.0												

Bottom of borehole at 5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 5.0 feet.

GEO-ETKA, INC.

BORING NUMBER P-3

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-2-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 12/10/17 **COMPLETED** 12/10/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0.0		SILTY SAND (SM): olive gray, dry										
2.5												
5.0												

Bottom of borehole at 5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 5.0 feet.

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE

Moreno Valley, California

Prepared for:
ROYAL EXCEL ENTERPRISES

Prepared by:
GEOBODEN INC.
Irvine, CA 92620

December 8, 2017

Project No. Moreno Beach-1-01

GEOBODEN INC.

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

ROYAL EXCEL ENTERPRISES

Prepared by:

GEOBODEN INC.
5 Hodgenville
Irvine, California 92620

December 8, 2017

JOB NO. Moreno Beach-1-01

GEOBODEN, INC.
Geotechnical Consultants

December 8, 2017 Project No. Moreno Beach-1-01

Royal Excel Enterprises
7033 Canoga Avenue #2
Canoga Park, California 91303

Subject: Geotechnical Investigation Report
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

GeoBoden, Inc. (GeoBoden) is pleased to submit herewith our geotechnical investigation report for the Proposed 76 Gas Station to be constructed at southwest corner John F. Kennedy in the city of Moreno Valley, California.

This report presents the results of our field investigation, laboratory testing and our engineering judgment, opinions, conclusions and recommendations pertaining to geotechnical design aspects of the proposed development.

It has been a pleasure to be of service to you on 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,
GEOBODEN, INC.

REGISTERED PROFESSIONAL ENGINEER
SHAHROKH E. RADVAR
2742
GEOTECHNICAL
STATE OF CALIFORNIA

Cyrus Radvar,
Principal Engineer, G.E. 2742

Copies: 4/Addressee

Attachment: Hydrology Study [Revision 1] (3058 : Moreno Beach Commercial Center)

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

TABLE OF CONTENTS

FIGURES

APPENDIXES

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
Moreno Valley, California

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation performed by GeoBoden, Inc. (GeoBoden) for the Proposed 76 Gas Station to be located at southwest corner of John F. Keneedy and Moreno Beach Drive in Moreno Valley, California. The general location of the project is shown on Figure 1.

The purposes of this investigation were to determine the geotechnical properties of subsurface soil conditions, to evaluate their in-place characteristics, evaluate site seismicity, and to provide geotechnical recommendations with respect to site grading and for design and construction of proposed foundations and other site improvements.

The scope of the authorized investigation included performing a site reconnaissance, conducting field exploration and laboratory testing programs, performing engineering analyses, and preparing this Geotechnical Investigation Report. Evaluation of environmental issues or the potential presence of hazardous materials was not within the scope of services provided.

This report has been prepared for Royal Excel Enterprises and their other project team members, to be used solely in the development of facilities described herein. This report may not contain sufficient information for other uses or the purposes of other parties.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

The site is located at southwest corner of John F. Kennedy and Moreno Beach Drive in Moreno Valley, California. The proposed project will consist of a 76 Gas Station with associated improvements.

The maximum column load for the new building will be about 75 kips, and the line load will be about 3 kips per lineal feet. Currently, it is our understanding that the proposed building will consist of masonry construction with slab on-grade.

3.0 GEOTECHNICAL INVESTIGATION

Our geotechnical investigation included a field exploration program and a laboratory testing programs. These programs were performed in accordance with our scope of services. The field exploration and laboratory testing programs are briefly described below. A more detailed description of the field exploration and laboratory testing programs is provided in Appendix A and Appendix B, respectively.

3.1 FIELD EXPLORATION PROGRAM

The field exploration program was initiated under the supervision of an engineer. Eight (8) exploratory borings were drilled using a truck-mounted drilling rig equipped with 6-inch diameter hollow stem augers. The borings were advanced to depths of ranging from 11.5 to 21.5 feet (below ground surface). The approximate locations of exploratory borings are shown on Figure 2.

Logs of subsurface conditions encountered in the borings were prepared in the field by a representative of our firm. Soil samples consisting of relatively undisturbed brass ring samples and Standard Penetration Tests (SPT) samples were collected at approximately 5-foot depth intervals and were returned to the laboratory for testing. The SPTs were performed in accordance with ASTM D 1586. Final boring logs were prepared from the field logs and are presented in Appendix A.

3.2 LABORATORY TESTING

Selected samples collected during drilling activities were tested in the laboratory to assist in evaluating controlling engineering properties of subsurface materials at the site. Physical tests performed included moisture and density determination, consolidation, No. 200 Sieve, direct shear, and corrosion. The results of laboratory are presented in Appendix B.

4.0 DISCUSSION OF FINDINGS

The following discussion of findings for the site is based on the results of the field exploration and laboratory testing programs.

4.1 SITE AND SUBSURFACE CONDITIONS

The site is underlain by sand and silt with gravel and silty sand. The native soils underlying the site encountered within our borings were medium dense to dense.

4.2 GROUNDWATER CONDITIONS

Groundwater was not encountered within our exploratory borings to the maximum explored depth of 21.5 feet (below ground surface). Based on information from the Department of Water Resources, Water Data Library, ground water level in the site vicinity is at a depth of greater than 50 feet beneath the existing ground surface.

Fluctuations of the groundwater table, localized zones of perched water, and rise in soil moisture content should be anticipated during the rainy season. Irrigation of landscaped areas can also lead to an increase in soil moisture content and fluctuations of intermittent shallow perched groundwater levels.

4.3 SOIL ENGINEERING PROPERTIES

Physical tests were performed on the relatively undisturbed samples to characterize the engineering properties of the native soils. Moisture content determination was performed on the samples to evaluate the in-situ moisture content. Moisture content and dry unit weight results are included in Appendix B.

4.4 CONSOLIDATION CHARACTERISTICS

Consolidation tests were performed on samples of the existing overburden soils recovered from the boring. Results of the consolidation tests indicate that the overburden material will have low compressibility under the anticipated loads. These characteristics are compatible with the allowable bearing capacity values and corresponding settlement estimates presented in Foundations Section of our report.

4.5 COLLAPSE POTENTIALS

Results of consolidation tests on samples of native soil indicate that the native soils will have low collapse potential. Removal and recompaction of the surficial soils is expected to reduce the anticipated amount of total differential settlement within the site.

4.6 EXPANSIVE SOILS

The near surface soils are granular which exhibit VERY LOW expansion potential. We anticipate that the design and performance of the proposed new building will not be affected by expansion of onsite soils.

4.7 STRENGTH CHARACTERISTICS

Strength tests were performed on select samples of the existing native overburden soils recovered from the boring. Results of these strength tests generally indicate high friction angle with little cohesion. These characteristics are compatible with the allowable bearing capacity recommendations presented in section 7.7 (Foundations).

5.0 STRONG GROUND MOTION POTENTIAL

The project site is located in a seismically active area typical of Southern California and likely to be subjected to a strong ground shaking due to earthquakes on nearby faults.

The site is not mapped within an Alquist-Priolo (AP) Special Study Zone. Pinto Mountain fault zone (Moreno Valley fault) is the closest known active fault, located about 0.77-km of the site with an anticipated maximum moment magnitude (M_w) of 7.2.

5.1 CBC DESIGN PARAMETERS

To accommodate effects of ground shaking produced by regional seismic events, seismic design can, at the discretion of the designing Structural Engineer, be performed in accordance with the 2016 edition of the California Building Code (CBC). Table below, 2016 CBC Seismic Parameters, lists (next) seismic design parameters based on the 2016 CBC methodology, which is based on ASCE/SEI 7-10:

2016 CBC Seismic Design Parameters	Value
Site Latitude (decimal degrees)	33.9163
Site Longitude (decimal degrees)	-117.1749
Site Class Definition (ASCE 7 Table 20.3-1)	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s (Figure 1613.3.1(1))	1.936
Mapped Spectral Response Acceleration at 1s Period, S_1 (Figure 1613.3.1(2))	0.861
Short Period Site Coefficient at 0.2s Period, F_a (Table 1613.3.3(1))	1.000
Long Period Site Coefficient at 1s Period, F_v (Table 1613.3.3(2))	1.500
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS} (Eq. 16-37)	1.936
Adjusted Spectral Response Acceleration at 1s Period, S_{M1} (Eq. 16-38)	1.292
Design Spectral Response Acceleration at 0.2s Period, S_{DS} (Eq. 16-39)	1.290
Design Spectral Response Acceleration at 1s Period, S_{D1} (Eq. 16-40)	0.861

6.0 LIQUEFACTION POTENTIAL

For liquefaction to occur, all of three key ingredients are required: liquefaction-susceptible soils, groundwater within a depth of 50 feet or less, and strong earthquake shaking. Soils susceptible to liquefaction are generally saturated loose to medium dense sands and non-plastic silt deposits below the water table.

Groundwater is not present at the site at shallow depths and soils consist predominately of medium dense to dense sandy soil materials. It is our opinion the potential for liquefaction at the site is minimal. Due to the absence of loose sandy soil layers, potential for dry sand seismic settlement is also minimal.

It is our opinion that potential for subsidence and liquefaction is minimal at the site and will not adversely impact the foundation of the proposed building and the associated site improvements.

7.0 DESIGN RECOMMENDATIONS

Based upon the results of our investigation, the proposed development is considered geotechnically feasible provided the recommendations presented herein are incorporated into the design and construction. If changes in the design of the structure are made or variations or

changed conditions are encountered during construction, GeoBoden should be contacted to evaluate their effects on these recommendations. The following geotechnical engineering recommendations for the proposed buildings are based on observations from the field investigation program and the physical test results.

7.1 EARTHWORK

All earthworks, including excavation, backfill and preparation of subgrade, should be performed in accordance with the geotechnical recommendations presented in this report and applicable portions of the grading code of local regulatory agencies. All earthwork should be performed under the observation and testing of a qualified geotechnical engineer.

7.2 SITE AND FOUNDATION PREPARATION

All site preparation should be observed by experienced personnel reporting to the project Geotechnical Engineer. Our field monitoring services are an essential continuation of our prior studies to confirm and correlate the findings and our prior recommendations with the actual subsurface conditions exposed during construction, and to confirm that suitable fill soils are placed and properly compacted.

Earthwork is expected to consist of subgrade preparation for construction of the building pad and surface parking. Minimal site preparation will provide satisfactory support for the new footings, floor slab and the new pavement. We recommend that the upper 3 feet of existing soils within the building footprints be removed and recompacted. If loose, disturbed, or otherwise unsuitable materials are encountered at the bottom of excavation, removal of unsuitable soils will be required until firm soils are encountered.

Excavations below the final grade level should be properly backfilled using lean concrete or approved fill material compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM Test Method D1557. The backfill and any additional fill should be placed in loose lifts less than 8 inches thick, moisture conditioned to near optimum moisture content, and compacted to 90 percent. Fill materials should be free of construction debris, roots, organic matter, rubble, contaminated soils, and any other unsuitable or deleterious material as determined by the Geotechnical Engineer. The on-site soils are suitable for use as compacted

fill, provided the soil is free of any deleterious substance. All import fill material should be approved by the Geotechnical Engineer prior to importing to the site for use as compacted fill.

7.3 FILL PLACEMENT AND COMPACTION REQUIREMENTS

Material for engineered fill should be select free of organic material, debris, and other deleterious substances, and should not contain fragments greater than 3 inches in maximum dimension. On-site excavated soils that meet these requirements may be used to backfill the excavated building pad area.

All fill should be placed in 6-inch-thick maximum lifts, watered or air dried as necessary to near optimum moisture content, and then compacted in place to a maximum relative compaction of 90 percent. The laboratory maximum dry density and optimum moisture content for each change in soil type should be determined in accordance with Test Method ASTM D 1557. A representative of the project consultant should be present on-site during grading operations to verify proper placement and compaction of all fill, as well as to verify compliance with the other geotechnical recommendations presented herein.

Imported soils, if any, should consist of clean materials exhibiting a VERY LOW expansion potential (Expansion Index less than 20). Soils to be imported should be approved by the project geotechnical consultant prior to importation.

7.4 VOLUMETRIC CHANGES

Volumetric changes in earth quantities will occur when excavated onsite soil materials are replaced as properly compacted fill. It is anticipated that shrinkage due to recompaction of existing soils will range from 3 to 5 percent. The actual shrinkage or bulking that will occur during grading will depend on the average degree of relative compaction achieved.

A subsidence estimate at 0.10 to 0.15 feet may be anticipated as a result of the scarification and recompaction of the exposed ground surfaces within the removal areas.

The above estimates of shrinkage and subsidence are intended for use by the project planners in determining earthwork quantities and should not be considered absolute values. Contingencies

should be made for balancing earthwork quantities based on actual shrinkage and subsidence that will occur during grading.

7.5 GEOTECHNICAL OBSERVATIONS

Exposed bottom surfaces in each removal area should be observed and approved by the project geotechnical consultant prior to placing fill. No fill should be placed without prior approval from the geotechnical consultant.

The project geotechnical consultant should be present on site during grading operations to verify proper placement and compaction of fill, as well as to verify compliance with the recommendations presented herein.

7.6 UTILITY TRENCH BACKFIL

All utility trench backfill should be compacted to a minimum relative compaction of 90 percent. Trench backfill materials should be placed in lifts no greater than approximately 6 inches in thickness, watered or air-dried as necessary to near optimum moisture content, and then mechanically compacted in place to a minimum relative compaction of 90 percent. A representative of the project geotechnical consultant should probe and test the backfills to verify adequate compaction.

As an alternative for shallow trenches where pipe or utility lines may be damaged by mechanical compaction equipment, such as under floor slabs, imported clean sand exhibiting a sand equivalent (SE) value of 30 or greater may be utilized. The sand backfill materials should be watered to achieve near optimum moisture conditions and then tamped into place. No specific relative compaction will be required; however, observation, probing, and if deemed necessary, testing should be performed by a representative of the project geotechnical consultant to verify an adequate degree of compaction and that the backfill will not be subject to settlement.

Where utility trenches enter the footprint of the floor slabs, they should be backfilled through their entire depths with on-site fill materials, sand-cement slurry, or concrete rather than with any sand or gravel shading. This “Plug” of less- or non-permeable materials will mitigate the

potential for water to migrate through the backfilled trenches from outside to the areas beneath the foundations and floor slabs.

7.7 SHALLOW FOUNDATIONS

Following the site and foundation preparation recommended above, foundation for load bearing walls and interior columns may be designed as discussed below.

7.7.1 Bearing Capacity and Settlement

Load bearing walls and interior columns may be supported on continuous spread footings and isolated spread footings, respectively, and should bear entirely upon undisturbed native or properly engineered fill. Continuous and isolated footings should have a minimum width of 18 inches and 24 inches, respectively. All footings should be embedded a minimum depth of 18 inches measured from the lowest adjacent finish grade. Continuous and isolated footings placed on such materials may be designed using an allowable (net) bearing capacity of 2,000 pounds per square foot (psf) respectively. Allowable increases of 250 psf for each additional 1 foot in width and 250 psf for each additional 6 inches in depth may be utilized, if desired. The maximum allowable bearing pressure should be 3,000 psf. The maximum bearing value applies to combined dead and sustained live loads. The allowable bearing pressure may be increased by one-third when considering transient live loads, including seismic and wind forces.

Based on the allowable bearing value recommended above, total settlement of the shallow footings are anticipated to be less than one inch, provided foundation preparations conform to the recommendations described in this report. Differential settlement is anticipated to be approximately half the total settlement for similarly loaded footings spaced up to approximately 30 feet apart.

7.7.2 Lateral Load Resistance

Lateral load resistance for the spread footings will be developed by passive soil pressure against sides of footings below grade and by friction acting at the base of the concrete footings bearing on compacted fill. An allowable passive pressure of 250 psf per foot of depth may be used for design purposes. An allowable coefficient of friction 0.35 may be used for dead and

sustained live load forces to compute the frictional resistance of the footings constructed directly on compacted fill. Safety factors of 2.0 and 1.5 have been incorporated in development of allowable passive and frictional resistance values, respectively. Under seismic and wind loading conditions, the passive pressure and frictional resistance may be increased by one-third.

7.7.3 Footing Reinforcement

Reinforcement for footings should be designed by the structural engineer based on the anticipated loading conditions. Footings for structures that are supported in very low to low expansive soils should have No. 4 bars, two top and two bottom.

7.8 CONCRETE SLAB ON-GRADE

Concrete slabs will be placed on undisturbed natural soils or properly compacted fill as outlined in Section 7.2. Moisture content of subgrade soils should be maintained near the optimum moisture content.

At the time of the concrete pour, subgrade soils should be firm and relatively unyielding. Any disturbed soils should be excavated and then replaced and compacted to a minimum of 90 percent relative compaction. Slabs should be designed to accommodate very low to low expansive fill soils. The structural engineer should determine the minimum slab thickness and reinforcing depending upon the expansive soil condition intended use. Slabs placed on very low to low expansive soils should be at least 4 inches thick and have minimum reinforcement of No. 3 bars placed at mid-height of the slabs and spaced 18 inches on centers, in both directions. The structural engineer may require thicker slabs with more reinforcement depending on the anticipated slab loading conditions.

If moisture-sensitive floor covering is planned, a layer of open-graded gravel, at least 4 inches thick, should be placed below the concrete slab to form a capillary break. Alternately, moisture-proof membrane (such as 10-mil) may be utilized. The vapor barrier should be placed between sand layers (2 inches above and below) to protect the membrane from damage during construction. Gravel for use under a concrete floor slab should be clean, crushed rock that meets the gradation requirements presented next.

Sieve Size	Percentage
1 inch	100
¾ inch	90-100
No. 4	0-10

7.9 PRELIMINARY PAVEMENT DESIGN

Pavement design should be confirmed at the completion of site grading when the subgrade soils are in-place. This should include sampling and R-Value testing of the actual subgrade soils and an analysis based upon the anticipated traffic loading.

For a preliminary pavement design, recommendations for pavement design section of asphalt parking areas are provided below. These values are based on an assumed R-value of 45.

For pavement design, Traffic indexes (TI) of 4.0 and 5.5 were used for the parking areas and auto driveways, respectively. The preliminary flexible pavement layer thickness is as follows:

RECOMMMENDED ASPHALT PAVEMENT SECTION LAYER THICKNESS

Pavement Material	Recommended Thickness	
	TI = 4.0	TI = 5.5
Asphalt Concrete Surface Course	3 inches	4 inches
Class II Aggregate Base Course	5 inches	6 inches
Compacted Subgrade Soils	12 inches	12 inches

Asphalt concrete should conform to Sections 203 and 302 of the latest edition of the Standard Specifications for Public Works Construction ("Greenbook").

Class II aggregate base should conform to Section 26 of the Caltrans Standard Specifications, latest edition. The aggregate base course should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Method D 1557.

Portland cement concrete paving sections were determined in accordance with procedures developed by the Portland Cement Association. Concrete paving sections for three Traffic Indices are presented below. We have assumed that the portland cement concrete will have a compressive strength of at least 3,000 pounds per square inch.

Assumed Traffic Index	PCC Paving (Inches)	Base Course (Inches)
4½ (Automobile Parking)	6	4
5½ (Driveways and Light Track Traffic)	6½	4
6½ (Roadways and Heavy Truck Traffic)	7	4

7.10 SOLUBLE SULFATES AND SOIL CORROSIVITY

The soluble sulfate, pH, and chloride concentration tests were performed on a sample of the on-site soils. Corrosion test results are presented in Appendix B. Results of the minimum resistivity tests indicate that on-site soils have mildly corrosive potential when in contact with ferrous materials. Typical recommendations for mitigation of the corrosive potential of the soil in contact with building materials are the following:

- Below grade ferrous metals should be given a high quality protective coating, such as an 18 mil plastic tape, extruded polyethylene, coal tar enamel, or Portland cement mortar.
- Below grade ferrous metals should be electrically insulated (isolated) from above grade ferrous metals and other dissimilar metals, by means of dielectric fittings in utilities and exposed metal structures breaking grade.
- Steel and wire reinforcement within concrete in contact with the site soils should have at least two inches of concrete cover.

If ferrous building materials are expected to be placed in contact with site soils, it may be desirable to consult a corrosion specialist regarding chosen construction materials, and/or protection design for the proposed facility.

Corrosion test results also indicate that the surficial soils at the site have negligible sulfate attack potential on concrete. No sulfate-resistant cement will be necessary for concrete placed in contact with the on-site soils.

8.0 CONSTRUCTION CONSIDERATIONS

Based on our field exploration program, earthwork can be performed with conventional construction equipment.

8.1 TEMPORARY DEWATERING

Groundwater was not encountered in borings to the maximum explored depth of 21.5 feet below ground surface. Based on the anticipated excavation depths, the need for temporary dewatering is considered very low.

8.2 CONSTRUCTION SLOPES

Excavations during construction should be conducted so that slope failure and excessive ground movement will not occur. The short-term stability of excavation depends on many factors, including slope angle, engineering characteristics of the subsoils, height of the excavation and length of time the excavation remains unsupported and exposed to equipment vibrations, rainfall and desiccation.

Where space permits, and providing that adjacent facilities are adequately supported, open excavations may be considered. In general, unsupported slopes for temporary construction excavations should not be expected to stand at an inclination steeper than 1:1 (horizontal:vertical). The temporary excavation side walls may be cut vertically to a height of 3 feet and then laid back at a 1:1 slope ratio above a height of 3 feet.

Surcharge loads should be kept away from the top of temporary excavations a horizontal distance equal to at least one-half the depth of excavation. Surface drainage should be controlled along the top of temporary excavations to preclude wetting of the soils and erosion

of the excavation faces. Even with the implementation of the above recommendations, sloughing of the surface of the temporary excavations may still occur, and workmen should be adequately protected from such sloughing.

If site conditions do not provide sufficient space for sloped excavations at the project site, slot cutting techniques in a repeating "ABC" sequence may be required. First, all the slots designated as "A" should be excavated, backfilled and recompacted. The procedure should continue with the "B" slots and end with the "C" slots. The width of each slot should not exceed 6 feet. If any evidence of potential instability is observed, revised recommendations such as narrower slot cuts may be necessary. All slot excavation and backfilling procedures should be performed under the observation and testing of a qualified geotechnical engineer.

9.0 POST INVESTIGATION SERVICES

Final project plans and specifications should be reviewed prior to construction to confirm that the full intent of the recommendations presented herein have been applied to design and construction. Following review of plans and specifications, observation should be performed by the geotechnical engineer during construction to document that foundation elements are founded on/or penetrate onto the recommended soils, and that suitable backfill soils are placed upon competent materials and properly compacted at the recommended moisture content.

10.0 CLOSURE

The conclusions, recommendations, and opinions presented herein are: (1) based upon our evaluation and interpretation of the limited data obtained from our field and laboratory programs; (2) based upon an interpolation of soil conditions between and beyond the borings; (3) are subject to confirmation of the actual conditions encountered during construction; and, (4) are based upon the assumption that sufficient observation and testing will be provided during construction.

If parties other than GeoBoden are engaged to provide construction geotechnical services, they must be notified that they will be required to assume complete responsibility for the geotechnical phase of the project by concurring with the findings and recommendations in this report or providing alternate recommendations.

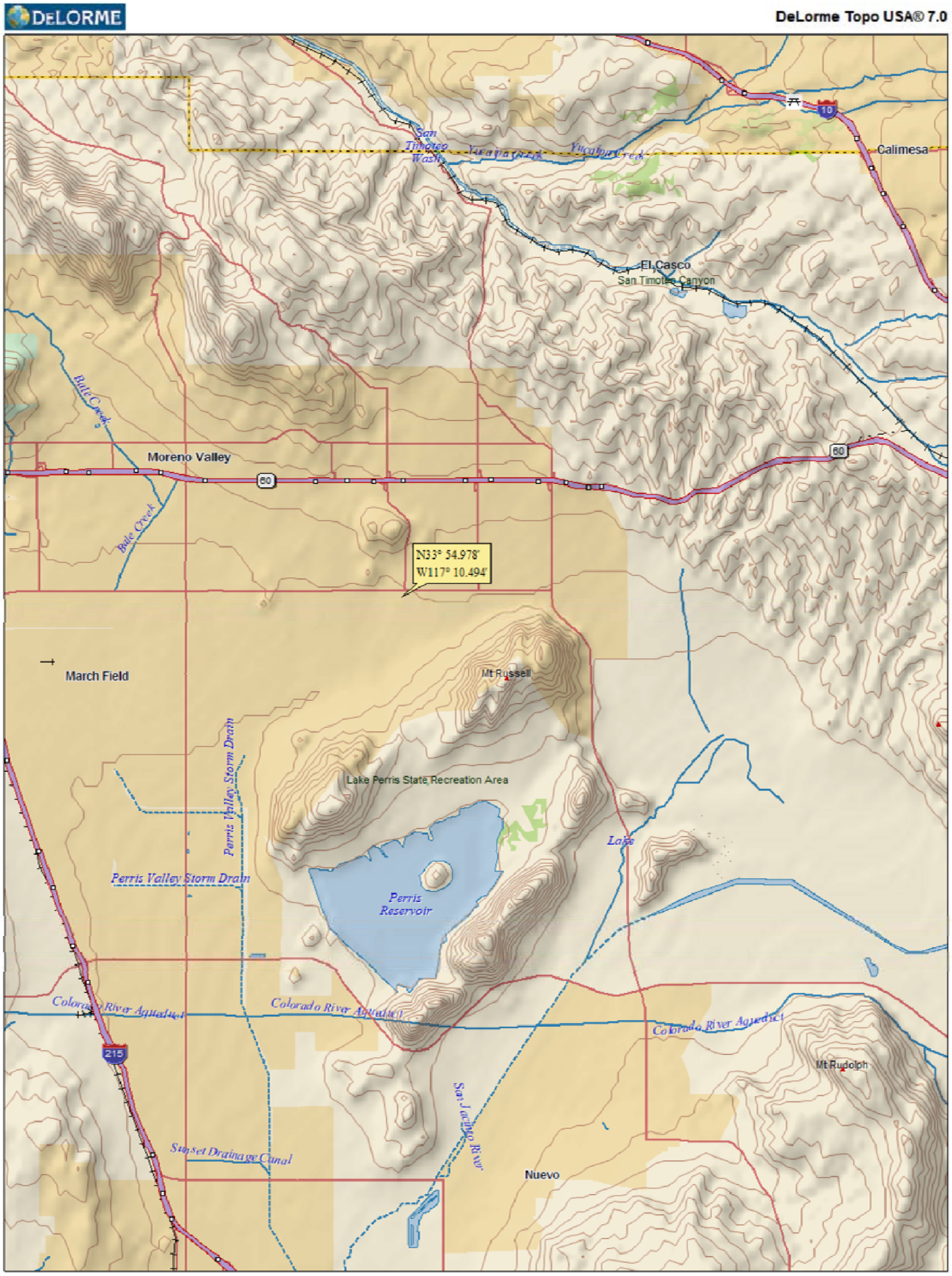
If pertinent changes are made in the project plans or conditions are encountered during construction that appear to be different than indicated by this report, please contact this office. Significant variations may necessitate a re-evaluation of the recommendations presented in this report.

11.0 REFERENCES

California Building Code, 2016 Volume 2.

FIGURES

DeLorme Topo USA® 7.0



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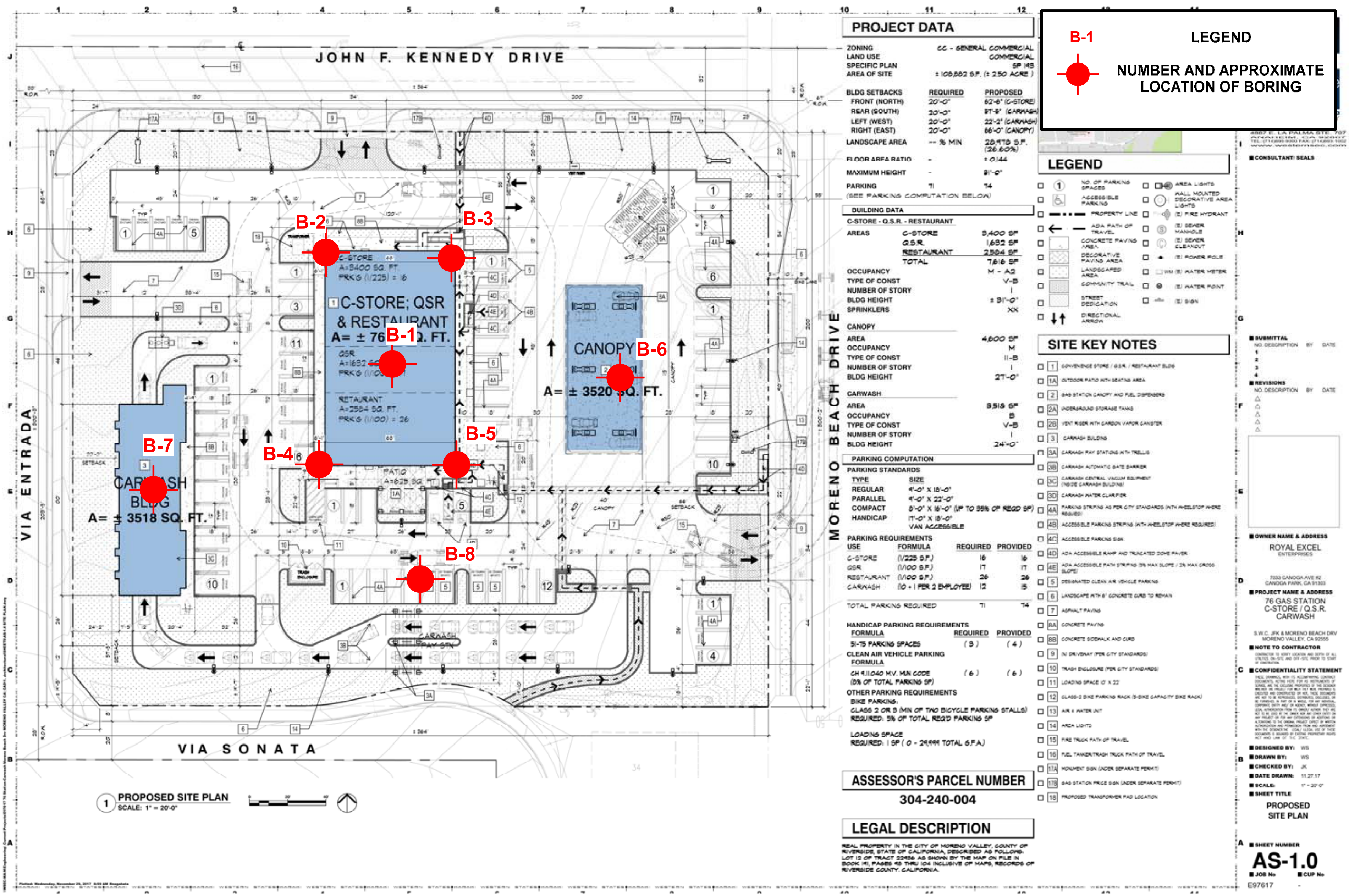
GEOBODEN INC.
Geotechnical Consultants

SITE VICINITY MAP
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

Figure By S.R.	Project No Moreno Beach-1-
Map No. XX	Figure No. 1
Date 12-08-1	



GEOBODEN INC.
Geotechnical Consultants

BORING LOCATION PLAN
Proposed 76 Gas Station
Southwest John F. Kennedy/Moreno Beach Drive
Moreno Valley, California

Figure By S.R.	Project I
Map No. XX	Moreno Bea
Date	Figure No. 2

APPENDIX A
BORING LOGS

APPENDIX A
SUBSURFACE EXPLORATION PROGRAM

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

Prior to drilling, the proposed borings were located in the field by measuring from existing site features.

A total of 8 exploratory borings (B-1 through B-8) were drilled using a hollow-stem auger drill rig equipped with 6-inch outside diameter (O.D.) augers. GeoBoden of Irvine, California performed the drilling on November 25, 2017. The boring locations are shown on Figure 2.

Depth-discrete soil samples were collected at selected intervals from the exploratory borings using a 2 ½ -inch inside diameter (I.D.) modified California Split-barrel sampler fitted with 12 brass ring of 2 ½ inches in O.D. and 1-inch in height and one brass liner (2 ½ -inch O.D. by 6 inches long) above the brass rings. The sampler was lowered to the bottom of the boreholes and driven 18 inches into the soil with a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler the lower 12 inches is shown on the blow count column of the boring logs.

After removing the sampler from the boreholes, the sampler was opened and the brass rings and liner containing the soil were removed and observed for soil classification. Brass rings containing the soil were sealed in plastic canisters to preserve the natural moisture content of the soil. Soil samples collected from exploratory borings were labeled, and were transported for physical testing.

Standard Penetration Tests (SPTs) were also performed within the borings. The SPT consists of driving a standard sampler, as described in the ASTM 1586 Standard Method, using a 140-pound hammer falling 30 inches. The number of blows required to drive the SPT sampler the lower 12 inches of the sampling interval is recorded on the blow count column of the boring logs.

The soil classifications and descriptions on field logs were performed using the Unified Soil Classification System as described by the American Society for Testing and Materials (ASTM) D 2488-90, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)." The final boring logs were prepared from the field logs and are presented in this Appendix.

At the completion of the sampling and logging, the exploratory borings were backfilled with the drilled cuttings.

GEOBODEN, INC.

BORING NUMBER B-1

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light brownish gray, dry, ~85% sand, ~10% fines, ~5% gravel										
5			MC R-1		30		103	3				
10		light olive gray	SS S-2		12							
15			MC R-3		31							
20			SS S-4		31							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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Attachment: Hydrology Study [Revision 1] (3058 : Moreno Beach Commercial Center)

GEOBODEN, INC.

BORING NUMBER B-2

CLIENT Royal Excel Enterprises

PROJECT NAME Proposed 76 Gas Station

PROJECT NUMBER Moreno Beach-1-01

PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive

DATE STARTED 11/25/17 **COMPLETED** 11/25/17

GROUND ELEVATION **HOLE SIZE** 8 inches

DRILLING CONTRACTOR GeoBoden, Inc.

GROUND WATER LEVELS:

DRILLING METHOD HSA

AT TIME OF DRILLING ---

LOGGED BY C.R. **CHECKED BY**

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		POORLY-GRADED SAND w. SILT (SP-SM): pale olive, dry, ~5% fine gravel, ~10% fines, ~85% medium sand										
5			MC R-1		28		108	4				1
		POORLY-GRADED SAND w. SILT & GRAVEL (SP): pale olive, dry, ~15% subangular gravel up to 2 inch, ~10% fines, ~75% fine sand										
10			SS S-2		14			3				
15			MC R-3		34		114	2				
20			SS S-4		36							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

GEOBODEN, INC.

BORING NUMBER B-3

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		POORLY-GRADED SAND w. SILT (SP-SM): olive gray, dry, ~5% gravel, ~10% fines, ~85% sand										
5			MC R-1		24		105	3				1
10		grayish brown	SS S-2		11			2				
15			MC R-3		32		108	3				
20			SS S-4		36							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-4

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): olive, dry, ~75% sand, ~20% fines, ~5% gravel										
5			MC R-1		32		109	6				
10		light olive brown	MC R-2		31		112	5				
15			MC R-3		36							
18		POORLY-GRADED SAND w. SILT & GRAVEL (SP-SM): brown, dry, ~15% fine gravel, ~75% medium sand, ~10% fines										
20			SS S-4		39							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

GEOBODEN, INC.

BORING NUMBER B-5

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	ATTERBERG LIMITS PLASTIC LIMIT	ATTERBERG LIMITS PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light yellowish brown, dry, ~10% fines, ~90% sand										
5			MC R-1		19		104	2				
10		SAND w. GRAVEL (SP): pale olive, dry , ~15% fine to coarse gravel, ~80% fine sand, ~5% fines	MC R-2		32							
15			MC R-3		38							
20			SS S-4		40							

Bottom of borehole at 21.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 21.5 feet.

GEOBODEN, INC.

BORING NUMBER B-6

CLIENT Royal Excel Enterprises

PROJECT NAME Proposed 76 Gas Station

PROJECT NUMBER Moreno Beach-1-01

PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive

DATE STARTED 11/25/17 **COMPLETED** 11/25/17

GROUND ELEVATION **HOLE SIZE** 8 inches

DRILLING CONTRACTOR GeoBoden, Inc.

GROUND WATER LEVELS:

DRILLING METHOD HSA

AT TIME OF DRILLING ---

LOGGED BY C.R. **CHECKED BY**

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SAND w. SILT (SP-SM): light brown, dry, ~5% gravel										
5			MC R-1		30		111	2				
10			MC R-2		36							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

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GEOBODEN, INC.

BORING NUMBER B-7

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): brown, dry, ~70% sand, ~30% fines										
5		POORLY-GRADED SAND w. SILT (SP-SM): light olive gray, dry, ~5% gravel, ~10% fines, ~85% sand	MC R-1		41		109	4				
10			MC R-2		39							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

GEOBODEN, INC.

BORING NUMBER B-8

CLIENT Royal Excel Enterprises
PROJECT NAME Proposed 76 Gas Station
PROJECT NUMBER Moreno Beach-1-01
PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive
DATE STARTED 11/25/17 **COMPLETED** 11/25/17
GROUND ELEVATION **HOLE SIZE** 8 inches
DRILLING CONTRACTOR GeoBoden, Inc.
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY C.R. **CHECKED BY**
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT
0		SILTY SAND (SM): brown, dry, ~20% fines, ~75% sand, ~5% gravel										
5			MC R-1		41		114	2				
10			MC R-2		45							

Bottom of borehole at 11.5 feet below ground surface. Boring was backfilled with cuttings. No groundwater was encountered at the time of drilling.

Bottom of borehole at 11.5 feet.

APPENDIX B
LABORATORY TESTING

APPENDIX B
LABORATORY TESTING

PROPOSED 76 GAS STATION
SOUTHWEST JOHN F. KENNEDY/MORENO BEACH DRIVE
MORENO VALLEY, CALIFORNIA

Laboratory tests were performed on selected samples to assess the engineering properties and physical characteristics of soils at the site. The following tests were performed:

- moisture content and dry density
- No. 200 Wash sieve
- consolidation
- direct shear
- corrosion

Test results are summarized on laboratory data sheets or presented in tabular form in this appendix.

Moisture Density Tests

The field moisture contents, as a percentage of the dry weight of the soils, were determined by weighing samples before and after oven drying. The dry density, in pounds per cubic foot, was also determined fir all relatively undisturbed ring samples collected. These analyses were performed in accordance with ASTM D 2937. The results of these determinations are shown on the boring logs in Appendix A.

No. 200 Wash Sieve

Quantitative determination of the percentage of soil finer than 0.075 mm was performed on selected soil samples by washing the soil through the No. 200 sieve. Test procedures were performed in accordance with ASTM Method D1140. The results of the tests are shown on the boring logs.

Consolidation

The test was performed in accordance with ASTM Test method D 2345. The compression curve from the consolidation tests is presented in this Appendix.

Direct Shear

Direct shear tests were performed on undisturbed samples of on-site soils. A different normal stress was applied vertically to each soil sample ring which was then sheared in a horizontal direction. The resulting shear strength for the corresponding normal stress was measured at a maximum constant rate of strain of 0.005 inches per minute. The direct shear results are shown graphically on a laboratory data sheet included in this appendix.

Corrosion Potential

A selected soil sample was tested to determine the corrosivity of the site soil to steel and concrete. The soil sample was tested for soluble sulfate (Caltrans 417), soluble chloride (Caltrans 422), and pH and minimum resistivity (Caltrans 643). The results of corrosion tests are summarized in Table B-1.

TABLE B-1 (Corrosion Test Results)

Boring No.	Depth (ft)	Chloride Content (Calif. 422) ppm	Sulfate Content (Calif. 417) % by Weight	pH (Calif. 643)	Resistivity (Calif. 643) Ohm*cm
B-1	0-5	78	0.0129	7.3	1,925

GEOBODEN, INC.

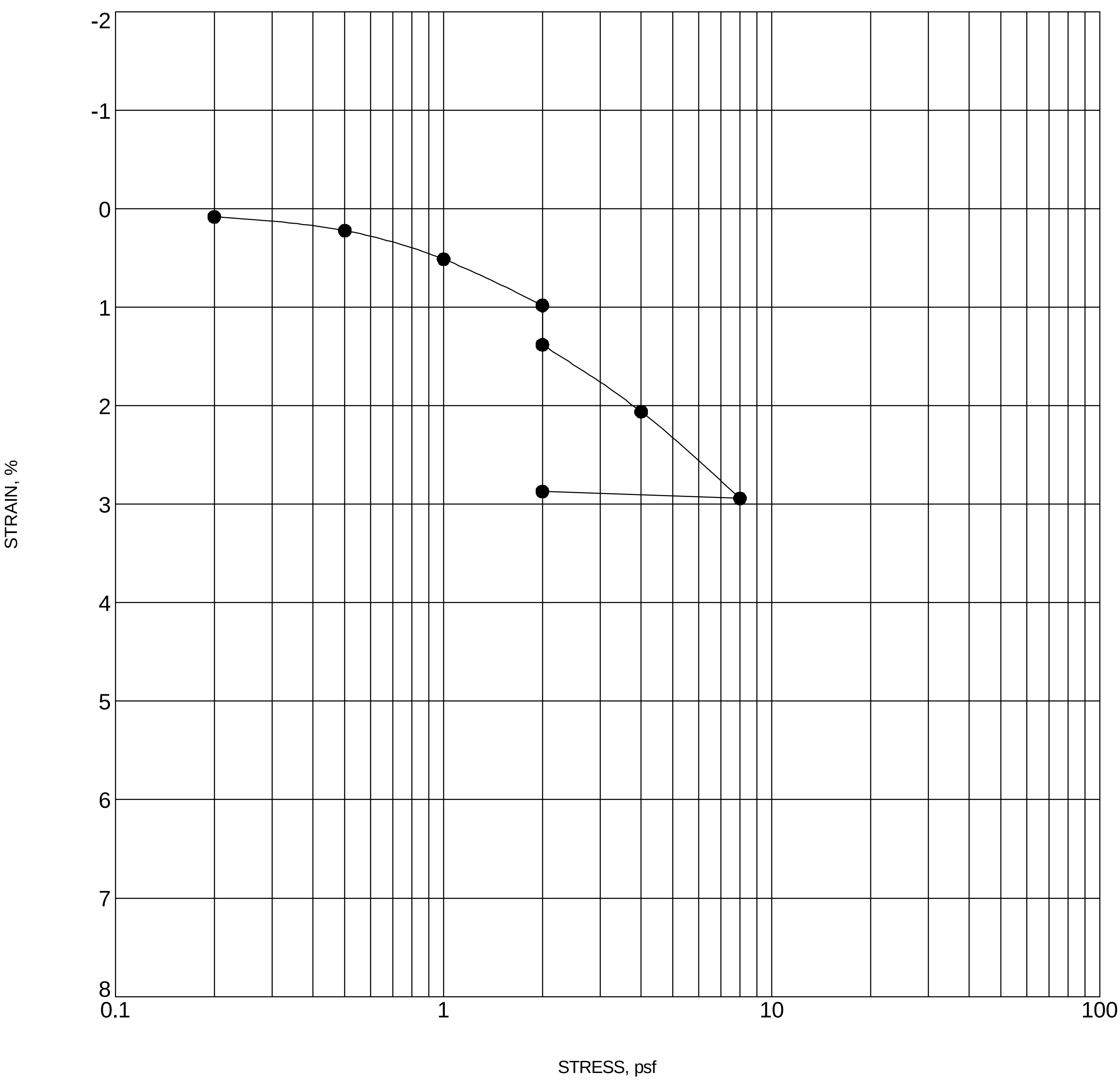
CONSOLIDATION TEST

CLIENT Royal Excel Enterprises

PROJECT NAME Proposed 76 Gas Station

PROJECT NUMBER Moreno Beach-1-01

PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive



	Specimen Identification		Classification	γ_d	MC%
●	**B-1**	**5.0**	**POORLY-GRADED SAND w. SILT**	**103**	**3**

GEOBODEN, INC.

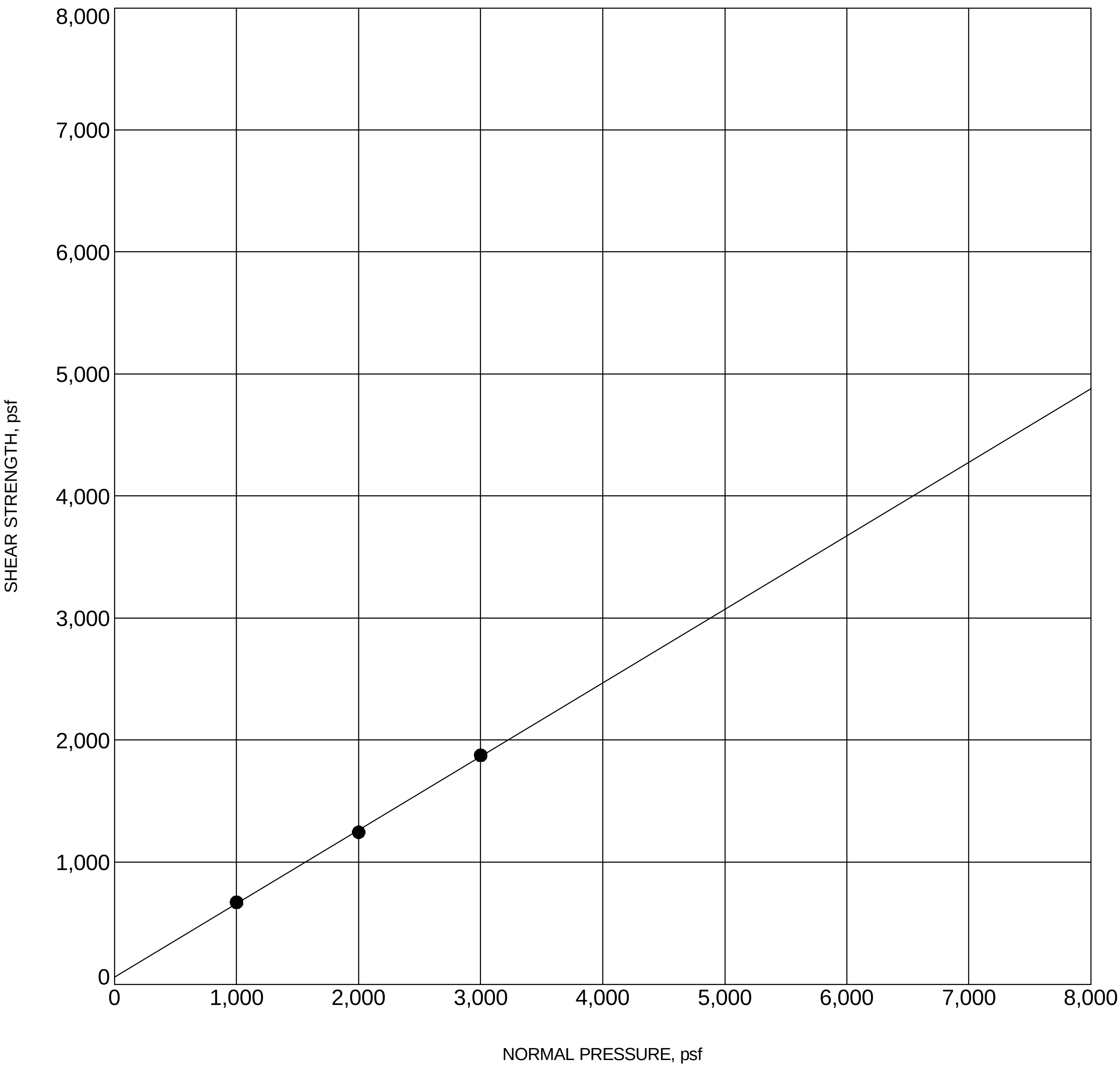
DIRECT SHEAR TEST

CLIENT Royal Excel Enterprises

PROJECT NAME Proposed 76 Gas Station

PROJECT NUMBER Moreno Beach-1-01

PROJECT LOCATION Southwest John F. Kennedy/Moreno Beach Drive



	Specimen Identification		Classification	γ_d	MC%	c	ϕ
●	B-3	5.0	POORLY-GRADED SAND w. SILT (SP-SM)	105	3	59.0	31

DIRECT SHEAR - GINT STD US LAB.GDT - 12/8/17 09:15 - C:\PASSPORT\GBI\76 GAS STATION-JFK & MORENO BEACH DRIVE\LOGS.GPJ

PLANNING COMMISSION

STAFF REPORT

Meeting Date: April 26, 2018

AN AMENDMENT TO THE CITY'S TEMPORARY USE PERMIT (TUP) REGULATIONS (SECTION 9.02.150 OF THE MUNICIPAL CODE) ADDING "SAFE AND SANE" FIREWORKS SALES AS A PERMITTED TEMPORARY USE

Case:	PEN18-0061
Applicant:	City of Moreno Valley
Owner:	City of Moreno Valley
Representative:	Community Development Department
Location:	Citywide
Case Planner:	Claudia Manrique
Council District:	All

SUMMARY

The proposed project (PEN18-0061) is an amendment to the City's existing Temporary Use Permit (TUP) regulations contained in Section 9.02.150 of the Municipal Code. The proposed amendment will add fireworks sales as a permitted temporary use subject to approval and issuance of a temporary use permit. The Planning Commission serves in a recommending capacity in this matter and the recommendation of the Planning Commission will be carried forward to the City Council for final action in accordance with Section 9.02.050 of the City Municipal Code.

PROJECT DESCRIPTION

Background

The City Council at its November 14, 2017 Study Session received information from staff on current fireworks enforcement within the City of Moreno Valley. The City Council directed staff to bring this matter to the Public Safety Sub-Committee. In proceeding to the Public Safety Sub-Committee staff was asked to collect and provide the Committee with data on fire injuries and damages resulting from fireworks as well as information related to selling of “safe and sane” fireworks. This matter was presented at the January 16^{th} Public Safety Sub-Committee (PSSC) Meeting (Attachment 1).

The Public Safety Sub-Committee (PSSC) directed staff to conduct further research and to draft an ordinance to allow the sale of safe and sane fireworks by non-profit organizations in Moreno Valley. Staff returned to the PSSC on March 20, 2018 with a draft Ordinance with proposed amendments to Title 11 (Peace, Morals and Safety), Title 8 (Buildings and Construction) and Title 9 (Planning and Zoning) of the City’s Municipal Code (Attachment 2). The Committee reviewed the draft and recommended that staff finalize the details and move forward with the required steps to present the Ordinance to City Council for review/approval in early May 2018. The early May City Council action on this matter is necessary if the new fireworks sales regulations are expected to be effective before July 4, 2018.

The amendment to Title 11 will introduce Chapter 11.22 (Fireworks), which outlines the permit application process for a fireworks sales booth. Permits will be available to non-profit organizations recognized by the State of California with their principal business location in Moreno Valley. Sales will be limited to the period of June 28th from 12:00 pm through July 4th, 10:00 pm. Fireworks sales booths are limited to commercial zoning districts and only allow for California State approved “safe and sane” fireworks products to be sold. Discharge of fireworks will be allowed only on July 4th from 8:00 am up to 11:59 pm.

The amendment to Title 8 Chapter 8.36 (California Fire Code) will repeal 8.36.060.A, which states that the “storage, use, sale, possession, and handling of fireworks 1.4G (commonly referred to as “safe and sane”) and fireworks 1.3G is prohibited.” Language will be added to be consistent with the provisions of Chapter 11.22 as well. Illegal fireworks will remain prohibited from sales and use in the City.

In addition to the regulatory ordinance under Title 8 and 11, a land use ordinance under Title 9 is required for the allowance of fireworks sales. Land use ordinance amendments require a recommendation by Planning Commission prior to a hearing by the City Council. The amendment to Title 9 will be to Section 9.02.150 (Temporary use permits).

Project

Temporary Use Permits are issued regularly for a wide variety of land use activities and events including, but not limited to, festivals, fundraisers, large scale outdoor sales, temporary food service, and Christmas tree sales. It is proposed that fireworks sales will be regulated in the same fashion through proper review, approval and issuance of a Temporary Use Permit. Section 9.02.150 (Temporary use permits) of Title 9 will be amended to include this specific merchandise.

The amendment to the City's existing Temporary Use Permit (TUP) regulations consists of adding fireworks sales to the existing list in the Temporary Uses Table 9.02.150-3 in Section 9.02.150(C). The Temporary Uses Table 9.02.150-3 will also reflect that fireworks sales are further regulated by Title 11, Chapter 11.22 Fireworks of the Moreno Valley Municipal Code (Attachment 3).

ENVIRONMENTAL

The City reviewed the project's potential environmental impacts under California Environmental Quality Act (CEQA) and determined that there is not a potential for significant negative effects of the authorized sale of safe and sane fireworks within the City. Therefore, the project has been found to be categorically exempt pursuant to Section 15304 (Minor Alternations to Land) of the CEQA Guidelines.

NOTIFICATION

As prescribed by the City's Municipal Code, a modification to the zoning provisions of the MVMC requires a public hearing before the Planning Commission. In accordance with Section 9.02.200 of the Municipal Code, a 1/8 page public notice was published in the Press Enterprise newspaper on April 15, 2018 for the April 26, 2018 public hearing of the Planning Commission (Attachment 4).

STAFF RECOMMENDATION

Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-28, and thereby recommend that the City Council:

1. **CERTIFY** that application PEN18-0061 (Municipal Code Amendment), which will allow provisions for sales of safe and sane fireworks as a temporary land use in the City, qualifies as a Class 4 categorical exemption in accordance with CEQA Guidelines, Section 15304 (Minor Alternations to Land).

2. **APPROVE** PEN18-0061, a proposed amendment to Title 9 of the City Municipal Code adding provisions for sales of safe and sane fireworks as a temporary land use in the City.

Prepared by:	Approved by:
Claudia Manrique	Albert Armijo
Associate Planner	Interim Planning Manager

ATTACHMENTS

1. PSSC Minutes from 1-16-18
2. PSSC Minutes from 3-20-18
3. Proposed Change to Temporary Uses Table 9.02.150-3

4. Public Notice
5. Planning Commission Resolution 2018-28
6. Exhibit A to Resolution 2018-28

Public Safety Sub-Committee Meeting - Minutes of January 16, 2018

Participants: V. Baca, D. Marquez, T. DeSantis, A. Brock, F. London, A. Ahmad, M. Williams, P. Early, D. Kurylowicz , S. Fries, G. Gonzalez

Guests: None

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1. INTRODUCTIONS – 2:58 p.m.

2. PUBLIC COMMENTS

   None

3. APPROVAL OF THE MINUTES

   ACTION: Council Member Marquez moved and Mayor Pro Tem Baca seconded, to approve the Minutes of October 17, 2017.

4. SHELTER SERVICES AND ACTIVITY – (Written Report Only)

   A written Report was submitted prior to the meeting.

   Mayor Pro Tem Baca suggested that the Animal Shelter provide a presentation at a Council Meeting to promote the spay and neuter program and to inform the public on the Shelter's success on adoptions and rescues.

   City Manager Tom DeSantis recommended that a presentation be included during the Animal Control recognition, tentatively scheduled for April.

   Task following discussion:

   1. Animal Services Division Manager Steve Fries to coordinate with the City Clerk to finalize a date for a Council Meeting in April. Follow-Up (Animal Shelter)

5A. FIRE SERVICES STATUS REPORT – (Written Report Only)

   A written report was submitted prior to the meeting. There were no questions from the Committee.

5B. FIRE PREVENTION REPORT – (Written Report Only)

   A written Report was submitted prior to the meeting. There were no questions from the Committee.

5C. OEM REPORT – (Written Report Only)

A written Report was submitted prior to the meeting. There were no questions from the Committee.

Fire Chief Ahmad provided an update on the current flu epidemic and reported on flu-related deaths of healthy individuals as well as those with pre pre-existing medical conditions.

5D. ZOLL AUTO PULSE

Battalion Chief Williams and Chief Ahmad provided a presentation on the proposed purchase of an AutoPulse device and highlighted the following:

- AutoPulse is an automated, portable, battery-powered cardiopulmonary resuscitation device. It is a chest compression device composed of a constricting band and half backboard that is intended to be used as an adjunct to CPR during advanced cardiac life support and uses a distributing band to deliver the chest compressions. The AutoPulse measures chest size and resistance before it delivers the unique combination of thoracic and cardiac chest compressions. The compression depth and force varies per patient.
- AutoPulse will provide immediate emergency assistance to cardiac arrest victims and will provide savings in staff transport.
- An AutoPulse unit is estimated at $14,000 and additional disposable compression bands at $375 each (3 per pack). The Fire Department projects using 30 packs a year.
- Initial and quarterly training will be provided to all fire fighters and will be conducted by Moreno Valley EMS' Captain.
- AMR funding will be used for the purchase and will not affect the General Fund.
- The AutoPulse unit will be assigned to Towngate Station 6 and if successful after a six-month period, a second unit will be considered.

Mayor Pro Tem Baca and Council Member Marquez recommended that staff move forward with the purchase of the AutoPulse device.

Task following discussion:

1. Chief Ahmad to provide a total annual cost estimate for the AutoPulse device. Fire Department to provide an update to the Committee within six months. Follow-Up (Fire Department)

5E. SAFE SURRENDER AWARENESS MONTH

Chief Ahmad informed the Committee of Safe Surrender Month and provided information on the Law. The law's intent is to save lives of newborn infants at risk of abandonment by encouraging parents or persons with lawful custody to safely surrender the infant within 72 hours of birth, with no questions asked. Chief Ahmad informed the Committee that Moreno Valley's safe surrender sites have been utilized.

6A. POLICE PERSONNEL STATUS REPORT – (Written Report Only)

A written Report was submitted prior to the meeting. There were no questions from the Committee.

6B. POLICE UPDATED ORGANIZATIONAL CHART – (Written Report Only)

The organizational chart was submitted prior to the meeting. There were no questions from the Committee.

Police Chief David Kurylowicz provided a brief update on police calls.

7. FIREWORKS ENFORCEMENT

Public Safety Contracts Administrator Felicia London and Tom DeSantis provided an update in response to comments and questions brought up during the November 14th Council Study Session. The following items were discussed with the Committee:

- Staff has requested data on fire injuries and damages from cities within CalFire that have implemented Safe and Sane Fireworks. Information will be shared with the Committee when it becomes available.
- Staff recommends that non-profit organizations that provide the best public benefit be allowed to apply for an application. It is also recommended that a lottery system be used if the number of applications exceeds the number of permits to be issued.
- Staff will provide recommendations on increasing the current administrative citation fees.
- A draft ordinance will be presented to the Committee for review at the March PSSC Meeting. The ordinance is projected to be presented to Council in April and if approved, will take effect in May or June and ready for the 4th of July Holiday.

Task following discussion:

1. Felicia London to provide specific recommendations to the Committee at the February PSSC meeting. Follow-Up (City Manager's Office)

The meeting adjourned at 3:53 pm.

Public Safety Sub-Committee Meeting - Minutes of March 20, 2018

Participants: V. Baca, D. Marquez, T. DeSantis, A. Brock, D. Kurylowicz, A. Ahmad, M. Williams, F. London , A. Reinertson, Z. Bricker, P. Early, S. Fries, R. Sandzimier, A. Armijo, G. Gonzalez

Guests: None

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1. INTRODUCTIONS – 2:47 p.m.

2. PUBLIC COMMENTS

Residents Keri and Robert Then expressed concerns with recent accidents involving burros off of Moreno Beach Drive and suggested that the existing burro signs be illuminated to make them more visible to drivers. She also reported graffiti on the tarps covering the chain link fences at the construction site off of Box Springs Road and the 60 Freeway.

Report on assigned tasks:

1. City Manager Tom DeSantis contacted Mrs. Then to confirm that a Public Works service request had been generated regarding graffiti on the tarps covering the chain link fences at the construction site of the Oak Park Apartments (12046 Clark Street). Transportation Division Manager / City Traffic Engineer Eric Lewis also contacted Mrs. Then regarding the "Burro Crossing" signs and discussed an action plan which will include the DonkeyLand Rescue organization.

3. APPROVAL OF THE MINUTES

ACTION: Council Member Marquez moved and Mayor Pro Tem Baca seconded, to approve the Minutes of January 16, 2018.

4. SHELTER SERVICES AND ACTIVITY – (Written Report Only)

A written Report was submitted prior to the meeting.

Animal Services Division Manager Steve Fries, as a follow-up from the PSSC Meeting of February 20th, informed the Committee that a Proclamation Recognizing April 8-14, 2018 as National Animal Care & Control Week is scheduled on the April 3rd Council Meeting.

Mayor Pro Tem Baca suggested that Steve Fries provide an update on the Animal Shelter's accomplishments during the April 3rd Council Meeting.

5A. FIRE SERVICES STATUS REPORT – (Written Report Only)

A written report was submitted prior to the meeting.

Fire Chief Abdul Ahmad, Battalion Chief Mark Williams, and Emergency Management Program Manager Zuzzette Bricker provided an update on training conducted in January and February:

- The Diocese of San Bernardino provided the Fire Department with a residential structure that was utilized for training by firefighters. Valuable structural firefighting training under live fire conditions was provided by CAL Fire Riverside County Fire Department to firefighters from the City of Moreno Valley and surrounding communities.
- Office of Emergency Management, CAL Fire/Riverside County Fire and Firefighters from the Moreno Valley Battalion partnered with March Air Reserve Base (MARB) to plan and execute a full scale MCI Drill exercise in preparation of the 2018 MARB Air Show.
- Annual Paramedic Training was completed which included Zoll Auto Pulse device training. The device was placed in service as of March 19, 2018.
- The first Spanish-language basic training course, focusing on disaster preparedness, was completed.

Mayor Pro Tem Baca and City Manager Tom DeSantis thanked the Fire Department for engaging the community and providing certification training in Spanish.

5B. FIRE PREVENTION REPORT – (Written Report Only)

A written Report was submitted prior to the meeting. There were no questions from the Committee.

5C. OEM REPORT – (Written Report Only)

A written Report was submitted prior to the meeting.

Zuzzette Bricker provided the Committee with a storm update and stated that OEM has been working with allied agencies as well as the Public Works and Police Department to provide information to the community.

Tom DeSantis informed the Committee that the Public Works Department is fully engaged to activate if required during this storm. In addition, the Public Works Department has been actively preparing which included maintenance of the storm drains to provide flow during the storms.

In response to Mayor Pro Tem Baca's question relative to the City monitoring flood areas, Chief Ahmad informed the Committee that Police and Public Works personnel will be active as well as the County Flood Control. Chief Ahmad added that the Fire has been working with PD and Code Compliance to provide notification to the homeless.

Chief Kurylowicz thanked the Fire Department for providing storm information and indicated that it was forwarded to the Area Commanders.

6A. POLICE PERSONNEL STATUS REPORT – (Written Report Only)

A written Report was submitted prior to the meeting. There were no questions from the Committee.

6B. POLICE UPDATED ORGANIZATIONAL CHART – (Written Report Only)

The organizational chart was submitted prior to the meeting.

Police Chief David Kurylowicz provided the Committee with information on upcoming meetings and training:

- The Moreno Valley Police Department will host Community Oriented Policing Zone meeting on Wednesday, March 28, 2018, to discuss community issues and build positive relationships. All community members are invited to attend; however, the focus of the meeting will cover Zone 1 and 2 community issues. The Police Chief, Special Teams and detectives will be available to answer questions.
- Active Shooter Preparedness Training is scheduled to be provided to City staff and schools within the Moreno Valley and Val Verde School Districts.

Mayor Pro Tem Baca expressed that she would like training provided to the schools as soon as possible. Chief Kurylowicz stated that the goal is to train more trainers to provide training in an expedited manner. He added that all School Resource Officers have been properly trained.

Mayor Pro Tem Baca suggested that Chief Kurylowicz provide information at the March 20th Council Meeting.

7. FIREWORKS ENFORCEMENT

Public Safety Contracts Administrator Felicia London and Tom DeSantis presented concepts for discussion by the Committee in order to incorporate their feedback in the proposed Fireworks Ordinance:

- Qualifications – The organization should be a non-profit organization recognized by the State of California for charitable, civic service & religious purposes and be in existence for more than 5 years. Its principal business location should be in Moreno Valley with a membership of 20 or more. A business license, Temporary Use Permit and/or a Fire Inspection will be required.

- Application Period – Applications will be accepted annually from March 30th through April 6th. If approved in 2018, the applications will be processed through June 10th, 2018.
- The City will issue a max of 20 permits (one fireworks stand per permit).
- The sale of fireworks will be allowed from June 28th from 12 pm through July 4th, 10 pm.
- Daily sale operations will be from 8 am to 10 pm.
- Discharge of fireworks will be allowed on July 4th from 8 am to 11:59 pm.
- Citations fees will be based on the existing Administrative Fees Ordinance; same fees used by Code Compliance.
- The proposed Ordinance may require amendments to Title 9 and Title 8 of the Municipal Code.
- Staff recommends presenting the Ordinance for review/approval to Council in order to implement by July 4, 2018.

Mayor Pro Tem Baca recommended that the membership of 20 + be removed due to concerns that there may not be enough non-profits with that membership number.

Council Member Marquez suggested that rather than removing the membership, reduce the number to 10-15 because of concerns that an organization with no members may use this as an opportunity to make a profit.

Tom DeSantis clarified that the organizations will be required to be recognized by the State of California as non-profit groups which will address these concerns. He recommended removing the membership and reducing the total of years of existence to 3 years for the year 2018 and having it serve as a trial basis.

Fire Marshal Adria Reinertson expressed concern on the areas where safe and sane fireworks will be allowed and suggested further discussion with staff on this item.

After further discussion, the Committee recommended that staff finalize the details and move forward with the required steps to present the Ordinance to Council for review/approval.

The meeting adjourned at 3:22 pm.

ATTACHMENT 1

Title 9 PLANNING AND ZONING/Chapter 9.02 PERMITS AND APPROVALS/9.02.150 Temporary use permits

C. Permitted Temporary Uses. The following table identifies those uses which may be permitted subject to the issuance of a temporary use permit:

Temporary Uses Table 9.02.150-3

Permitted Temporary Uses (With a Temporary Use Permit)	**Locations**	**Max. No. Days per Calendar Year**
Commercial and noncommercial Christmas tree sales, and incidental sales of Christmas lights, tree stands and decorations, but excluding gift items	All zones	30
Mobile health clinic	All commercial and industrial districts	14
Merchandise sale - outdoors or in mobile or temporary enclosures - in conjunction with established businesses (see subsection D of this section)	All commercial districts	36 days per shopping or commercial center
Merchandise sale, outdoors or in mobile or temporary enclosures, sponsored by and on the premises of a bank, savings and loan association or credit union of merchandise typically financed by that institution in the normal course of its lending business (see subsection D of this section)	Banks, savings and loan associations and credit unions	12 days per shopping or commercial center
Real estate offices on the site of a proposed subdivision	All districts	n/a
Construction and security personnel offices on active construction sites	All districts	n/a
Temporary construction yards not located on active construction sites	All districts	n/a
Tent meetings	All districts	30
Commercial carnival, concert, exhibit, festival or similar event outdoors or in temporary enclosures	All commercial and industrial districts	14
Noncommercial carnival, fair, concert, exhibit, festival or similar; outdoors or in temporary enclosures	All districts	14
Pumpkin sales lots	All zones	30
Seasonal produce stands	All zones	120
Fireworks Sales	**All commercial districts**	**Fireworks Sales are regulated by Title 11, Chapter 11.22 Fireworks of the Moreno Valley Municipal Code**

NOTICE
OF
PLANNING COMMISSION PUBLIC HEARING

THE PLANNING COMMISSION WILL CONSIDER A CITYWIDE MUNICIPAL CODE AMENDMENT (PEN18-0061), AMENDING SECTION 9.02.150 “TEMPORARY USE PERMIT (TUP)” REGULATIONS BY ADDING “SAFE AND SANE FIREWORKS SALES”

The proposed project (PEN18-0061) is an amendment to the City’s existing Temporary Use Permit (TUP) regulations (Section 9.02.150 of the Municipal Code). The proposed amendment consists of adding safe and sane fireworks sales to the existing list of permitted temporary uses subject to the issuance of a temporary use permit. The recommendation of the Planning Commission on this matter will be carried forward to the City Council in accordance with Section 9.02.050 of the City Municipal Code.

The effects of the authorized sale of safe and sane fireworks within the City are typical of those generated within that class of projects which consist of the minor temporary use of land having negligible or no permanent effects on the environment, therefore, pursuant to Section 15304 (Minor Alternations to Land) of the CEQA Guidelines, the sale of safe and sane fireworks will not cause a significant effect on the environment and is, therefore, categorically exempt from the provisions of CEQA. Similarly, the discharge of safe and sane fireworks within the City on certain dates and times each year pursuant to Sections 15060(c)(2) and 15060(c)(3) of the CEQA Guidelines because it will not result in a direct or reasonable foreseeable indirect physical change in the environment and is not a “project”, as defined in Section 15378 of the CEQA Guidelines.

Any person interested in the proposal may speak at the hearing or provide written testimony at or prior to the hearing. Any person interested in the proposed project may contact Claudia Manrique, Associate Planner at (951) 413-3225 or at the Community Development Department at 14177 Frederick Street, Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and 7:30 a.m. to 4:30 p.m., Friday), or you may telephone (951) 413-3206 for further information.

If you challenge this item in court, you may be limited to raising only those issues you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the Planning Commission on or before the following meeting date:

Thursday, April 26, 2018
7:00 P.M.
City Council Chambers
14177 Frederick Street
Moreno Valley, CA 92552-0805

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 Guy Pegan, ADA Coordinator, at 951.413.3120 at least 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

PLANNING COMMISSION RESOLUTION NO. 2018-28

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, RECOMMENDING CITY COUNCIL APPROVAL OF PEN18-0061, AN AMENDMENT TO TITLE 9 OF THE CITY OF MORENO VALLEY MUNICIPAL CODE SECTION 9.02.150 "TEMPORARY USE PERMIT (TUP)" REGULATIONS BY ADDING FIREWORKS SALES

WHEREAS, City of Moreno Valley has filed an application for the approval of PEN18-0061 (Municipal Code Amendment) as described in the title of this Resolution and Exhibit A (Proposed Change to Temporary Uses Table 9.02.150-3); and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the public hearing notice for this project was published in the local newspaper on April 15, 2018 in accordance with Section 9.02.200 of the Municipal Code; and

WHEREAS, on April 26, 2018, the Planning Commission of the City of Moreno Valley conducted a public hearing to consider the application; and

WHEREAS, pursuant to the California Environmental Quality Act (CEQA) and the State of California Guidelines for Implementation of the CEQA (commencing with Section 15000 of Title 14 of the State CEQA Guidelines), the City is the "lead agency" for the preparation and consideration of environmental documents for this ordinance; and

WHEREAS, by the adoption of this resolution, the Planning Commission recommends that the City Council finds and determines the project's potential environmental impacts under California Environmental Quality Act (CEQA) and determined that there is not a potential for significant negative effects of the authorized sale of safe and sane fireworks within the City. Therefore, the project has been found to be categorically exempt pursuant to Section 15304 (Minor Alternations to Land) of the CEQA Guidelines; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), **NOTICE IS HEREBY GIVEN** that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, by the Planning Commission of the City of Moreno Valley as follows:

A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on April 26, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. **Conformance with General Plan Policies –** The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

   FACT: The proposed Municipal Code Amendment to the City's existing Temporary Use Permit (TUP) regulations (Section 9.02.150 of the Municipal Code) consists of adding fireworks sales to the existing list of permitted temporary uses subject to the issuance of a temporary use permit in the Temporary Uses Table 9.02.150-3 in Section 9.02.150(C) of Chapter 9.02 of Title 9 of the City of Moreno Valley Municipal Code. The Temporary Uses Table 9.02.150-3 will reflect that fireworks sales are regulated by Title 11, Chapter 11.22 Fireworks of the Moreno Valley Municipal Code.

   The Municipal Code Amendment is consistent with the General Plan and its goals, objectives, policies and programs.

2. **Conformance with Zoning Regulations –** The proposed use complies with all applicable zoning and other regulations.

   FACT: The amendment process is necessary to ensure compliance with the procedures required by state law, and to establish a reasonable and fair means to allow amendments and changes which will ensure consistency with the general plan and all applicable zoning and other regulations. The proposed amendment meets all applicable Municipal Code requirements related to amendments to provisions of Title 9 (MC 9.02.050).

   The amendment to the City's existing Temporary Use Permit (TUP) regulations (Section 9.02.150 of the Municipal Code) consists of adding fireworks sales to the existing list of permitted temporary uses subject to the issuance of a temporary use permit in the Temporary Uses Table 9.02.150-3 in Section 9.02.150(C) of Chapter 9.02 of Title 9 of the City of Moreno Valley Municipal Code.

3. **Health, Safety and Welfare –** The proposed use will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

   FACT: The proposed change will not have the potential of adversely affecting the public health, safety or welfare of the residents of City of Moreno Valley or surrounding jurisdictions.

   The City reviewed the project's potential environmental impacts under California Environmental Quality Act (CEQA) and determined that there is not a potential for significant negative effects of the authorized sale of safe and sane fireworks within the City. Therefore, the project has been found to be categorically exempt pursuant to Section 15304 (Minor Alternations to Land) of the CEQA Guidelines.

   The proposed Municipal Code Amendment consists of adding fireworks sales to the existing list of permitted temporary uses subject to the issuance of a temporary use permit. Based on staff's review of the Project, no special circumstances exist that would create a reasonable possibility that this project will have a significant effect on the environment. Therefore, the proposed Project is exempt from CEQA and no further environmental review is required.

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY APPROVES** Resolution No. 2018-28 and thereby:

1. **CERTIFY** that application PEN18-0061 (Municipal Code Amendment), which will allow provisions for sales of safe and sane fireworks as a temporary land use in the City, qualifies as a Class 4 categorical exemption in accordance with CEQA Guidelines, Section 15304 (Minor Alternations to Land); and

2. **APPROVE** Planning Commission Resolution No. 2018-28, recommending that the City Council approve PEN18-0061, the proposed amendment to Title 9 of the City Municipal Code.

APPROVED on this 26th day of April, 2018.

AYES:
NOES:
ABSENT:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

ATTEST:

Albert Armijo, Interim Planning Manager

APPROVED AS TO FORM:

City Attorney

Exhibit A: Proposed Change to Temporary Uses Table 9.02.150-3

EXHIBIT A

Title 9 PLANNING AND ZONING, Chapter 9.02 PERMITS AND APPROVALS, 9.02.150 Temporary use permits (TUPs)

C. Permitted Temporary Uses. The following table identifies those uses which may be permitted subject to the issuance of a temporary use permit:

Temporary Uses Table 9.02.150-3

Permitted Temporary Uses (With a Temporary Use Permit)	**Locations**	**Max. No. Days per Calendar Year**
Commercial and noncommercial Christmas tree sales, and incidental sales of Christmas lights, tree stands and decorations, but excluding gift items	All zones	30
Mobile health clinic	All commercial and industrial districts	14
Merchandise sale - outdoors or in mobile or temporary enclosures - in conjunction with established businesses (see subsection D of this section)	All commercial districts	36 days per shopping or commercial center
Merchandise sale, outdoors or in mobile or temporary enclosures, sponsored by and on the premises of a bank, savings and loan association or credit union of merchandise typically financed by that institution in the normal course of its lending business (see subsection D of this section)	Banks, savings and loan associations and credit unions	12 days per shopping or commercial center
Real estate offices on the site of a proposed subdivision	All districts	n/a
Construction and security personnel offices on active construction sites	All districts	n/a
Temporary construction yards not located on active construction sites	All districts	n/a
Tent meetings	All districts	30
Commercial carnival, concert, exhibit, festival or similar event outdoors or in temporary enclosures	All commercial and industrial districts	14
Noncommercial carnival, fair, concert, exhibit, festival or similar; outdoors or in temporary enclosures	All districts	14
Pumpkin sales lots	All zones	30
Seasonal produce stands	All zones	120
Fireworks Sales	**All commercial districts**	**Fireworks Sales are regulated by Title 11, Chapter 11.22 Fireworks of the Moreno Valley Municipal Code**