Draft

Coachella Airport Business Park
Initial Study/Mitigated Negative Declaration

Lead Agency:

City of Coachella
1515 6th Street
Coachella, CA 92236

Prepared by:

The Altum Group
44-600 Village Court, Suite 100
Palm Desert, CA 92260

March 2023

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Table of Contents

Chapter 1 Introduction ... 1

1.1 Overview ... 1

1.2 Authority ... 1

1.3 Scope of Environmental Review ... 2

1.4 Impact Assessment Terminology ... 2

1.5 Organization of the Initial Study ... 2

1.6 Documents Incorporated by Reference ... 3

Chapter 2 Project Description ... 4

2.1 Project Location and Setting ... 4

Chapter 3 Environmental Evaluation ... 23

3.1 Aesthetics ... 24

3.2 Agriculture and Forestry Resources ... 27

3.3 Air Quality ... 29

3.4 Biological Resources ... 43

3.5 Cultural Resources ... 48

3.6 Energy ... 50

3.7 Geology and Soils ... 56

3.8 Greenhouse Gas Emissions ... 61

3.9 Hazards and Hazardous Materials ... 63

3.10 Hydrology and Water Quality ... 68

3.11 Land Use and Planning ... 72

3.12 Mineral Resources ... 74

3.13 Noise ... 75

3.14 Population and Housing ... 78

3.15 Public Services ... 79

3.16 Recreation ... 81

3.17 Transportation ... 83

3.18 Tribal Cultural Resources ... 88

3.19 Utilities and Services ... 90

3.20 Wildfire ... 93

3.21 Mandatory Findings of Significance ... 94

Chapter 4 Report Preparers ... 96

List of Tables

Table 1 Surrounding Land Uses 4
Table 2 Proposed Building Type/Area 6
Table 3 Parking Requirements 6
Table 4 Estimated Employee Demand 7
Table 5 Construction-Related Regional Criteria Pollutant Emissions 32
Table 6 Construction-Related Local Criteria Pollutant Emissions 33
Table 7 Operational Regional Criteria Pollutant Emissions 34
Table 8 Operations-Related Local Criteria Pollutant Emissions 37
Table 9 Diesel Truck DPM Emissions Cancer Risks at Nearby Sensitive Receptors 40
Table 10 Proposed Project Compliance with Applicable General Plan Energy Policies 54
Table 11 Project Related Greenhouse Gas Annual Emissions 62
Table 12 Regional VMT Estimates 87

List of Exhibits

Exhibit 2-1 Regional Location 9
Exhibit 2-2 Project Site and Vicinity 10
Exhibit 2-3 Existing Land Use Designation 11
Exhibit 2-4 Existing General Plan Sub-Area Designation 12
Exhibit 2-5 Existing Zoning Designation 13
Exhibit 2-6 Proposed Site Plan 14
Exhibit 2-7 Building Elevations 15
Exhibit 2-8 Proposed General Plan Sub-Area Designation 21
Exhibit 2-9 Proposed Zoning Designation 22

Appendix

Appendix A Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis Coachella Airport Business Park Project, Vista Environmental, March 17, 2021.

Appendix B Biological Resources Assessment Memorandum and Coachella Valley Multiple Species Habitat Conservation Plan Analysis for the Airport Business Park Project, Coachella, California, Rincon Consultants, Inc., March 12, 2021.

Appendix C Cultural Resource Investigation in Support of the Coachella Airport Business Park Project, Riverside County, California, PaleoWest Archaeology, May 1, 2020.

Appendix D Geotechnical Investigation Proposed Coachella Airport Business Park NWC State Highway 86 and Airport Boulevard Coachella, California, Geotechnical Professionals Inc., September 25, 2018.

Appendix E Paleontological Resource Assessment for the Coachella Airport Business Park Project in Coachella, Riverside County, California, PaleoWest Archaeology, May 5, 2020.

Appendix F Phase I Environmental Site Assessment Coachella Airport Business Park, Altec Testing & Engineering, Inc., February 23, 2021.

Appendix G	Coachella Airport Business Park Preliminary Hydrology Report, The Altum Group, June 11, 2020.
Appendix H	Project Specific Preliminary Water Quality Management Plan for: Coachella Airport Business Park, The Altum Group, June 11, 2020.
Appendix I	Water Supply Assessment and Water Supply Verification for the proposed Coachella Airport Business Park Project, MSA Consulting, July 2022.
Appendix J	Coachella Airport Business Park Traffic Impact Analysis, Integrated Engineering Group, March 2021.

Acronyms

ADA	American Disabilities Act
ADT	Average Daily Trips
AMSL	Above Mean Sea Level
ANSI	American National Standards Institute
APN	Assessor's Parcel Number
APS	Alternate Planning Strategy
AQMP	Air Quality Management Plan
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AUMA	Adult Use of Marijuana Act
BACMs	Best Available Control Measures
BAU	Business as Usual
BIOS	Biogeographic Information and Observation System
BLM	Bureau of Land Management
BMPs	Best Management Practices
C_2F_6	Hexafluoroethane
C_2H_6	Ethane
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CAT	California Clean Air Act
CBC	California Building Code
C-C/SP	Community Commercial/Specific Plan
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CF_4	Tetrafluoromethane
CFCs	Chlorofluorocarbons
CFG	California Fish and Game

CFR	Code of Federal Regulations
CGS	California Geologic Survey
CH_4	Methane
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPSEI	California Native Plant Society Electronic Inventory
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CPP	Corridor Protection Program
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRWQCB	Colorado River Water Quality Control Board
CUP	Conditional Use Permit
CUPA	California Certified Unified Program Agencies
CVAG	Coachella Valley Association of Governments
CVCC	Coachella Valley Conservation Commission
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
CVWD	Coachella Valley Water District
CWA	Clean Water Act
dB	Decibel
DEH	Department of Environmental Health
DPM	Diesel Particulate Matter
DTSC	California Department of Toxic Substances Control
DVD	Desert Valley Disposal Inc.
DWR	Department of Water Resources
EIC	Eastern Information Center
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
EPO	Environmental Protection and Oversight
EW	East-West
FAR	Floor Area Ratio
FED	Functional Equivalent Document
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GIS	Geographic Information System
GWP	Global Warming Potential

HMBEP	Hazardous Materials Business Emergency Plan
HMBEP	Hazardous Materials Business Emergency Plan
HRA	Health Risk Assessment
HSC	Health and Safety Code
HWMP	Hazardous Waste Management Plan
I-10	Interstate 10
IBC	International Building Code
IFC	International Building Code
IIC50	Impact Isolation Class 50
IPAC	Information for Planning and Consultation System
IS	Initial Study
LCFS	Low Carbon Fuel Standard
L-I	Light Industrial
LID	Low Impact Development
LOS	Level of Service
LST	Localized Significance Threshold
LST	Localized Significance Threshold
MEP	Maximum Extent Practicable
Mgd	Million Gallons per Day
MHFP	Multi-Hazard Functional Plan
MLD	Most Likely Descendant
$MMTCO_2e$	Million Metric Tons of CO_2 Emitted
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
MRZ	Mineral Resources Zone
MSDS	Material Safety Data Sheet
MSWD	Mission Springs Water District
MW	Megawatts
MWD	Metropolitan Water District of Southern California
N_2O	Nitrous Oxides
NAASQ	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NBS	Nesting Bird Surveys
NFPA	National Fire Protection Association
NHD	National Hydrography Dataset
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxide
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service

NRCS	Natural Resources Conservation Service
NRTLs	Nationally Recognized Testing Laboratories
NS	North-South
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHMS	Office of Hazardous Materials Safety
OHV	Off-Highway Vehicle
OPR	Office of Planning and Research
Pb	Lead
PCE	Passenger Car Equivalent
PFCs	Perfluorocarbons
PM	Particulate Matter
PM_{10}	Particulate Matter
$PM_{2.5}$	Particulate Matter Equal to or less than 2.5 Microns in Diameter
PPB	Parts per Billion
PPM	Parts per Million
PPT	Parts per Trillion
PPV	Peak Particle Velocities
PRC	California Public Resources Code
PRF	Power and Reclamation Facility
PSUSD	Palm Springs Unified School District
PV	Photovoltaic
RCALUC	Riverside County Airport Land Use Commission
RCNM	Road Construction Noise Model
RCRA	Resource Conservation and Recovery Act
RCS/SCS	Regional Transportation/Sustainable Communities Strategy
REL	Reference Exposure Level
REMEL	Reference Energy Mean Emission Level
RHNA	Regional Housing Needs Allocation
RO	Reverse Osmosis
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Associations of Government
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy

SF_6	Sulfur Hexafluoride
SH-62	State Highway 62
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SO_2	Sulfur dioxide
SoCal Gas	Southern California Gas
SOI	Sphere-of-Influence
SOx	Sulfur Oxide
SP	Service Populations
SPCC	Spill Prevention and Countermeasure Plan
SRA	Source Receptor Area
SSAB	Salton Sea Air Basin
SSC	Species of Special Concern
STC50	Sound Transmission Class of 50
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T.O.P	Top of Parapet
TACs	Toxic Air Contaminants
TDS	Total Dissolved Solids
TG	Turbine Generator
TIA	Traffic Impact Analysis
UL	Underwriters Laboratories
USACE	United States Army Corps of Engineers
USDOT	US Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife
USGS	United States Geological Survey
UST	Underground Storage Tank
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WDID	Waste Discharge Identification Number
WDR	Wastewater Discharge Requirements
WQMP	Water Quality Management Plan
WSA	Water Supply Assessment

Chapter 1 Introduction

1.1 Overview

Haagen Co., LLC (applicant) is proposing to develop the Coachella Airport Business Park (proposed project), a mixed-use business park development which includes warehouse space, commercial cannabis-related uses, small businesses, self- and vehicle-storage, a drive thru restaurant and service station/mini mart-related land uses, and an electric substation for Imperial Irrigation District in the City of Coachella (City), in Riverside County, California. A detailed project description is provided in Section 2 of this document. The project site is located at the northwest corner of the intersection of State Route 86 and Airport Boulevard and is comprised of three parcels totaling approximately 44 acres. Currently the project site is vacant and is bordered by State Highway 86 (SR-86) to the east, the Whitewater River to the west, vacant land to the north, and a mobile home park to the south.

The proposed project will require the following entitlements from the City:

1) Change of Zone from M-H (Heavy Industrial) to MS-IP (Manufacturing Service) and C-G (General Commercial) to allow the proposed cannabis-related uses;
2) Conditional Use Permit (CUP) to allow cannabis-related land uses throughout the project site;
3) CUP to allow for the proposed drive thru restaurant;
4) CUP to allow for Service-Station/Mini Mart;
5) Tentative Parcel Map;
6) Condominium Map; and
7) Architectural Review to consider the site plan, architecture and landscaping proposed for the site, including a billboard on SR-86.

1.1.1 Project Site History

Based on a review of historical information, the project site consisted of undeveloped and/or vacant land from as early as 1904. In 1953, the project site was used for agriculture until at least 1984. After 1984, no site use was identified, with the exception of grading or weed abatement in 1986.

1.2 Authority

The City of Coachella is the lead agency for the proposed project. The City Council is the governing body for the approval of the project and adoption of the Mitigated Negative Declaration. Because the project involves a change to the existing site, the City Council's consideration of the project and its potential environmental effects is a discretionary action that is subject to the California Environmental Quality Act (CEQA). This Initial Study (IS) and its appendices have been prepared in accordance with CEQA (Statute), the State's Guidelines for Implementation of CEQA (Guidelines) (as amended, 2018), and the City's CEQA Guidelines for preparation of an IS. This IS, when combined with the Notice of Intent to Adopt a Mitigated Negative Declaration, serves as the environmental document for the proposed project pursuant to the provisions of CEQA (Public Resources Code 21000 et seq.) and the CEQA Guidelines (California Code of Regulations Section 15000, et seq.).

1.3 Scope of Environmental Review

The IS evaluates the proposed project's potential environmental impacts on the following topics:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards/Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Mineral Resources
- Noise
- Population/Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems
- Wildfire
- Mandatory Findings of Significance

1.4 Impact Assessment Terminology

The Environmental Checklist identifies potential impacts using four levels of significance as follows:

- No Impact. A finding of no impact is made when it is clear from the analysis that the proposed project would not affect the environment.
- Less than significant. A finding of less than significant is made when it is clear from the analysis that a proposed project would cause no substantial adverse change in the environment and no mitigation is required.
- Less than significant with mitigation incorporated. A finding of less than significant with mitigation incorporated is made when it is clear from the analysis that a proposed project would cause no substantial adverse change in the environment when mitigation measures are successfully implemented by the project proponent.
- Potentially Significant. A finding of potentially significant is made when the analysis concludes that the proposed project could have a substantially adverse impact on the environment related to one or more of the topics listed in the previous section, *Scope of the Initial Study*.

1.5 Organization of the Initial Study

The content and format of this IS meet the requirements of CEQA. This IS contains the following sections:

- Chapter 1 Introduction. This chapter provides a brief summary of the proposed project, identifies the lead agency, summarizes the purpose and scope of the IS, and identifies documents incorporated by reference.
- Chapter 2 Project Description. This chapter provides a project overview including a description of the regional location and project vicinity, including Exhibits; and provides a description of the project elements, e.g., dimensions of the project, and identifies other agencies that may have permitting authority over the project.
- Chapter 3 Environmental Checklist. This chapter provides a copy of the City's Environmental Checklist and responses to each question posed in the checklist. This chapter also provides a brief description of

the sources used to evaluate the proposed project, a brief description of the existing conditions for each topic and an analysis of potential environmental impacts. Mitigation measures are also identified where necessary.

- Chapter 4 List of Preparers. This chapter identifies City staff and consultants who were responsible for the preparation of the IS and implementation of the project.

1.6 Documents Incorporated by Reference

As allowed by CEQA Guidelines Section 15150, a Mitigated Negative Declaration may incorporate by reference all or portions of another document that is generally available to the public. The document used must be available for public review for interested parties to access during public review of the Initial Study and Notice of Intent to Adopt a Mitigated Negative Declaration for this project. The following documents are incorporated by reference.

- City of Coachella General Plan Update 2035
- City of Coachella General Plan Update 2035 Final Environmental Impact Report
- Coachella Valley Water District Subsequent Initial Study and Mitigated Negative Declaration, Valley View Mobile Home Park Water Consolidation Project

These documents are also available for review at the Coachella Planning Department at 53990 Enterprise Way, Coachella, CA 92236. The project specific reports are attached to the Initial Study as appendices. The General Plan and General Plan Final Environmental Impact Report are located on the City's website at: https://cityofcoachellageneralplanupdate.weebly.com/final-eir.html

Chapter 2 Project Description

2.1 Project Location and Setting

Project Location

As detailed in Exhibit 2-1, *Regional Location*, and Exhibit 2-2, *Project Vicinity*, the project site is located at the northwest corner of the intersection of State Route 86 (SR-86) and Airport Boulevard in the City of Coachella (City), in Riverside County, California. The project site is comprised of three parcels totaling approximately 44 acres in size. The Assessor's Parcel Numbers (APNs) of the project site are 763-330-013, 763-330-018, and 763-330-029. The project site is located at Latitude 33˚38'43.9" N and Longitude 116˚08'14.7" W at the approximate geographic center of the project site.

Existing Conditions

Existing General Plan and Zoning Designations

The project site is designated as "Industrial District" under the City's General Plan 2035 Land Use and Community Character Element, (see Exhibit 2-3, *Existing Land Use Designation*) within the southwestern corner of Sub-Area 8 – East Industrial District, (see Exhibit 2-4, *Existing General Plan Sub-Area Designation*), which allows for development of a variety of industrial and office uses. The project site is located within the Heavy Industrial (M-H) zoning district, per the City's Official Zoning Map (see Exhibit 2-5, *Existing Zoning Designation*).

Existing and Surrounding Land Uses

The project site is bordered by a vacant, undeveloped property owned by the California Department of Transportation (Caltrans) containing shrubbery and tamarisk trees located immediately north. To the west, the project site is bordered by the Coachella Valley Stormwater Channel; to the east by SR-86 and agricultural land uses beyond; and to the south by Airport Boulevard and a mobile home park beyond. A vacant 3.44-acre right-of-way under Caltrans' jurisdiction abuts the southeastern frontage of the project site. See Table 1, *Surrounding Land Uses*.

Table 1 Surrounding Land Uses

Direction	General Plan Designation	Zoning	Existing Land Use
North	Industrial District	Transportation	Vacant
South	Medium-High Density Residential (Unincorporated County of Riverside)	Residential Agricultural 20 (Unincorporated County of Riverside)	Mobile Home Park
East	Industrial District	Transportation	State Route 86
West	Waterway	Open Space	Coachella Valley Stormwater Channel

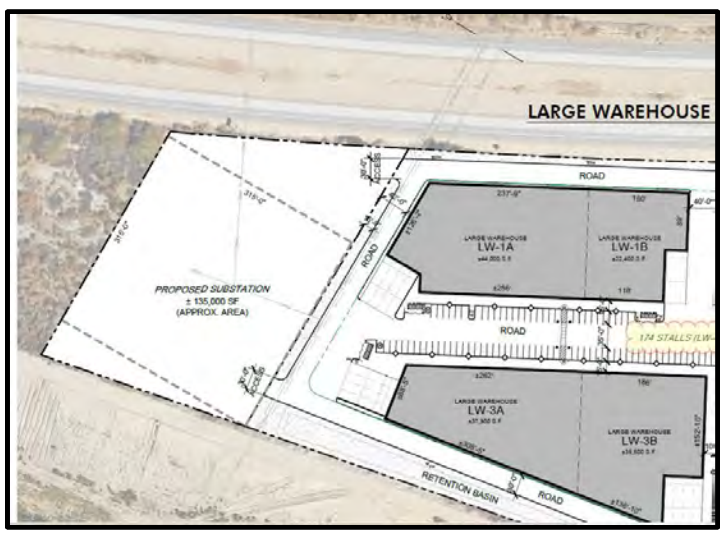
Existing Utility Infrastructure

Existing utility infrastructure at the project site consists of a 30-inch Coachella Valley Water District (CVWD) waterline that runs parallel to the southern boundary of the project site. Additionally, a 16-inch CVWD drainage line (Avenue 55 East Drainage) runs parallel to the northern boundary of the project site. Three private tile drainage lines underlie the center of the project site. Proximate electrical infrastructure is not present at the project site. The applicant will coordinate with the City for water services, CVWD for sewer services, Imperial Irrigation District (IID) for electrical services, and Southern California Gas Company (SoCal Gas) for natural gas services.

Project Components

As shown in both Exhibit 2-6, *Proposed Site Plan*, and Table 2, *Proposed Building Type/Area*, the proposed building types for the proposed project will include large warehouses, small warehouses, small businesses, personal vehicle storage, self-storage, and retail comprised of a service station/mini mart and drive-thru fast food restaurant. The service station/mini mart (4,000 SF) and drive-thru fast food restaurant (4,650 SF) are proposed to be developed at the southern end of the project site in concert with the proposed project's primary access point along Airport Boulevard, within close proximity to the SR-86 off ramp. Adjacent to the two retail buildings to the north, will be the small business sector of the project site that will be comprised of 18 buildings for office and/or warehouse uses that are each 4,500 SF of leasable space. Beyond the small business area of the project site, to the northwest, will be the personal vehicle storage area of the proposed project that will contain a total of four (4) hangar type buildings which are each 19,200 SF, and with a centralized courtyard-type green space between the buildings. The personal vehicle storage area will be designed for storage of automobiles and motorsport vehicles. The self-storage area of the proposed project will be located within the western central portion of the project site and be comprised of 17 buildings ranging in building footprints from 5,200 SF to 10,400 SF. The small warehouse area of the proposed project will be located within the eastern central portion of the project site and consist of five (5) warehouse buildings ranging from 9,600 SF to 24,000 SF. The large warehouse area of the proposed project will be located within the northern portion of the project site and consist of four (4) warehouse buildings ranging from 22,400 SF to 48,800 SF. Both the large and small warehouse areas will be built to accommodate both logistical/distribution-related uses (i.e., fulfillment centers) and for cannabis uses, including cultivation, manufacturing and distribution.

In addition, a new 315' x 315' substation with a 1-25 mega volt ampere (MVA) 92/13.2 kilovolt (kV) transformer bank would be constructed on the north side of the project in excess right-of-way being purchased by the applicant from Caltrans as shown in the drawing to the right. Caltrans will remove this parcel from their right-of-way through a separate process called an abandonment of right-of-way which is exempt from CEQA per Section 66428 (a) (2) of the Subdivision Map Act. The substation is required in order to provide adequate power for the proposed project. There also would be 92 kV transmission line extensions and associated distribution feeders/backbones and distribution line extensions installed on the site.



The proposed building heights will range from 24 to 50-feet. All project design will be required to maintain consistency with the Design Guidelines for the project, submitted in conjunction with the Architectural Review for the project. The applicant has also submitted a request for an electronic billboard, to be located adjacent to the SR-86 right of way, and measuring 14 by 48 feet, on a 44 foot high base.

Lastly, the project would provide off-site water and sewer improvements to the project site. The City will provide water services to the project site via a proposed water line that would connect from a water line planned in the Grapefruit Boulevard right-of-way from the north to Palm Street, and extend easterly through the Union Pacific Railroad right-of-way and the Whitewater River Channel to serve the site. CVWD would provide sewer services to the project site via a proposed sewer line that would be located beneath Airport Boulevard.

Table 2 Proposed Building Type/Area

Proposed Building Type	Square Footage (SF)	Proposed Building Height
Large Warehouse	233,100 SF	±38' to 50'
Small Warehouse	96,000 SF	±28' to 32'
Small Business	81,000 SF	±24' to 28'
Personal Vehicle Storage	76,800 SF	±24' to 28'
Self-Storage	128,600 SF	±24' to 28'
Service Station/Mini Mart	4,000 SF	±24' to 28'
Drive-Thru Fast Food Restaurant	4,650 SF	±24' to 28'
Total Building Area	**624,150 SF**	

Table 3 Parking Requirements

Proposed Building Type	Square Footage (SF)	Parking Requirements
Large Warehouse	20,000 SF	50 Stalls
	213,100 SF	213.1 Stalls
Small Warehouse	20,000 SF	50 Stalls
	76,000 SF	76 Stalls
Small Business	20,000 SF	50 Stalls
	61,000 SF	61 Stalls
Personal Vehicle Storage	20,000 SF	50 Stalls
	56,800 SF	56.8 Stalls
Self-Storage (Office)	625 SF	1.5 Stalls
Service Station/Mini Mart	4,000 SF	5 Stalls
Drive-Thru Fast Food Restaurant	2,000 SF – 50% (Customer Area)	44.4 Stalls
	2,000 SF – 50 % (Non-Customer Area)	10 Stalls
Total Parking Required		**667.8 Stalls or 668 Stalls**
Total Parking Provided		**686 Stalls**

Change of Zone

The proposed project includes a change of zone from the existing M-H to Manufacturing Service (M-S) and General Commercial, as shown in Exhibit 2-8, *Proposed Zoning Designation*. The change of zone to M-S will allow for the proposed project to include cannabis cultivation, processing, testing, manufacturing and/or wholesale distribution. The General Commercial zone will apply only to the southern end of the project, to allow the two retail uses: the drive-through restaurant and serve station/convenience store,

Project Phasing and Construction

The proposed project will be completed in three (3) phases. Phase 1 will take approximately 1-5 years, Phase 2 will take approximately 5-10 years, and Phase 3 will take approximately 10-20 years. Full build-out of the proposed project is anticipated to occur within 30 years of initiating construction.

Conceptual Circulation

Primary project access will be provided along the southwestern frontage along Airport Boulevard. The proposed second access point will be provided further east at the southeastern frontage along Airport Boulevard and will be used as emergency access only. A roadway, varying in widths from 30 to 40-feet, will be constructed through the proposed project to serve as the central thoroughfare and allow for complete circumnavigation of the project site. This central roadway has been designed to allow for adequate fire access and turn radii throughout the project site. The applicant will be subject to the standards and requirements of the Riverside County Fire Department, California Department of Transportation (Caltrans), and the City to ensure that all access- and circulation-related design features are in compliance with applicable regulatory requirements.

Employment

At full build-out, the proposed project is estimated to employ a maximum of 698 employees. The total estimated employees are broken down by the proposed building types of the proposed project in Table 4, *Estimated Employee Demand.*

Table 4 Estimated Employee Demand

Proposed Building Type	**Square Footage (SF)**	**Estimated Employees**
Large Warehouse	233,100 SF	226
Small Warehouse	96,000 SF	93
Small Business	81,000 SF	162
Personal Vehicle Storage	76,800 SF	75
Self-Storage	128,600 SF	125
Service Station/Mini Mart	4,000 SF	8
Drive-Thru Restaurant	4,650 SF	9
Total Building Area	**624,150 SF**	698

Source: Socioeconomic Build-Out Assumptions and Methodology, County of Riverside, April 2017

Actions and Approvals

Agency	Permit/Approval Required
FEDERAL	
No federal agencies identified	
STATE	
State Water Resources Control Board	Construction Stormwater General Permit Notice of Intent to Comply with Section 402 of the Clean Water Act Construction Stormwater Pollution Prevention Plan
State Department of Transportation (Caltrans)	Encroachment permits, right of way abandonment.
REGIONAL	
South Coast Air Quality Management District	PM-10 Plan for compliance with Rule 403.1, Dust Control in the Coachella Valley
Regional Water Quality Control Board Region 7	Water Quality Management Plan
Riverside County Airport Land Use Commission	Review of project consistency with the Airport Land Use Compatibility Plan
County of Riverside Department of Environmental Health	Approval of Hazardous Waste Business Plan for applicable land uses
LOCAL	
City of Coachella	Approval of the following entitlements: • Change of Zone from M-H to MS-IP and C-G to allow for proposed land uses • CUP for the cannabis-related uses • CUP for Drive Thru Shop • CUP for Service Station/Mini Mart • Tentative Parcel Map • Condominium Map • Planning Commission Architectural Review

1 IN = 3 MI

The Altum Group

Regional Location

Coachella Airport Business Park

Exhibit

2-1

1 IN = 0.25 MI

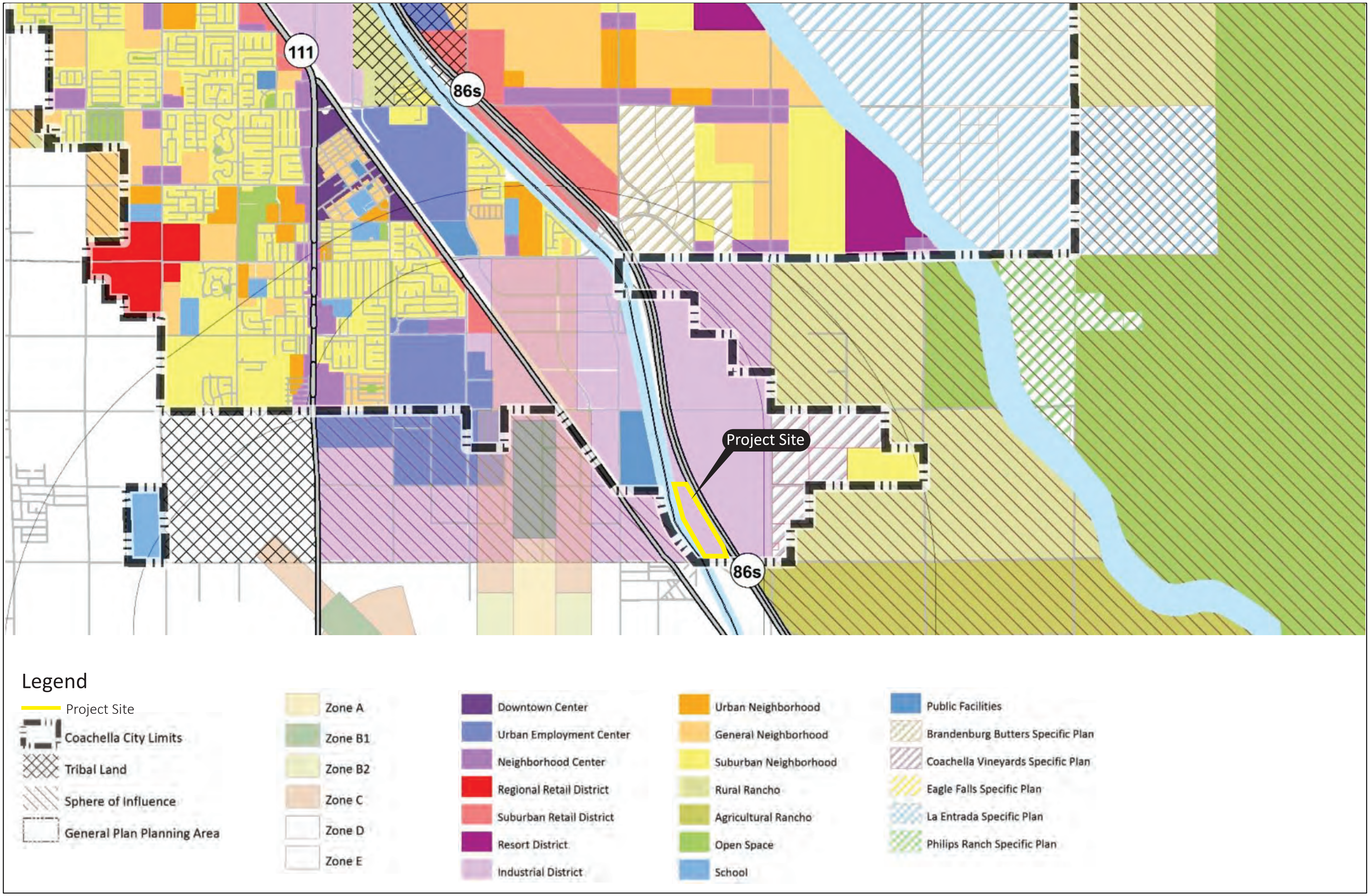
The Altum Group

Project Vicinity

Coachella Airport Business Park

Exhibit

2-2



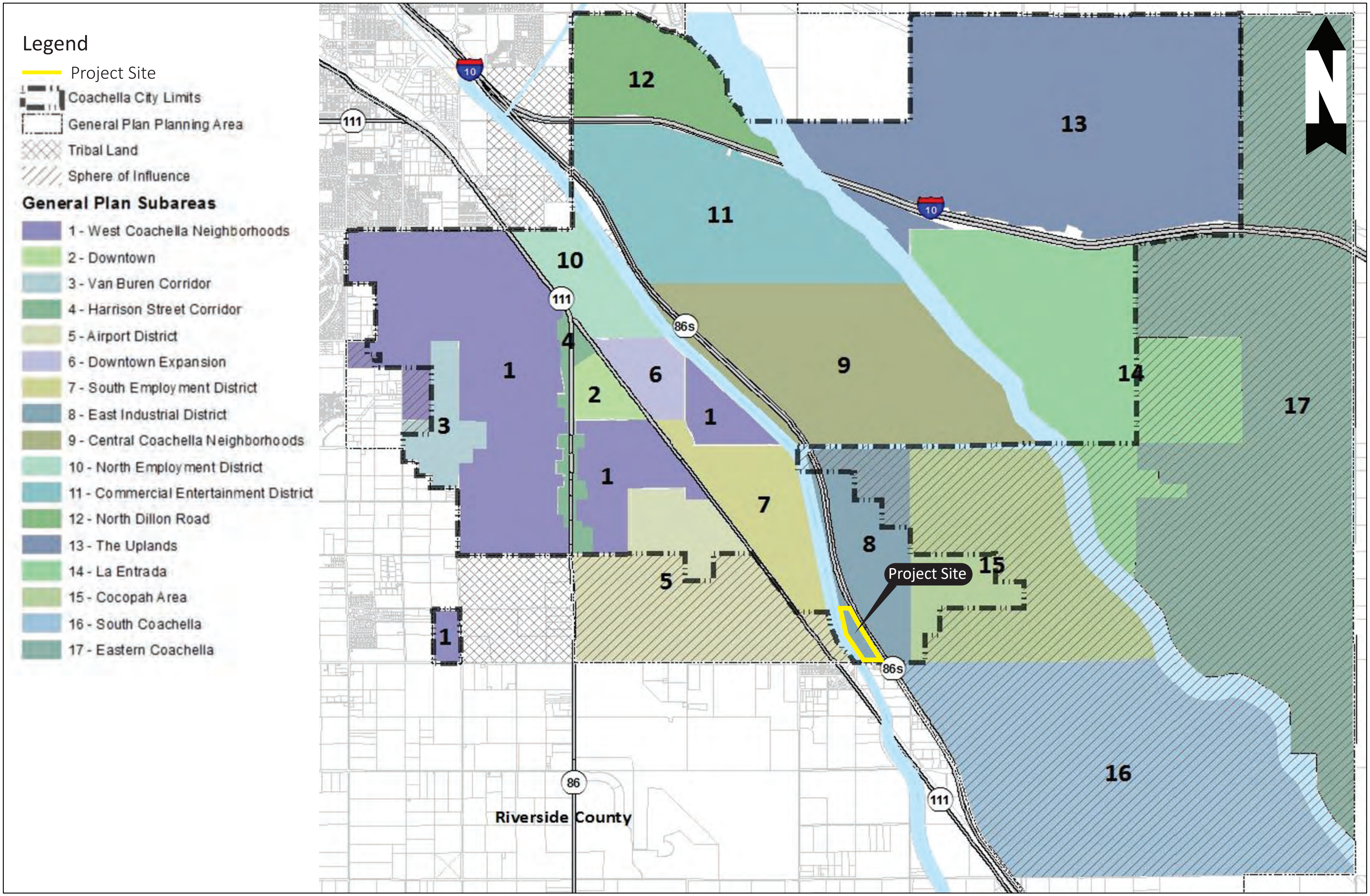
The Altum Group

Existing Land Use Designation

Coachella Airport Business Park

Exhibit

2-3



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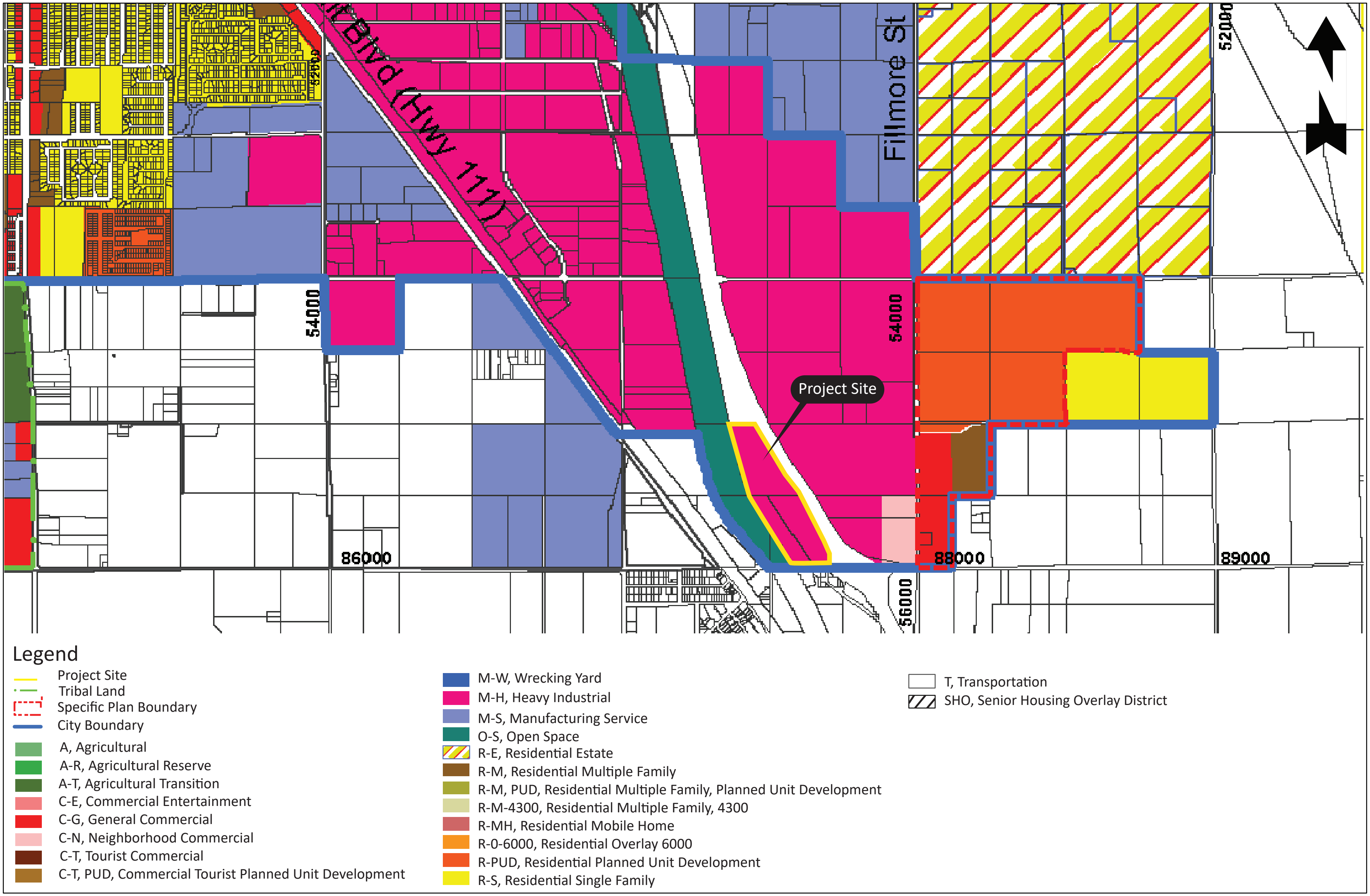
Existing General Plan Sub-Area Designation

Coachella Airport Business Park

Exhibit

2-4



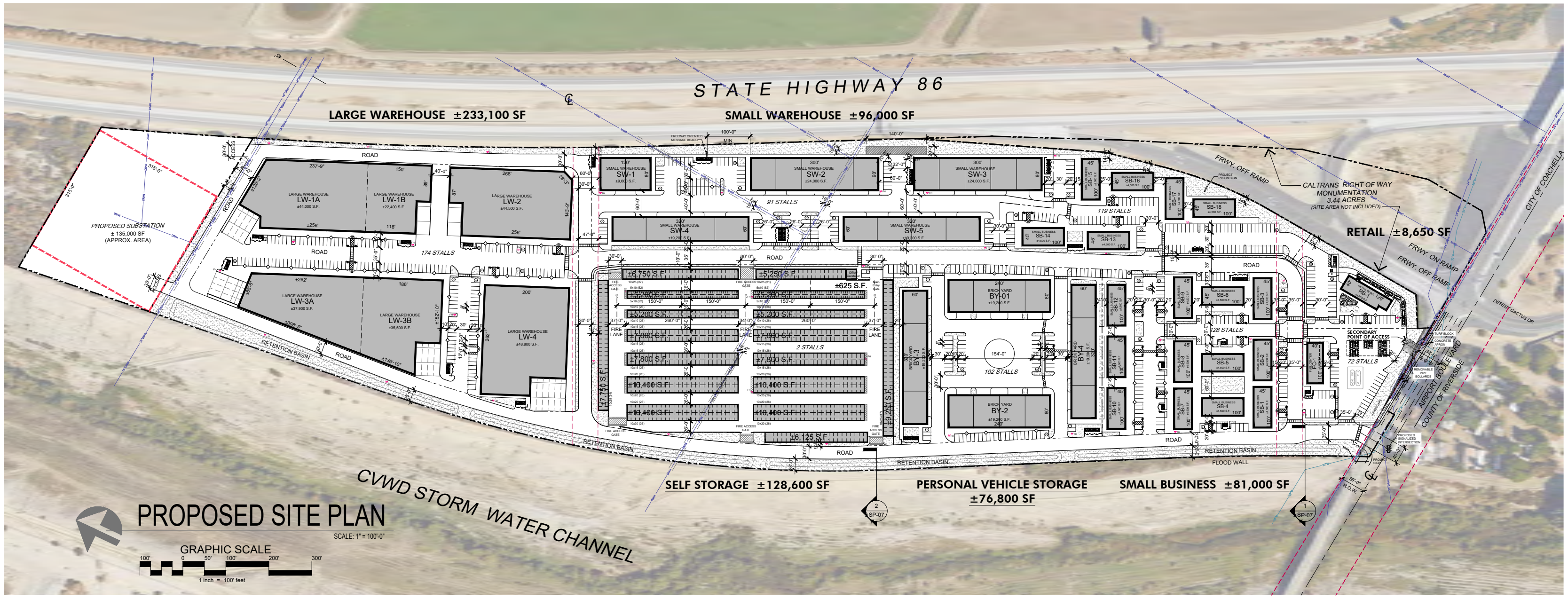
The Altum Group

Existing Zoning Designation

Coachella Airport Business Park

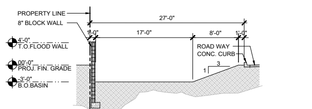
Exhibit

2-5



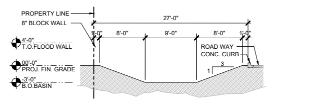
PROPOSED SITE PLAN

SCALE: 1" = 100'-0"



1 RETENTION BASIN TYP. CROSS SECTION

SCALE: 1/8" = 1'-0"



2 RETENTION BASIN TYP. CROSS SECTION

SCALE: 1/8" = 1'-0"

FIRE DEPARTMENT NOTES:

Fire Hydrants and Fire Flow: Prior to the issuance of building permits, plans for the water system shall be submitted to the fire department for review and approval. The water system shall be capable of delivering the required fire flow. Fire hydrant(s) location and spacing shall comply with the fire code. An approved water supply for fire protection during construction shall be made available prior to the arrival of combustible materials on site. Reference 2016 California Fire Code (cfc) 507.5.1, 3312, Appendices B and C.

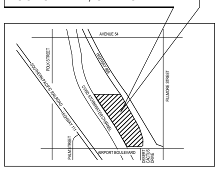
Phased Construction Access: If construction is phased, each phase shall provide approved access for fire protection prior to any construction. Ref. CFC 503.1

Knox Box and Gate Access: Buildings shall be provided with a knox box. The Knox Box shall be installed in an accessible location approved by the Office of the Fire Marshal. All electronically operated gates shall be provided with Knox key switches and automatic sensors for access. Manual gates shall also be provided with approved emergency access (Knox) equipmentRef. CFC 506.1

NOTE:

1. **FIRE HYDRANT TO BE LOCATED MAX. 300 FT. O.C. OR AS APPROVED BY RIVERSIDE COUNTY FIRE DEPARTMENT**
2. **PROPOSED FIRE HYDRANT LOCATION ON SITE ARE REPRESENTED BY FH SYMBOL**
3. **43 FT. LENGTH TEMPLATE WAS USED TO ILLUSTRATE FIRE TRUCK PATH**
4. **MINIMUM TRUCK TURNING RADIUS ±30 FT.**

N.W.C. OF STATE HWY. 86 &
AIRPORT BOULEVARD
COACHELLA, CALIFORNIA



VICINITY MAP

NOT TO SCALE

NORTH

PROJECT DATA

CLIENT:	HAAGEN CO., LLC
PROJECT LOCATION:	N.W.C. OF STATE HWY. 86 AND AIRPORT BOULEVARD COACHELLA, CA 92274
JURISDICTION:	CITY OF COACHELLA, CA
APN/S:	763-330-013, 018, 029
ZONING: EXISTING	M-H (HEAVY INDUSTRIAL)
PROPOSED	M-S (MANUFACTURING SERVICE) I-P (INDUSTRIAL PARK OVERLAY DIST.)
PROPOSED USE:	LARGE & SMALL WAREHOUSE, SMALL BUSINESS, SELF STORAGE, SERVICE STATION AND DRIVE THROUGH
BOUNDARY INFORMATION:	THIS PLAN HAS BEEN PREPARED BY USING THE CONSTRAINTS EXHIBIT BY THE ALTUM GROUP, DATED FEB. 15, 2018

SITE SUMMARY

SITE AREA

APN# 763-330-013	21.56 AC
APN# 763-330-018	9.62 AC
APN# 763-330-029	11.18 AC
TOTAL SITE AREA	42.36 AC

BUILDING DATA

PROPOSED BUILDING AREA

LARGE WAREHOUSE	±233,100 SF
SMALL WAREHOUSE	±96,000 SF
SMALL BUSINESS	±81,000 SF
PERSONAL VEHICLE STORAGE	±76,800 SF
SELF STORAGE	±128,600 SF
SERVICE STATION/ MINI MART	±4,000 SF
DRIVE-THRU FAST FOOD RESTAURANT	±4,650 SF
TOTAL BUILDING AREA	±624,150 SF
RETENTION BASIN	± SF

PARKING REQUIRED:

Restaurant w/ Drive Through (1/45 sf of Customer Area + 1/200 sf Non Customer Area)

Customer Area (±2,000 SF - 50%)		= 44.4	Stalls
Non Customer Area (±2,000 SF - 50%)		= 10	Stalls
Service Station		= 5	Stalls
Large Warehouse (237,200 sf)	20,000 sf	= 50	Stalls
	213,100 sf	= 213.1	Stalls
Small Warehouse (96,000 sf)	20,000 sf	= 50	Stalls
	76,000 sf	= 76	Stalls
Small Business (81,000 sf)	20,000 sf	= 50	Stalls
	61,000 sf	= 61	Stalls
Personal Vehicle Storage (76,800 sf)	20,000 sf	= 50	Stalls
	56,800 sf	= 56.8	Stalls
Self Storage Office (625 sf)		= 1.5	Stalls
GRAND TOTAL REQUIRED		667.8 Stalls or 668 Stalls	

PARKING PROVIDED:

STANDARD:	587 STALLS
DISABLED:	44 STALLS
ELECTRIC / CLEAN AIR VEHICLES	55 STALLS
PER CAL GREEN TABLE 5.106.5.2 & 5.106.5.3.3	
FUTURE EV VAN ACCESSIBLE	1 STALL
FUTURE EV STANDARD ACCESSIBLE	1 STALL
FUTURE AMBULATORY	1 STALL
FUTURE EV CHARGING STATION	38 STALLS
CLEAN AIR VAN POOL / EV	14 STALLS
TOTAL PARKING PROVIDED	686 STALLS

BUILDING DATA

PROPOSED BUILDING HEIGHT

LARGE WAREHOUSE	±38' TO 50' HIGH
SMALL WAREHOUSE	±28' TO 32' HIGH
SMALL BUSINESS	±24' TO 28' HIGH
PERSONAL VEHICLE STORAGE	±24' TO 28' HIGH
SELF STORAGE	±24' TO 28' HIGH
RETAIL (GAS STATION & DRIVE THRU)	±24' TO 28' HIGH

BUILDING TYPE TYPE V-B (FULLY SPRINKLERED)

Coachella Airport Business Park
COACHELLA, CALIFORNIA

Haagen Co., LLC
12302 EXPOSITION BLVD., LOS ANGELES, CA 90064

McKently Malak ARCHITECTS
35 Hugus Alley, Suite 200
Pasadena, California 91103-3648
TEL 626.583.8348 FAX 626.583.8387

PROPOSED SITE PLAN
02.08.2021 18028TMA
SP-17

Note: Signage shown on the elevations for graphic purpose only and does not represent the use or actual tenants

Haagen Co LLC
12302 Exposition Boulevard, Los Angeles CA 90064

Coachella Airport Business Park
NWC State Highway 86 and Airport Road
COACHELLA, CALIFORNIA

McKently Malak ARCHITECTS
35 Hugus Alley Suite 200
Pasadena, California 91103
T:6265838348 F:6265838387

ELEVATIONS
06.09.2020 18028TMA
A-201

The Altum Group

Building Elevations

Coachella Airport Business Park

Exhibit

2-7

Note: Signage shown on the elevations for graphic purpose only and does not represent the use or actual tenants

Haagen Co LLC
12302 Exposition Boulevard, Los Angeles CA 90064

Coachella Airport Business Park
NWC State Highway 86 and Airport Road
COACHELLA, CALIFORNIA

McKently Malak ARCHITECTS
35 Hugus Alley Suite 200
Pasadena, California 91103
T:626.583.8348 F:626.583.8387

ELEVATIONS
06.09.2020 18028TMA
A-202

The Altum Group

Building Elevations

Coachella Airport Business Park

Exhibit

2-7

Note: Signage shown on the elevations for graphic purpose only and does not represent the use or actual tenants

Haagen Co LLC
12302 Exposition Boulevard, Los Angeles CA 90064

Coachella Airport Business Park
NWC State Highway 86 and Airport Road
COACHELLA, CALIFORNIA

McKently Malak ARCHITECTS
35 Hugus Alley Suite 200
Pasadena, California 91103
T:6265838348 F:6265838387

ELEVATIONS
06.09.2020 18028TMA
A-203

Note: Signage shown on the elevations for graphic purpose only and does not represent the use or actual tenants

Haagen Co LLC
12302 Exposition Boulevard, Los Angeles CA 90064

Coachella Airport Business Park
NWC State Highway 86 and Airport Road
COACHELLA, CALIFORNIA

McKently Malak ARCHITECTS
35 Hugus Alley Suite 200
Pasadena, California 91103
T:6265838348 F:6265838387

ELEVATIONS
06.09.2020 18028TMA
A-204

The Altum Group

Building Elevations

Coachella Airport Business Park

Exhibit

2-7

Note: Signage shown on the elevations for graphic purpose only and does not represent the use or actual tenants

Haagen Co LLC
12302 Exposition Boulevard, Los Angeles CA 90064

Coachella Airport Business Park
NWC State Highway 86 and Airport Road
COACHELLA, CALIFORNIA

McKently Malak ARCHITECTS
35 Hugus Alley Suite 200 Pasadena, California 91103
T:6265838348 F:6265838387

ELEVATIONS
06.09.2020 18028TMA
A-205

Note: Signage shown on the elevations for graphic purpose only and does not represent the use or actual tenants

Haagen Co LLC
12302 Exposition Boulevard, Los Angeles CA 90064

Coachella Airport Business Park
NWC State Highway 86 and Airport Road
COACHELLA, CALIFORNIA

McKently Malak ARCHITECTS
35 Hugus Alley Suite 200 Pasadena, California 91103
T:6265838348 F:6265838387

ELEVATIONS
06.09.2020 18028TMA
A-206

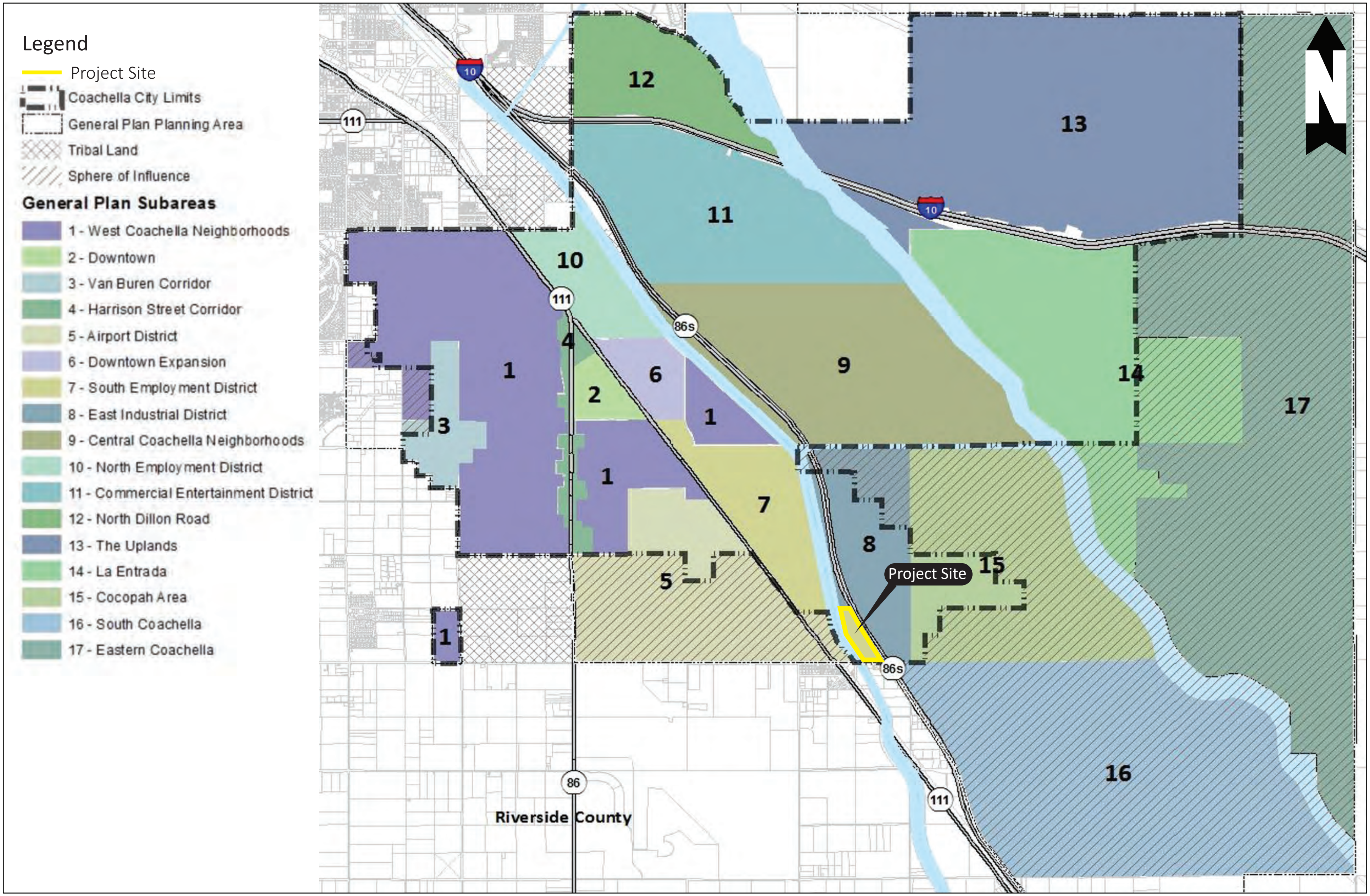
The Altum Group

Building Elevations

Coachella Airport Business Park

Exhibit

2-7



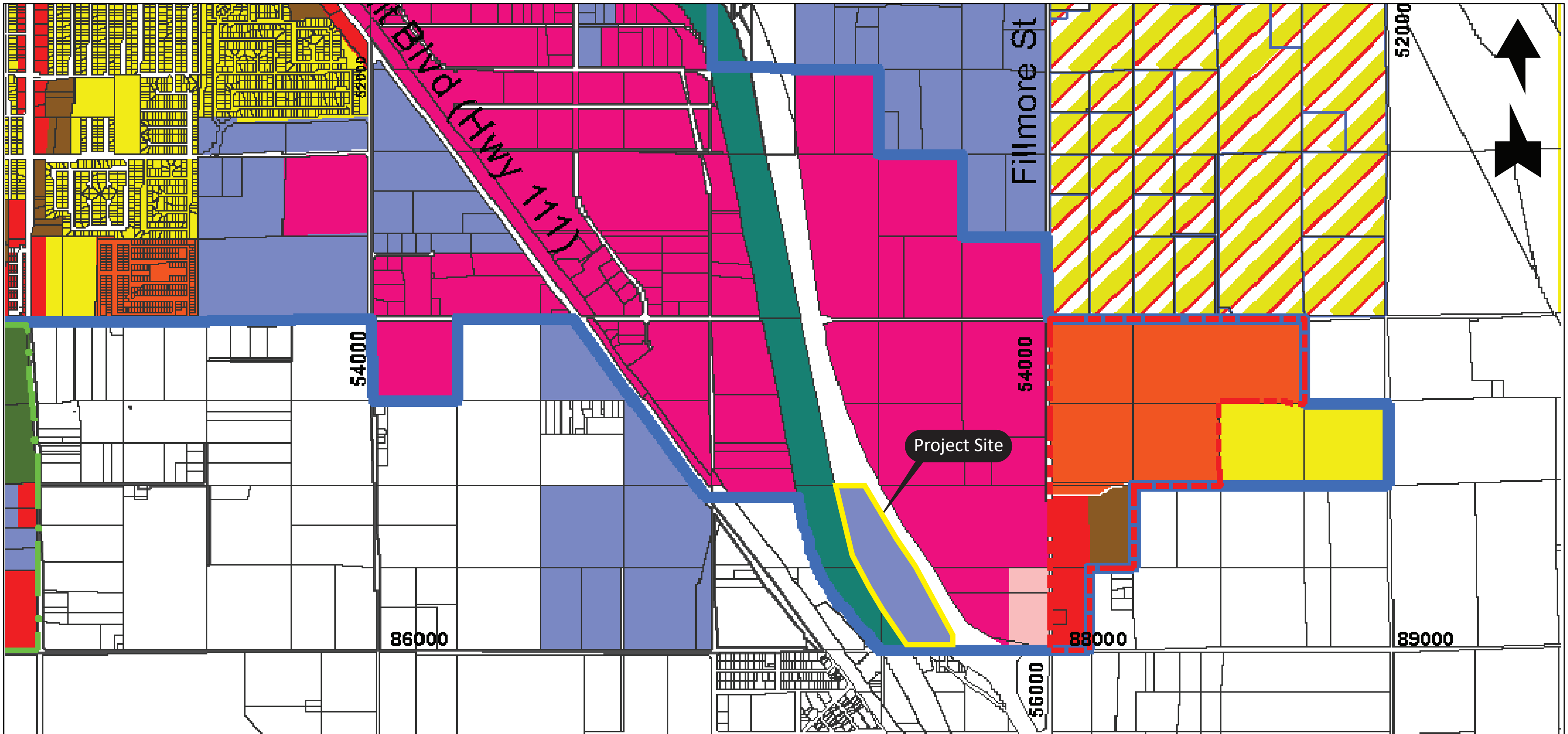
The Altum Group

Proposed General Plan Sub-Area Designation

Coachella Airport Business Park

Exhibit

2-8



Legend

- - - Project Site
Tribal Land
Specific Plan Boundary
City Boundary
A, Agricultural
A-R, Agricultural Reserve
A-T, Agricultural Transition
C-E, Commercial Entertainment
C-G, General Commercial
C-N, Neighborhood Commercial
C-T, Tourist Commercial
C-T, PUD, Commercial Tourist Planned Unit Development
M-W, Wrecking Yard
M-H, Heavy Industrial
M-S, Manufacturing Service
O-S, Open Space
R-E, Residential Estate
R-M, Residential Multiple Family
R-M, PUD, Residential Multiple Family, Planned Unit Development
R-M-4300, Residential Multiple Family, 4300
R-MH, Residential Mobile Home
R-0-6000, Residential Overlay 6000
R-PUD, Residential Planned Unit Development
R-S, Residential Single Family
T, Transportation
SHO, Senior Housing Overlay District

The Altum Group

Proposed Zoning Designation

Coachella Airport Business Park

Exhibit

2-9

Chapter 3 Environmental Evaluation

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 and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Tribal Cultural Resources	☐ Utilities and Service Systems
☐ Mandatory Findings of Significance		

DETERMINATION:

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 describe 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.

______________________________ March 31, 2023

Signature Date

3.1 Aesthetics

3.1.1 Sources

- *City of Coachella General Plan Update 2035*
- *City of Coachella General Plan Update Environmental Impact Report (EIR) 2035*
- *California Department of Transportation, California State Scenic Highway Mapping System, Riverside County, http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/*, accessed March 25, 2020

3.1.2 Environmental Setting

The project site is bordered by a vacant, undeveloped property owned by Caltrans and containing sporadic shrubbery and tamarisk trees immediately to the north. To the west, the project site is bordered by the Coachella Valley Stormwater Channel, to the east, by SR-86 and agricultural land uses beyond, and to the south by Airport Boulevard and a mobile home park beyond. A vacant 3.44-acre right-of-way under California Department of Transportation (Caltrans) jurisdiction abuts the southeastern frontage of the project site.

The City of Coachella offers views of the surrounding Little San Bernardino, Santa Rosa, and San Jacinto mountain ranges, which have a significant elevation rise over the valley floor and are visible from most locations in the City, including the project site. The foothills of the Little San Bernardino Mountains extend along the north and northeast portion of the Coachella Valley. The foothills of the Santa Rosa Mountains and San Jacinto Mountains are southwest and west of the project site. For distant viewshed quality, both Airport Boulevard and State Route 86 offer a medium visual quality in providing viewshed visibility of the Santa Rosa, San Jacinto, and the Little San Bernardino Mountains. For the local vicinity, the existing viewshed quality contains no prominent, physical, or scenic features (i.e., tall trees, historical landmarks, boulder outcroppings, etc.) and therefore provides only a poor viewshed quality perspective to the local vicinity. The project site is not located in an area with identified scenic resources such as rock outcroppings or historic buildings and is not within a State Scenic Highway viewshed.

3.1.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
AESTHETICS – Would the project:				
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) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
the project conflict with applicable zoning and other regulations governing scenic quality?				
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a. **Less than Significant Impact.** Scenic vistas provide valuable aesthetic resources that include expansive landscape views of the Coachella Valley. Scenic vistas within the City of Coachella include the Mecca Hills, which are located within the eastern portion of the City and approximately 6 miles from the project site. Additional scenic vistas that can be seen from the project site but that are not within the City of Coachella include the Santa Rosa and San Jacinto Mountains, and the Little San Bernardino Mountains. In addition, scenic resources within the City are located within Subarea 13, 14, 16, and 17, which are planned for minimal impact development. As shown in Exhibit 2-8, *Building Elevations*, the proposed maximum height for buildings within the development would range from approximately 24 to 50 feet. The proposed buildings and site improvements would partially obscure views of the Santa Rosa, San Jacinto, and Little San Bernardino Mountains – although not substantially more than views are obscured under existing conditions – and views of these Mountains would continue to be available above the buildings. Therefore, the proposed project would not have a substantial adverse effect on scenic vistas and impacts would be less than significant.

b. **No Impact.** According to CalTrans, there are no designated or eligible State Scenic Highways within the City of Coachella. In addition, the project site is located in an area that is mostly vacant and does not include any unique trees, rock outcroppings, or other natural features. Furthermore, according to the City of Coachella General Plan EIR there are no resources within the City listed as California Registered Historical Landmarks, or places listed on the National Register of Historic Places. Therefore, the proposed project would have no impact on scenic resources and no mitigation is required.

c. **Less than Significant Impact.** According to the Coachella General Plan Update EIR, the City has a unique visual characteristic in its scenic geographical location, agricultural and rancho history, and quality architecture or historic buildings. Although the alteration of the existing landscape is unavoidable due to future development, the views of the mountains, and rural, agricultural character should be respected, maintained, and preserved.

   The EIR presents policies to help preserve the existing visual character of the City where it is deemed valuable, or direct future development to either enhance the existing visual character in the City or create a new, complementary visual character. Specifically, these policies direct new development to maintain the existing small-town character and cultural diversity of Coachella, preventing development not compatible with the existing character from being constructed. The policies identify specific urban design practices, such as the development of complete neighborhoods, preservation of agriculture and open space, pedestrian-oriented design, and sustainable development practices, as methods of achieving the preservation of this character.

   Further, the policies specify that the City's natural resources should be retained to help preserve visual character, which will further preserve the existing character. Finally, the policies require high-quality and long-lasting building materials and quality architecture, which will also ensure quality visual character in the community by preventing the construction of bland, poor quality buildings.

Currently the project site is undeveloped vacant land with sparse desert flora. The surrounding land is mostly vacant and consists of minimal development, with the exception of the eastern boundary, which contains the SR-86 right of way and existing highway The only development surrounding the property is located to the south and consists of a mobile home park. Under existing conditions, the project site is zoned M-H as established by the City's Zoning Map. The applicant proposes to change the zoning designation from M-H to M-S to convert the undeveloped vacant site to a mixed-use business park. The provisions of the proposed zone are similar to the site's existing zone and intended to ensure that manufacturing service areas would be compatible with adjacent, non-industrial development and would protect such areas from potential hazards of industrial development. Therefore, the project would not create a significant impact to existing surroundings. Furthermore, the project includes Architectural Review under proposed Design Guidelines which provided a uniform, quality aesthetic to the project. Therefore, the project would comply with the City's zoning standards, and impacts to visual character and the quality of the site and surroundings would be less than significant.

d. Less than Significant Impact. As previously mentioned, the project site is currently vacant land surrounded by a freeway, a stormwater channel, and a roadway. Existing light sources within the vicinity of the project area include light from existing street lights and traveling vehicles along Airport Boulevard and State Route 86. Other additional lighting comes from the residential homes located to the south of the project site and scattered development in the area. The proposed project would involve the construction of several building types including large and small warehouses, small businesses, storage, service station/mini mart, and a drive-thru restaurant. All proposed buildings would incorporate mounted lighting that would assist with visibility in the interior of the project site. In addition, for security purposes, exterior wall mounted lighting will be installed at all entry points of each building as well as the entrance to the project site along Airport Boulevard. Security lighting will also be installed and dispersed through the parking areas and any designated walkways. The proposed development will be required to adhere to all development standards as listed in Chapter 17.30.030 - *Property development standards* and 17.54 - *Off-street Parking and Loading* of the City of Coachella Municipal Code. The proposed project site plan, landscape plan, and lighting plan demonstrate compliance with all development standards including outdoor lighting.

Finally, the project proposes an electronic billboard to be located in the northern half of the site, adjacent to the SR-86 right of way. The billboard will be subject to approval by Caltrans as it relates to light levels, and must be designed to emit no greater light levels or changes in messages than established by Caltrans requirements. These standards will ensure that the lighting emanating from the billboard will be less than significant for travelers on SR-86.

Therefore, the proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area and impacts would be less than significant.

3.1.4 Mitigation

No mitigation required.

3.1.5 Level of Significance after Mitigation

Less than Significant.

3.2 Agriculture and Forestry Resources

3.2.1 Sources

- *City of Coachella General Plan Update 2035*

3.2.2 Environmental Setting

The project site is presently vacant, and the ground surface is covered with scattered desert brush, weeds, and minor debris. The project site has an existing ground surface elevation range from about 120 to 112 feet below mean sea level (MSL). The project site is not zoned for agricultural use nor is it currently used for agriculture.

The City's General Plan 2035 and Zoning Map designate the approximate 44-acre project site as M-H. No parcels of the project site are under an active Williamson Act contract. The Farmland Mapping and Monitoring Program (FMMP) designates the project site as Farmland of Local Importance, which is defined as land of importance to the local agricultural economy as determined by each County. Per the California Department of Conservation, Riverside County defines the Farmland of Local Importance as the following:

- Soils that would be classified as Prime and Statewide but lack available irrigation water;
- Lands planted to dryland crops of barley, oats, and wheat;
- Lands producing major crops for Riverside County but that are not listed as Unique crops;
- These crops are identified as returning one million or more dollars on the 1980 Riverside County Agriculture Crop Report. Crops identified are permanent pasture (irrigated), summer squash, okra, eggplant, radishes, and watermelons; Dairylands, including corrals, pasture, milking facilities, hay and manure storage areas if accompanied with permanent pasture or hayland of 10 acres or more
- Lands identified by city or county ordinance as Agricultural Zones or Contracts, which includes Riverside City "Proposition R" lands; and
- Lands planted to jojoba which are under cultivation and are of producing age.

Regulatory Setting

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965 (the Williamson Act, Government Code Sections 51200 through 51297.4) encourages the preservation of agricultural lands through tax incentives due to the increasing trend toward the conversion of agricultural lands to urban uses. The act enables counties and cities to designate agricultural preserves (Williamson Act lands) and within these preserves, offer preferential taxation to agricultural landowners based on the agricultural income producing value of the property. Essentially, this approach ties real estate tax rates to the agricultural value of the land rather that the market rate, which can escalate rapidly as areas around a farm or dairy convert to urban uses. In return for the preferential tax rate, the landowner is required to sign a contract with the county or city agreeing not to develop the land with non-agricultural uses for a minimum of 10 years. On the ten-year anniversary, the date of the contract it is renewed automatically, unless a notice of non-renewal or petition for cancellation is filed.

3.2.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
AGRICULTURAL AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒
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-e. No Impact. According to mapping information available from the California Department of Conservation's (CDC) Farmland Mapping and Monitoring Program (FMMP), the project site is classified as Farmland of Local Importance. Accordingly, the project site does not contain any lands mapped by the FMMP as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland); therefore, the project would not convert such Farmland to non-agricultural use. Furthermore, the project site is not under a Williamson Act contract. There are no lands designated or used for forestry in the City or the surrounding area. Lastly, the project site is zoned for M-H under existing conditions and would be re-zoned to M-Sand C-G; therefore, the project would not conflict with zoning for agricultural use or result in the loss of forest land or convert forest land or timberland to non-forest land. Therefore, no impacts would occur and no mitigation is required.

3.2.4 Mitigation

No mitigation required.

3.2.5 Level of Significance after Mitigation

Less than Significant.

3.3 Air Quality

3.3.1 Sources

- *Vista Environmental, Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis Coachella Airport Business Park Project*, *March 27, 2021* (Appendix A)

3.3.2 Environmental Setting

The project site is located in the Salton Sea Air Basin (SSAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is one of the 35 air quality regulatory agencies in the State of California and all development within the SSAB is subject to SCAQMD's 2022 Air Quality Management Plan (2022 AQMP) and the 2003 Coachella Valley PM10 State Implementation Plan (2003 CV PM10 SIP). The SCAQMD operates and maintains regional air quality monitoring stations at numerous locations throughout its jurisdiction.

The SSAB exceeds state and federal standards for fugitive dust (PM10) and ozone (O3) and is in attainment/unclassified for PM2.5. Ambient air quality in the SSAB, including the project site, does not exceed state and federal standards for carbon monoxide, nitrogen dioxides, sulfur dioxide, lead, sulfates, hydrogen sulfide, or Vinyl Chloride.

3.3.3 Impacts

	Potentially Significant Impact	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

a. Less than Significant Impact. The proposed project would not conflict with or obstruct implementation of the South Coast Air Quality Management District (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.

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 below.

<u>Criterion 1 - Increase in the Frequency or Severity of Violations?</u>

Based on the air quality modeling analysis contained in the *Air Quality, Energy, Greenhouse Gas Emissions and Health Assessment Impact Analysis* prepared by Vista Environmental (*Appendix A*), short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed in Sections 9.1 and 9.2 of *Appendix A*. 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 in Section 9.1 of *Appendix A*. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not exceed the air quality standards. Therefore, a less-than-significant long-term impact would occur and no mitigation would be required.

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 ensure 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 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 Coachella General Plan's Land Use Plan defines the long range land use assumptions that are represented in AQMP.

The project site is currently designated Industrial District in the General Plan and is zoned Heavy-Industrial (M-H). The proposed project's land uses of large warehouses, small warehouses, small business, personal vehicle storage, self-storage, and retail comprised of a service station/mini mart and fast food restaurant with drive-thru, are allowed land uses in the Light Industrial land use designation. The proposed project includes a change of zone from the existing M-H to Manufacturing Service (M-S) and C-G. The change of zone to M-S will allow for the proposed project to include cannabis cultivation, processing, testing, manufacturing and/or wholesale distribution. The C-G zone allows the drive-through and service station uses with approval of a conditional use permit.

Although the proposed project is requesting a zone change, the requested change in designation is primarily to allow for cannabis uses within the proposed industrial park, which would not alter the vehicle trips or other parameters utilized by SCAG in generating the forecasts provided in the RTP/SCS. Therefore, the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. 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 would not result in an inconsistency with the SCAQMD AQMP. Therefore, a less-than-significant impact would occur in relation to implementation of the AQMP.

b. Less than Significant Impact. 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.

The SCAQMD has published a report on how to address cumulative impacts from air pollution: White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf). In this report the AQMD clearly states (Page D-3):

"*…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or Environmental Impact Report (EIR). The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility- wide) is HI > 3.0. It should be noted that the HI is only* *one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."*

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Conversely, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project specific impacts would be considered cumulatively considerable.

Construction Emissions

The construction activities for the proposed project are anticipated to include site preparation and grading of the 44-acre-acre project site, building construction of the business park, paving of the onsite roads and parking areas and application of architectural coatings. Although, the proposed project is anticipated to be constructed in three phases, in order to provide a conservative or worst-case analysis, this analysis has analyzed the entire project being constructed in one phase. The construction emissions have been analyzed for both regional and local air quality 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 8.1 of the Impact Analysis. 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 4. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, Table 4 also shows the combined regional criteria pollutant emissions from building construction (year 2024), paving and architectural coating phases of construction.

Table 5 Construction-Related Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Site Preparation (Year 2021)[1]						
Onsite[2]	3.89	40.50	21.15	0.04	10.17	6.35
Offsite[3]	0.08	0.56	0.61	0.00	0.18	0.05
Total	**3.97**	**41.06**	**21.76**	**0.04**	**10.36**	**6.40**
Grading (Year 2021)[1]						
Onsite[2]	6.05	67.81	44.89	0.09	6.74	4.21
Offsite[3]	0.27	8.23	1.75	0.03	1.40	0.38
Total	**6.32**	**76.04**	**46.63**	**0.12**	**8.13**	**4.60**
Building Construction (Year 2022)						
Onsite	1.71	15.62	16.36	0.03	0.81	0.76
Offsite	1.68	12.90	12.10	0.06	3.95	1.09

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Total	**3.38**	**28.51**	**28.46**	**0.09**	**4.76**	**1.85**
Combined Year 2024 Building Construction, Paving, and Architectural Coatings						
Onsite	33.98	24.19	32.60	0.05	1.14	1.07
Offsite	1.73	10.06	12.49	0.06	4.70	1.29
Total	**35.71**	**34.25**	**45.09**	**0.12**	**5.85**	**2.35**
Maximum Daily Construction Emissions	**35.71**	**76.04**	**46.63**	**0.12**	**10.36**	**6.40**
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 4 **Error! Reference source not found.**shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during either 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 oxides) NOx, (carbon monoxide) CO, (particulate matter less than 10 micrometer in diameter) PM10, and PM2.5 (particulate matter less than 2.5 micrometer in diameter). 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 5 shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated localized emissions thresholds that have been detailed in Section 9.2 of *Appendix A*. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, Table 5 also shows the combined local criteria pollutant emissions from year 2024 building construction, paving and architectural coating phases of construction.

Table 6 Construction-Related Local Criteria Pollutant Emissions

Construction Phase	Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Site Preparation[2]	40.57	21.23	10.20	6.36
Grading[2]	68.83	45.11	6.91	4.26

Construction Phase	Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Building Construction (Year 2022)	17.23	17.88	1.30	0.90
Combined Building Construction (Year 2024), Paving and Architectural Coatings	27.99	34.57	1.93	1.41
Maximum Daily Construction Emissions	**68.83**	**45.11**	**10.20**	**6.36**
SCAQMD Local Construction Thresholds[3]	**270**	**1,746**	**14**	**8**
Exceeds Threshold?	No	No	No	No

Notes:
[1] The Pollutant Emissions include 100% of the On-Site emissions (off-road equipment and fugitive dust) and 1/8 of the Off-Site emissions (on road trucks and worker vehicles), in order to account for the on-road emissions that occur within a ¼ mile of the project site.
[2] Site Preparation and Grading phases based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[3] The nearest offsite sensitive receptors are mobile home park residences located across Airport Boulevard as near as 15 meters (50 feet) to the south. 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 five acres in Air Monitoring Area 30, Coachella Valley.

The data provided in Table 5 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either site preparation, grading, 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, emissions from energy usage, onsite area source emissions, and off-road equipment created 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 Regional Criteria Pollutant Analysis

The operations-related regional 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 8.1 of *Appendix A*. The worst-case summer or winter (volatile organic compounds) 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 6.

Table 7 Operational Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Area Sources[1]	17.51	0.00	0.13	0.00	0.00	0.00
Energy Usage[2]	0.10	0.87	0.73	0.01	0.07	0.07
Mobile Sources[3]	7.14	38.51	39.68	0.20	12.01	3.30
Off-Road Equipment[4]	0.52	4.91	6.80	0.01	0.26	0.24
Total Emissions	**25.27**	**44.29**	**47.35**	**0.22**	**12.34**	**3.61**
SCQAMD Operational Thresholds[5]	**75**	**100**	**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.
[3] Mobile sources consist of emissions from vehicles and road dust.

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5

[4] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered.
[5] The SCAQMD operational thresholds for the Coachella Valley are the same as the construction thresholds.
Source: Calculated from CalEEMod Version 2016.3.2.

The data provided in Table 6 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.

<u>Friant Ranch Case</u>
The operations-related regional criteria air quality impacts In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

This Analysis details the specific health risks created from each criteria pollutant in Section 4.1 of the Impact Analysis and specifically in **Error! Reference source not found.**. In addition, the specific health risks created from diesel particulate matter is detailed in Section 2.2 of the *Impact Analysis*. As such, this analysis meets the part 1 requirements of the Friant Ranch Case.

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone. As shown above in Table 4, project-related construction activities would generate a maximum of 35.71 pounds per day of VOC and 76.04 pounds per day of NOx and as shown above in Table 6, operation of the proposed project would generate 25.27 pounds per day of VOC and 44.29 pounds per day NOx. The proposed project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high to use a regional modeling program to correlate health effects on a basin-wide level.

The analysis above does evaluate the proposed project's localized impact to air quality for emissions of CO, NOx, PM10, and PM2.5 by comparing the proposed project's onsite emissions to the SCAQMD's applicable LST thresholds. As evaluated in this analysis, the proposed project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NOX, PM10, and PM2.5.

<u>Operations-Related Local Air Quality Impacts</u>
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 SSAB.

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 7 shows the onsite emissions from the CalEEMod model that includes area sources, energy usage, onsite off-road equipment, and vehicles operating in the immediate vicinity of the project site and the calculated emissions thresholds.

Table 8 Operations-Related Local Criteria Pollutant Emissions

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Area Sources	0.00	0.13	0.00	0.00
Energy Usage	0.87	0.73	0.07	0.07
Mobile Sources[1]	4.81	4.96	1.50	0.41
Off-Road Equipment[2]	4.91	6.80	0.26	0.24
Total Emissions	**10.59**	**12.63**	**1.83**	**0.72**
SCAQMD Local Operational Thresholds[3]	**304**	**2,292**	**4**	**2**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Mobile sources 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] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered
[3] The nearest sensitive receptors to the project site are site are mobile home park residences located across Airport Boulevard as near as 15 meters (50 feet) to the south. 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 five acres in Air Monitoring Area 30, Coachella Valley.

The data provided in Table 7 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 in Section 9.2 of *Appendix A*. Therefore, the on-going operations of the proposed project would create a less-than-significant operations-related impact to local air quality due to onsite emissions and no mitigation would be required.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

[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.

c. **Less than Significant Impact.** 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 10.3 of *Appendix A* for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from local criteria pollutant and toxic air contaminant emissions. The nearest sensitive receptors to the project site are mobile home park residences located across Airport Boulevard as near as 50 feet to the south of the project site.

Construction-Related Sensitive Receptor Impacts

Construction activities 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 have been analyzed in Section 10.3 of *Appendix A* and found that the construction of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed in Section 9.2 of *Appendix A*. 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. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 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, due to the limitations in off-road construction equipment DPM emissions from implementation of Section 2448, a less-than-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 *Appendix A* 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.

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 *Appendix A* found that the operation of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed in Section 8.2 of *Appendix A*. 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 consists of development of a business park that would generate DPM emissions from truck traffic and delivery trucks and would generate emissions from gasoline dispensing and storage activities, which is also a known source of TAC emissions.

Proposed Gas Station Toxic Air Contaminant Emissions

The proposed project would include a 10 fueling position gas station on the southeastern portion of the project site that is anticipated to have a maximum throughput of 2.0 million gallons of gasoline per year. According to guidance provided by SCAQMD staff, the distance to nearest residents entered into SCAQMD's RiskTool is based on the distance from the nearest residential property line to the center of the proposed gas station canopy, which measures 160 feet (49 meters) for the proposed gas station distance to the mobile home park to the south.

The RiskTool found that the proposed project would create a cancer risk of 3.3 per million persons at the mobile homes to the south. The project-related cancer risk of 3.3 per million persons would be within the SCAQMD's threshold of 10 per million detailed in Section 9.3 of *Appendix A*. 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.

Proposed Diesel Truck Toxic Air Contaminant (TAC) Emissions

Operation of the proposed project would generate diesel truck emissions, which are known sources of TACs, from truck traffic and delivery trucks. The TAC impacts to the nearby sensitive receptors have been analyzed through use of the AERMOD model and the model input parameters detailed in Section 6.3 of *Appendix A*. Health risks from TACs are twofold. First, TACs are carcinogens according to the State of

California. Second, short-term acute and long-term chronic exposure to TACs can cause health effects to the respiratory system. Each of these health risks is discussed below.

Cancer Risks
Table 8 provides a summary of the calculated diesel emission concentrations at the nearest sensitive receptors and Appendices D, E, and F of *Appendix A* provide the AERMOD printouts.

Table 9 Diesel Truck DPM Emissions Cancer Risks at Nearby Sensitive Receptors

Sensitive Receptor[1]	Receptor Location		Annual PM10 Concentration (µg/m³)			Cancer Risk Per Million People[2]
	X	Y	2025-2027	2027- 2041	2041-2054	
1	580,086	3,722,773	0.0025	0.0022	0.0021	1.8
2	580,122	3,722,774	0.0030	0.0027	0.0025	2.1
3	580,172	3,722,775	0.0030	0.0026	0.0025	2.1
4	580,242	3,722,717	0.0017	0.0015	0.0014	1.2
5	580,289	3,722,738	0.0018	0.0016	0.0015	1.2
6	580,337	3,722,732	0.0016	0.0014	0.0013	1.1
7	579,963	3,722,704	0.0010	0.0009	0.0009	0.7
8	579,927	3,722,644	0.0008	0.0007	0.0007	0.5
9	579,519	3,722,783	0.0007	0.0006	0.0006	0.5
10	579,466	3,722,781	0.0006	0.0006	0.0005	0.4
11	579,393	3,722,779	0.0006	0.0005	0.0005	0.4
					Threshold of Significance	**10**
					Exceed Threshold?	**No**

Notes:
[1] The locations of each Sensitive Receptor are shown above in Figure 3.
[2] The residential cancer risk based on: C_{air} (2022-2023) * 342 + C_{air} (2023-2038) * 362 + C_{air} (2038-2051) * 39.5.
Source: Calculated from ISC-AERMOD View Version 9.9.0.

Table 8 shows that the cancer risk from the proposed project's diesel truck TAC emissions would be as high as 2.1 per million persons at the mobile homes located south of the project site (Sensitive Receptors 2 and 3). When combined with the gas station TAC emissions, this would result in a cancer risk as high as 5.4 per million persons at the mobile homes located south of the project site. The combined project-related cancer risk from diesel truck and gas station TAC emissions would be within the SCAQMD's threshold of 10 per million persons. Therefore, operation of the proposed project would result in a less-than-significant impact due to the cancer risk from TAC emissions.

Non-Cancer Risks
In addition to the cancer risk from exposure to TAC emissions there is also the potential TAC exposure may result in adverse health impacts from acute and chronic illnesses, which are detailed below.

Chronic Health Impacts
Chronic health effects are characterized by prolonged or repeated exposure to a TAC over many days, months, or years. Symptoms from chronic health impacts may not be immediately apparent and are often irreversible. The chronic hazard index is based on the most impacted sensitive receptor from the proposed project and is calculated from the annual average concentrations of PM10.

As shown above in Table 8, the AERMOD model found that the highest annual off-site concentration is 0.0030 µg/m^3 for DPM chronic non-cancer risk emissions. The resulting Hazard Index is: HI_{DPM} = 0.0030 / 5 = 0.0006. The criterion for significance is a Chronic Hazard Index increase of 1.0 or greater, which is detailed in Section 9.3 of *Appendix A*. Therefore, the on-going operations of the proposed project would result in a less-than-significant impact due to the non-cancer chronic health risk from TAC emissions created by the proposed project.

Acute Health Impacts
Acute health effects are characterized by sudden and severe exposure and rapid absorption of a TAC. Normally, a single large exposure is involved. Acute health effects are often treatable and reversible. The acute hazard index is calculated from the maximum 24-hour concentrations of PM10 at the point of maximum impact (PMI), which has been calculated with the AERMOD model and the parameters detailed in Section 8.3 of *Appendix A*.

The AERMOD model found that the highest 24-hour concentration at the PMI is 0.0054 µg/m^3 for DPM equivalent acute non-cancer risk emissions and Appendix D of *Appendix A* provides the 24-hour concentrations during year 2025-2027 operations, which was found to create the highest 24-hour DPM concentrations in the AERMOD model. The resulting Hazard Index is: AHI = 0.0054 / 2,189 = 0.0000025. The criterion for significance is an Acute Hazard Index increase of 1.0 or greater, which is detailed in Section 9.3 of *Appendix A*. Therefore, the on-going operations of the proposed project would result in a less-than-significant impact due to the non-cancer acute health risk from TAC emissions created by the proposed project.

In conclusion, operation of the proposed project would result in a less-than-significant exposure of sensitive receptors to substantial pollutant concentrations.

d. Less than Significant Impact. 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. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of asphalt pavement and coatings such as, paints, and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, 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. Through compliance with the applicable regulations that reduce odors and 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 business park that would include large warehouses, small warehouses, small business, personal vehicle storage, self-storage, and retail comprised of a service station/mini mart and fast food restaurant with drive-thru. In addition, commercial cannabis-related uses would be permitted.

Operation of the proposed project may create odors from commercial cannabis activities, gas dispensing activities, diesel truck emissions, and from trash storage bins. 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 in proper working order, which will minimize odor impacts occurring from the gasoline and diesel dispensing facilities.

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 truck loading and unloading activities at the project site and would not likely be noticeable for extended periods of time beyond the project site boundaries.

As such, through compliance with SCAQMD's Rule 461 and City trash storage regulations, less-than-significant odor impacts would occur from these odor sources. However, commercial cannabis operations have the potential to create significant odor impacts to nearby sensitive receptors. The majority of the odors of cannabis come from a class of chemicals called terpenes. Terpenes are among the most common compounds produced by flowering plants and vary widely between each plant. Cannabis produces over 140 different terpenes and these chemicals are found in varying concentrations in different cannabis varieties. However, the City requires the control of odors associated with cannabis operations, and prohibits the emission of odors outside such an operation (Municipal Code Section 17.85.050). This standard ensures the odor control is factored into all operations, and that the City can control odor from cannabis facilities, should they occur on the project site. Therefore, with the implementation of existing City standards, impacts will be less than significant.

3.3.4 Mitigation

None required.

3.3.5 Level of Significance after Mitigation

Less than Significant.

3.4 Biological Resources

3.4.1 Sources

- *Rincon Consultants, Inc., Biological Resources Assessment Memorandum and Coachella Valley Multiple Species Habitat Conservation Plan Analysis for the Airport Business Park Project, Coachella, California, March 12, 2021* (Appendix B)

3.4.2 Environmental Setting

The City of Coachella is located within the plan area of the Coachella Valley Multiple Species Conservation Plan (CVMSHCP). The CVMSHCP is a comprehensive regional plan that balances growth projected in the Coachella Valley with the requirements of federal and State endangered species laws. The CVMSHCP includes approximately 1.2 million acres within the Coachella Valley and the surrounding mountains. The CVMSHCP required the creation of a Reserve System consisting of 21 existing Conservation Areas and new additional conservation areas to provide habitat to protect 27 sensitive plant and animal species. There are two Conservation Areas located within the City. The Thousand Palms Conservation Area overlays the northwestern corner of the City boundary. The East Indio Hills Conservation Area overlays the northern frontage of the City boundary. Additionally, the Desert Tortoise and Linkage Conservation Area encroaches upon the northern boundary of the City's Sphere of Influence.

Regulatory Setting

Federal

Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973, as amended, provides for listing of endangered and threatened species of plants and animals and designation of critical habitat for listed animal species. The ESA also prohibits all persons subject to U.S. jurisdiction from "taking" endangered species, which includes any harm or harassment. Section 7 of the ESA requires that federal agencies, prior to project approval, consult the United States Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) to ensure adequate protection of listed species that may be affected by the project.

Migratory Bird Treaty Act

Nesting birds are protected under the federal Migratory Bird Treaty (MBTA) of 1918. The MBTA provides protection for nesting birds that are both residents and migrants whether or not they are considered sensitive by resource agencies. The MBTA prohibits take of nearly all native birds. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, nestling abandonment, or forced fledging would be considered take under federal law. The USFWS, in coordination with California Department of Fish and Wildlife (CDFW) administers the MBTA. CDFW's authoritative nexus to MBTA is provided in the California Fish and Game Code (CFGC) Sections 3503.5 which protects all birds of prey and their nests and FGC Section 3800 which protects all non-game birds that occur naturally in the State.

3.4.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
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. **Less than Significant Impact with Mitigation Incorporated.** The California Natural Diversity Database (CNDDB)/California Native Plant Society (CNPS) query results conducted for the project site include 33 special-status plant species within five miles (for CNDDB) and 9-quadrangle search area (for CNPS) of the project site. Special-status plant species typically have specialized habitat requirements, including plant community types, soils, and elevational ranges. Of the 33 species, 32 are not expected to occur on site based on the project site's location and clear lack of suitable habitat (e.g., mountains, desert, elevation ranges). The remaining plant, gravel milk-vetch (*Astragalus sabulonum*; CNPR 2B.2) has low potential to occur based on the lack of local occurrences, the age of the nearest occurrences (over four decades since last seen), and lack of gravelly or coarse sandy soils that the species relies on (see Attachment B of *Appendix B*). No special-status plant species were observed during the site reconnaissance survey. No special-status plant species have moderate or high potential to occur on site given the high disturbance, lack of suitable habitat, and low elevation on the project site. Impacts to special status plant species are not expected to occur as a result of project implementation.

The CNDDB query results include 13 special-status wildlife species within five miles of the project site. The potential for special-status wildlife species to occur on the site was assessed based on known distribution, habitat requirements, and existing site conditions. Of the 13 special-status wildlife species, one was observed on site and one was determined to have a moderate potential to occur on site (see Attachment B of *Appendix B*):

- Two black-tailed gnatcatchers (CDFW Watch List) were detected on site and confirmed present. Black-tailed gnatcatchers are common residents below 300 meters in desert wash habitats and less common in desert scrub (such as saltbush scrub) habitat where they clean insects and spiders from shrub foliage. They primarily nest in wooded desert wash habitat and occasional in desert scrub habitat. The project site provides suitable nesting habitat for black-tailed gnatcatcher.
- Crissal thrasher (*Toxostoma crissale*, CDFW SSC) was determined to have a moderate potential to occur on site. Crissal thrashers are fairly common in the Colorado River Valley, but uncommon in the rest of their range. They occupy dense thickets of shrubs in desert riparian and wash habitats, primarily utilizing mesquite (*Prosopis* species), ironwood (*Olneya tesota*), catclaw acacia (*Senegalia greggii*), and arrow weed. Arrow weed is present on site and may provide suitable habitat for resident thrashers in the Coachella Valley, but other plant species that crissal thrashers are associated with are not on site. The vegetation within the Stormwater Channel is sparse and actively maintained as part of the flood control channel and does not provide suitable nesting habitat for this species.

The project proposes the removal of vegetation that provides habitat for black-tailed gnatcatcher and may provide habitat for crissal thrasher. As such, the project may result in loss of such habitat, as well as potential injury or death to individuals. Direct impacts (e.g., injury or mortality) or indirect impacts (e.g., noise, dust) to these species may occur as a result of project activities. Implementation of a pre-construction clearance survey for these species (Mitigation Measure BIO-1, described below) is recommended to avoid and minimize potential impacts to a less-than-significant level. Suitable habitat for black-tailed gnatcatcher and crissal thrasher occurs north of the site as well, which would not be impacted by project activities and thus could continue to serve as suitable habitat for these species. Due to available suitable habitat north of the project, regionally available habitat for both species, and the implementation of preconstruction surveys for nesting birds, the project would have a less-than-significant effect on black-tailed gnatcatcher and crissal thrasher and both species will not be affected by range or distribution.

As noted above, vegetation on the project site could also provide suitable nesting habitat for common avian species that were observed during the reconnaissance survey. Bird nests and eggs are protected under the CFGC Section 3503 and the MBTA. Common species such as mourning dove (*Zenaida macroura*) and house finch (*Haemorhous mexicanus*) as well as sensitive species such as black-tailed gnatcatcher have the potential to nest in shrubs, even in highly disturbed settings. Direct impacts (e.g., injury or mortality) to nesting birds or indirect impacts (e.g., noise, dust) that disrupt nesting behavior and reproductive success would be significant. With implementation of Mitigation Measure BIO-1, pre-construction nesting bird surveys would reduce impacts to nesting birds to a less-than-significant level.

A Phase III A-2 Transmission Main Subsequent IS/MND (SCH #2019079095) was prepared in February 2022, which evaluated pipeline alignments that would be located in the same location as the proposed off-site water line to the project site. According to the Subsequent IS/MND, the area where the pipelines are proposed provides suitable nesting habitat for numerous species of birds common in the area and nesting birds are likely to be present within the area during the bird nesting season. This off-site area also would require Mitigation Measure BIO-1 in order to ensure impacts to nesting birds would be less than significant.

b. **No Impact.** The entire project site is comprised of saltbush scrub or open habitat (*Schismus* groundcover with scattered saltbush) that is frequently subject to human activity including disking. No sensitive plant communities are present on the project site. The Coachella Valley Stormwater Channel is actively maintained for vegetation and riparian habitat is limited to active flow areas, which are approximately 300 feet west of the berm that separates the project site from the active floodplain. The active flow is far enough where direct and indirect impacts are not anticipated for riparian habitat. As stated in CVWD's Subsequent IS/MND (SCH #2019079095), the off-site improvements would avoid direct impacts to sensitive vegetation communities. Therefore, the project would not have a substantial adverse effect on any sensitive natural communities. No impact would occur.

c. **Less than Significant.** The entire project site is a disturbed site that has frequently been subject to human activity including disking. No potentially jurisdictional drainage features are present on the project site. The Coachella Valley Stormwater Channel is located adjacent to and west of the project site and is separated from the project site by a berm. While a formal jurisdictional delineation was not performed, the Whitewater River is classified as riverine by the National Wetland Inventory (NWI) and may potentially be under the jurisdiction of various regulatory agencies, including the CDFW, U.S. Army Corps of Engineers, and the Colorado River Regional Water Quality Control Board, as a federal and State water. The project does not propose any construction or operational activities that would directly impact the channel. Indirect impacts from potential storm water runoff, dust, or spills of hazardous materials during or after construction, would be less than significant as a result of the project's required compliance with a National Pollutant Discharge Elimination System (NPDES) Construction General Permit, and preparation and implementation of a Storm Water Pollution Prevent Plan (SWPPP) and best management practices. In addition, as mentioned in CVWD's Subsequent IS/MND, project off-site improvements would not impact the Channel. As a result, impacts would be less than significant.

d. **Less than Significant Impact.** The project site is located adjacent to and east of the Coachella Valley Stormwater Channel, north of Airport Boulevard, west of State Highway 86, and south of undeveloped desert land. The project site contains natural habitat that is separated from the habitat in the parcels to the north by a barbed wire fence. The western half of the parcel is currently mapped by the California Essential Habitat Connectivity (CEHC) project as a potential riparian connection, but vegetation within the active channel is regularly maintained and does not provide substantial habitat for riparian species and would not act as an essential riparian corridor. The project site is also separated from the Channel by a berm and the project and off-site improvements would avoid direct impacts to the connectivity the river provides for species able to utilize limited riparian habitat (as described under Section 3.4.3(c), above). Impacts to connectivity along the Channel would be limited to indirect impacts from noise or dust during construction or site use (once the project is implemented). The site is located near active roads and development and additional noise from site use would not result in greater amounts of ambient noise and dust compared to the current status quo. Therefore, impacts to wildlife movement would be considered less than significant.

e. **No Impact.** The proposed project is required to adhere with the City of Coachella's Municipal Code Chapter 12.24 and 12.28, *Street Trees and Palm Trees.* These ordinances require regular trimming and maintenance and/or removal and no preservation is specified within the code. Removal of any trees on site (which are limited to tamarisk) would therefore not be in conflict with local ordinances. No impact would occur.

f. Less than Significant Impact with Mitigation Incorporated. The project is located within the CVMSHCP but are not located within a Conservation Area. As a result, proposed activities at the project would avoid direct impacts to the CVMSHCP Conservation Areas and would not conflict with the CVMSHCP Conservation Objectives. Species that are protected by the CVMSHCP include arroyo toad (*Anaxyrus californicus*), burrowing owl (*Athene cunicularia hypugea*), California black rail (*Laterallus jamaicensis coturniculus*), Coachella Valley fringe-toed lizard (*Uma inornata*), Coachella Valley Jerusalem cricket (*Stenopelmatus cahuilaensis*), Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*), crissal thrasher, desert pupfish (*Cyprinodon macularius*), desert tortoise (*Gopherus agassiizii*), flat-tailed horned lizard (*Phrynosoma mcallii*), gray vireo (*Vireo vicinior*), least Bell's vireo (*Vireo bellii pusillus*), LeConte's thrasher (*Toxostoma lecontei*), little San Bernardino Mountains linanthus (*Linanthus maculatus*), mecca aster (*Xylorhiza cognata*), orocopia sage (*Salvia greatae*), Palm Springs pocket mouse (*Perognathus longimembris bangsi*), Palm Springs round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*), peninsular bighorn sheep distinct population segment (DPS) (*Ovis canadensis nelsoni* pop. 2), southwestern willow flycatcher (*Empidonax traillii extimus*), summer tanager (*Piranga rubra*), triple-ribbed milk-vetch (*Atragalus tricarinatus*), western yellow bat (*Lasiurus xanthinus*), yellow breasted chat (*Icteria virens*), yellow warbler (*Dendroica petechia brewsteri*), and Yuma clapper rail (*Rallus longirostris yumanensis*). Of these species, only the crissal thrasher has moderate potential to occur onsite and Palm Springs round-tailed ground squirrel has low potential to occur on site. In addition there is suitable habitat for black-tailed gnatcatchers, which were detected on site.

The project would not result in significant impacts to crissal thrasher or black-tailed gnatcatcher due to loss of habitat. While crissal thrasher were not detected during the reconnaissance survey, pre-construction nesting bird surveys (see Mitigation Measure BIO-1) would detect them should they move in onsite and are recommended for compliance with MBTA and CFGC. Therefore, the project would result in a less-than-significant impact with mitigation incorporated.

3.4.4 Mitigation

The following mitigation measure, and compliance with MBTA and CFGC requirements, would be required to reduce impacts to nesting birds to a less-than-significant level.

BIO-1 To avoid disturbance of nesting and special-status birds, including raptorial species protected by the MBTA and CFGC, activities related to the project, including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 1 through August 30). If construction must begin within the breeding season, then a pre-construction nesting bird survey shall be conducted no more than 3 days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted within the project site, plus a 300-foot buffer (500-foot for raptors), on foot, and within inaccessible areas (i.e., private lands) afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California desert communities. If nests are found, an avoidance buffer (which is dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

3.4.5 Level of Significance after Mitigation

With the incorporation of Mitigation Measure BIO-1, impacts to biological resources would be reduced to less than significant.

3.5 Cultural Resources

3.5.1 Sources

- *PaleoWest Archaeology, Cultural Resource Investigation in Support of the Coachella Airport Business Park Project, Riverside County, California, May 1, 2020* (Appendix C)

3.5.2 Environmental Setting

The project area is situated east of the Peninsular Ranges in the southern extent of the Coachella Valley at the western edge of the Colorado Desert. The Coachella Valley is bordered by the San Jacinto and Santa Rosa mountains (part of the Peninsular Ranges) to the west and southwest and by the low, rolling Indio and Mecca hills to the northeast. From the steep slopes of the San Jacinto Mountains, the desert floor descends at less than 3 kilometers (2 miles) eastward to sea level at the city of Indio, some 10.5 kilometers (6.5 miles) northeast of the project.

The project site is relatively flat and vegetated with short and tall grasses, trees, and shrubs. The project site is an overgrown, vacant property that has been used for refuse dumping and off-road vehicle use. Ground visibility varied from 0 to 80 percent depending upon the density of vegetation. The central portion of the site is highly visible, however, the majority of the eastern edge of the site had no visibility due to dense grasses and trees. Sediments mostly consisted of tan/yellowish brown silty sand with small inclusions (15%). The Coachella Valley Stormwater Channel runs along the western border of the project site. No prehistoric or historic-period archaeological resources were identified in the project area during the survey conducted by PaleoWest on March 30, 2020.

3.5.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
CULTURAL RESOURCES – Would the project:				
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?	☐	☒	☐	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

a. No Impact. PaleoWest conducted a literature review, records search, and field survey on the project site. The records search indicated that no fewer than 22 cultural resources have been previously documented within one-mile of the project site, two of which are historic-period archaeological sites and 20 are historic-period built-environment resources (See Table 4-2 of *Appendix C*), however, none of these resources have been identified within the project site. One potentially significant historical resource is a segment of the Coachella Valley Stormwater Channel (Resource 33-017259) located immediately to the west of the project boundary. However, because Resource 33-017259 has been evaluated several times and each time was recommend as not eligible for the CRHR or the NRHP, Resource 33-017259 is not considered to be a significant historical resource. A sensitivity model also concluded that the potential for discovering surface cultural resources in this area, including historic resources is low. Furthermore, CVWD's Subsequent IS/MND (SCH #2019079095) found no cultural resources within the project's off-site improvement area. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource. No impact would occur.

b. Less than Significant Impact with Mitigation Incorporated. As discussed above, the records search indicated two (2) historic period archaeological sites and 20 historic-period built-environment resources. However, none of the identified resources are prehistoric and none of them have been identified within the project site. In addition, cultural resource literature and data review indicated that there are no archaeological resources recorded within the project site or within one-mile of the project site. An archaeological sensitivity model for the Coachella Valley Stormwater Channel was prepared and it suggested that the former native vegetation was not of interest to Native inhabitants due to the abundance of alkali water making this area unappealing. The sensitivity model also concluded that the potential for discovering surface cultural resources in this area, including prehistoric resources is low. According to CVWD's Subsequent IS/MND (SCH #2019079095), archeological sensitivity of the off-site improvement area also is considered low. However, there is a remote possibility to unearth significant archaeological resources during construction activities, which would require mitigation. Mitigation Measure CUL-1 would require construction monitoring to be conducted by a qualified cultural monitor for areas where ground disturbance is proposed. With implementation of Mitigation Measure CUL-1, the project would have less-than-significant impact on archaeological resources.

c. Less than Significant Impact with Mitigation Incorporated. The project site do not contain any cemeteries and no human remains were found on the site during the pedestrian survey conducted on March 30, 2020. However, there is always the possibility that human remains could be uncovered during ground disturbing activities. In the unexpected event that human remains are found during ground disturbing activities, those remains would require proper treatment in accordance with all applicable laws. Through the implementation of Mitigation Measure CUL-2, all construction work taking place within the vicinity of any discovered remains must cease and the necessary steps to ensure the integrity of the immediate area must be taken. The State of California Health and Safety Code 7050.5 and the California Public Resources Code (PRC) Section 5097.98 states that the County Coroner must be notified within 24 hours of the discovery of human remains. If the remains discovered are determined by the coroner to be of Native American descent, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC would, in turn, contact the Most Likely Descendant (MLD) who would determine further action to be taken. The MLD would have 48 hours to access the site and make a recommendation regarding disposition of the remains. Therefore, with incorporation of Mitigation Measure CUL-2, impacts would be less than significant.

3.5.4 Mitigation

CUL-1 A qualified archaeologist and Tribal monitor(s) shall be present during any ground disturbing activities during the project construction phase. In the case that archaeological materials are encountered during ground disturbing activities, work in the area shall cease and any deposits shall be treated according to federal, State, and local guidelines. No further grading is permitted in the area of the discovery until the City approves the appropriate measure to protect the discovered resources.

CUL-2 In the event that human remains are uncovered during ground disturbing activities on the project site, no further disturbance shall occur and all work shall cease until the County Coroner has made a determination of the origin and disposition of the remains.

If the County Coroner determines that the remains are of Native American decent, the Coroner must notify the Native American Heritage Commission (NAHC), which will then determine the Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resource Code Section 5097.98.

3.5.5 Level of Significance after Mitigation

With the incorporation of Mitigation Measures CUL-1 and CUL-2, impacts to cultural resources would be reduced to less than significant.

3.6 Energy

3.6.1 Sources

- *Vista Environmental, Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis Coachella Airport Business Park Project, March 17, 2021* (Appendix A)
- *City of Coachella General Plan Update 2035*

3.6.2 Environmental Setting

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, natural gas, and petroleum-based fuel supplies and distribution systems.

<u>Electricity</u>
The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a

number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. Imperial Irrigation District would supply electricity to the proposed project, which would be obtained from the proposed substation on the project site.

Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, mainly located outside the State, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network and, therefore, resource availability is typically not an issue. Natural gas satisfies almost one-third of the State's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet. Southern California Gas Company (SoCalGas) would supply natural gas to the proposed project.

Petroleum Fuels

Petroleum-based fuels currently account for a majority of the California's transportation energy sources and primarily consist of diesel and gasoline types of fuels. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHG emissions from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, petroleum-based fuel consumption in California has declined. In 2017, 1,052 million gallons of gasoline and 148 million gallons of diesel was sold in Riverside County.

3.6.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Energy – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

a. Less than Significant Impact.

Construction Energy

The construction activities for the proposed project are anticipated to include site preparation and grading of the 44-acre-acre project site, building construction of the business park, paving of the onsite roads and parking areas and application of architectural coatings. The proposed project would consume energy resources during construction in three (3) general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, as well as delivery and haul truck trips (e.g. hauling of material to disposal facilities);

2. Electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and

3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the proposed project would consume electricity to construct the new structures and infrastructure. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on fuel consumption. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary. Since there are currently power lines in the vicinity of the project site, it is anticipated that only nominal improvements would be required to Imperial Irrigation District distribution lines and equipment with development of the proposed project. Compliance with City's guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the project. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Natural Gas

Construction of the proposed project typically would not involve the consumption of natural gas. Natural gas would not be supplied to support construction activities, thus there would be no demand generated by construction. Since the project site currently has natural gas service in the vicinity of the project site, construction of the proposed project would be limited to installation of new natural gas connections within the project site. Development of the proposed project would likely not require extensive infrastructure improvements to serve the project site. Construction-related energy usage impacts associated with the installation of natural gas connections are expected to be confined to trenching in order to place the lines below surface. In addition, prior to ground disturbance, the proposed project would notify and coordinate with SoCalGas to identify the locations and depth of all existing gas lines and avoid disruption of gas service. Therefore, construction-related impacts to natural gas supply and infrastructure would be less than significant.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would be utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions and fuel use assumptions shown in Section 8.2 of *Appendix A*, which found that the off-road equipment utilized during construction of the proposed project would consume 157,075 gallons of fuel. The on-road construction trips fuel usage was calculated through use of the construction vehicle trip assumptions and fuel use assumptions shown in Section 8.2 of *Appendix A*, which found that the on-road trips generated from construction of the proposed project would consume 224,430 gallons of fuel. As such, the combined fuel used from off-road construction equipment and on-road construction trips for the proposed project would result in the consumption of 379,505 gallons of petroleum fuel. This equates to 0.03 percent of the gasoline and diesel consumed annually in Riverside County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the proposed project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete; it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of the proposed project would require the use of energy resources for multiple purposes including, but not limited to, heating/ventilating/air conditioning (HVAC), refrigeration, lighting, appliances, and electronics. Energy would also be consumed during operations related to water usage, solid waste disposal, landscape equipment and vehicle trips.

<u>Operations-Related Electricity</u>

Operation of the proposed project would result in consumption of electricity at the project site. Electricity would be supplied by the substation proposed as part of the project, and routed to the project directly from that location. As detailed above in Section 8.3 of *Appendix A*, the proposed project would consume 4,681,590 kilowatt-hours per year of electricity. This equates to 0.14 percent of the electricity consumed annually by Imperial Irrigation District. As such, the operations-related electricity use would be nominal, when compared to current electricity usage rates in the Imperial Irrigation District service area.

It should be noted that, the proposed project would comply with all Federal, State, and City requirements related to the consumption of electricity, that includes CCR Title 24, Part 6 Building Energy Efficiency Standards and CCR Title 24, Part 11: California Green Building Standards. The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed business park, including enhanced insulation, use of energy efficient lighting and appliances as well as requiring a variety of other energy-efficiency measures to be incorporated into the proposed structures. Therefore, it is anticipated the proposed project will be designed and built to minimize electricity use and that existing and planned electricity capacity and electricity supplies would be sufficient to support the proposed project's electricity demand. Thus, the project would not result in the wasteful or inefficient use of electricity and impacts would be less than significant.

Operations-Related Natural Gas

Operation of the proposed project would result in increased consumption of natural gas at the project site. As detailed in Section 8.3 of *Appendix A*, the proposed project would consume 3,230 MBTU per year of natural gas. This equates to 0.007 percent of the natural gas consumed annually in Riverside County. As such, the operations-related natural gas use would be nominal, when compared to current natural gas usage rates in the County.

It should be noted that the proposed project would comply with all Federal, State, and City requirements related to the consumption of natural gas, that includes CCR Title 24, Part 6 Building Energy Efficiency Standards and CCR Title 24, Part 11: California Green Building Standards. The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed business park, including enhanced insulation as well as use of efficient natural gas appliances and HVAC units. Therefore, it is anticipated the proposed project will be designed and built to minimize natural gas use and that existing and planned natural gas capacity and natural gas supplies would be sufficient to support the proposed project's natural gas demand. Thus, impacts with regard to natural gas supply and infrastructure capacity would be less than significant.

Operations-Related Vehicular Petroleum Fuel Usage

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. As detailed in Section 8.2 of *Appendix A*, the proposed project would consume 292,422 gallons of petroleum fuel per year from vehicle travel. This equates to 0.02 percent of the gasoline and diesel consumed annually in Riverside County. As such, the operations-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates. Therefore, it is anticipated the proposed project will be designed and built to minimize transportation energy and it is anticipated that existing and planned capacity and supplies of transportation fuels would be sufficient to support the proposed project's demand. Thus, impacts with regard to transportation energy supply and infrastructure capacity would be less than significant.

In conclusion, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant.

b. **Less than Significant Impact.** The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The applicable energy plan for the proposed project is the City of Coachella General Plan Update, adopted April 22, 2015. The proposed project's consistency with the applicable energy-related policies in the Sustainability and Natural Environment Section of the General Plan are shown in Table 9.

Table 10 Proposed Project Compliance with Applicable General Plan Energy Policies

Policy No.	General Plan Policy	Proposed Project Implementation Actions
2.2	**Passive solar design.** Require new buildings to incorporate energy efficient building and site design strategies for the desert environment that include appropriate solar orientation, thermal mass, use of natural daylight and ventilation, and shading.	**Consistent.** The proposed structures will be designed in consideration of solar orientation, thermal mass, use of natural daylight, ventilation, and shading. In addition, the proposed structures will be designed to meet the Title 24 Part 6 building standards that require enhanced

Policy No.	General Plan Policy	Proposed Project Implementation Actions
		insulation and installation of solar panels in order to reduce energy usage and associated emissions.
2.3	**Alternative energy.** Promote the incorporation of alternative energy generation (e.g., solar, wind, biomass) in public and private development.	**Consistent.** The proposed structures will be designed to meet the Title 24 Part 11 building standards that require the roofs of all non-residential structures to include solar panels, which includes the roofs to be structurally designed for the additional load of the PV solar panels as well as installation of conduit for the PV systems.
2.5	**Construction standards.** Consider and evaluate new construction practices and standards that increase building energy efficiency.	**Consistent.** Construction activities for the proposed project will utilize new construction practices and standards that increase building energy efficiency.
2.6	**Energy performance targets – new construction.** Require new construction to exceed Title 24 energy efficiency standards by 15 percent and incorporate solar photovoltaics.	**Consistent.** The proposed structures will be designed to meet the Title 24 energy efficiency standards, which are 30 percent more efficient than the 2016 Title 24 standards, and even more efficient than the 2013 Title 24 standards that were in effect when the General Plan was prepared.
2.9	**Energy-efficient street lighting**. Implement a program to install the latest energy-efficient technologies for street and parking lot lights to meet City and state standards.	**Consistent.** The Title 24 standards require that all street lighting utilize LED type of lights, which are the most efficient lighting currently available.
2.10	**New industries.** Actively promote the City as a place for renewable energy generation, and a place for energy conservation businesses to locate.	**Consistent.** The project will promote the proposed business park for all sorts of businesses, including businesses interested in energy conservation.
2.12	**Solar access.** Prohibit new development and renovations that impair adjacent buildings' solar access, unless it can be demonstrated that the shading benefits substantially offset the impacts of solar energy generation potential.	**Consistent.** There are currently no structures or solar panels in the immediate vicinity of the project site. As such, no impairment of solar access would occur with development of the proposed project.

Source: City of Coachella, 2015.

As shown in Table 9, the proposed project would be consistent with all applicable energy-related policies from the General Plan. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

3.6.4 Mitigation

No mitigation is required.

3.6.5 Level of Significance after Mitigation

Less than significant.

3.7 Geology and Soils

3.7.1 Sources

- *County of Riverside, General Plan, Cultural and Paleontological Resources, 2015.*
- *Riverside County Planning Department, Map My County, 2020.*
- *Geotechnical Professionals Inc. (GPI), Geotechnical Investigation Proposed Coachella Airport Business Park NWC State Highway 86 and Airport Boulevard, September 25, 2018* (Appendix D)
- *PaleoWest, Paleontological Resource Assessment for the Coachella Airport Business Park Project in Coachella, Riverside County, California, May 5, 2020* (Appendix E)
- *United States Department of Agriculture Natural Resources Conservation Service, Web Soil Survey, 2021*.

3.7.2 Environmental Setting

The project site is located in the Coachella Valley portion of the Salton Trough physiographic province and is a geologic, structural depression resulting from large scale regional faulting. The trough is bounded by the San Andreas fault and Chocolate Mountains on the northeast and the Peninsular Range and faults of the San Jacinto Fault Zone on the southwest. The Salton Trough represents the northward extension of the Gulf of California, containing both marine and non-marine sediments since the Miocene Epoch. Tectonic activity that formed the trough continues at a high rate as evidenced by deformed young sedimentary deposits and high levels of seismicity.

The surrounding regional geology includes the Peninsular Ranges (Santa Rosa and San Jacinto Mountains) to the south and west, the Salton Sea Basin to the southeast, and the Transverse Ranges (Little San Bernardino and Orocopia Mountains) to the north and east. Hundreds of feet to several thousand feet of Quaternary fluvial, lacustrine, and Aeolian soil deposits underlie the Coachella Valley. The southeastern part of the Coachella Valley, including the project site, lies below sea level. In the past, the ancient Lake Cahuilla submerged the area. Calcareous tufa deposits may be observed along the ancient shoreline as high as an elevation of 45 to 50 feet above mean sea level (amsl) along the Santa Rosa Mountains from La Quinta southward. Lacustrine (lake bed) deposits comprise the subsurface soils over much of the eastern Coachella Valley with alluvial outwash along the flanks of the valley.

The project site is located in a seismically active area. The type and magnitude of seismic hazards affecting any site are dependent on the distance of causative faults, the intensity, and the magnitude of the seismic event. Existing ground surface elevations on the project site range from -112 to -120 feet MSL. There are minor slopes adjacent east and west of the site. The project site is immediately underlain by Holocene age surficial alluvial sediments and beneath are older Pleistocene-age Lake Cahuilla deposits, which are considered to have a high paleontological sensitivity.

3.7.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

a-i. **No Impact.** There are no known active faults crossing or projecting through the project area. The project area is not located within an Alquist-Priolo Earthquake Fault Zone, or within a fault zone identified by the County of Riverside GIS data. Therefore, ground rupture due to faulting is considered unlikely at this site. No impact would occur.

a-ii. **Less than Significant Impact.** The project area is located in a seismically active area of southern California and are expected to experience moderate to severe ground shaking during the lifetime of the project. This risk is not considered substantially different than that of other similar properties in the southern California area. As a mandatory condition of project approval, the project would be required to construct the proposed buildings and associated improvements in accordance with the California Building Standards Code (CBSC), also known as California Code of Regulations (CCR), Title 24

(Part 2), and the City of Coachella Building Code, which is based on the CBSC with local amendments. The CBSC and City of Coachella Building Code (Chapter 15.32) provide standards that must be met to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures, and have been specifically tailored for California earthquake conditions. In addition, the project would be required to comply with the site-specific ground preparation and construction recommendations contained in the geotechnical analysis prepared for the project (*Appendix D)*. With mandatory compliance with City standards and site-specific design and construction measures set forth in the project's geotechnical report, potential impacts related to seismic ground shaking would be less than significant.

a-iii. **Less than Significant Impact.** According to the project-specific geotechnical analysis*,* the project area is located within an area mapped by the City of Coachella as having a potential for soil liquefaction. Groundwater was encountered at depths of 14 to 20 feet below existing grades immediately after drilling tests were conducted. Based on the evaluation of the field data, generally isolated and thin layers of silty sands occurring at depths of approximately 10 to 55 feet exhibit a potential for liquefaction with an overall potential seismic-induced liquefaction settlement of 2 ½ to 3 inches. Differential seismic settlement is estimated to be 1 ¼ to 2 inches across a span of 40 feet. However, the project would be required to comply with the grading and construction recommendations contained within the geotechnical report for the project (*Appendix D*) to reduce the risk of seismic-related ground failure due to liquefaction. Therefore, implementation of the project would not directly or indirectly expose people or structures to substantial hazards associated with seismic-related ground failure and/or liquefaction hazards. Impacts would be less than significant.

a-iv. **No Impact.** The project site is relatively flat, sloping gently to the south. In general, the north side of the site is approximately 8 feet higher than the southern side over a distance of approximately 3,000 feet. Existing ground surface elevations range from about -112 to -120 feet mean sea level (MSL). Directly adjacent to the western side of the project site, an unpaved maintenance road is located at the top of the Channel on a berm, which is approximately 2 to 3 feet higher than the project site at the southern end of the site and approximately 8 to 10 feet higher than the project site at the northern end of the site. However, due to the relatively low height of the berms, potential impacts from landslides would be negligible. The project site is approximately 3 miles away from the base and foothills of the nearest mountain range, the Little San Bernardino Mountains. Based on review of the CGS Information Warehouse: Landslides, the project site is not within a landslide susceptibility zone and would not be subject to potential impacts from rocks falls or landslides. Therefore, no impact would occur.

b. **Less than Significant Impact.** During construction of the proposed project, soils would be disturbed during grading activities, thereby increasing the potential for wind or water-related erosion and sedimentation until construction is completed. Pursuant to State Water Resources Control Board requirements, the applicant is required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for construction activities, which involves preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for construction-related activities. The SWPPP will specify which of the required Best Management Practices (BMPs) that would be implemented during construction activities to ensure that waterborne pollution (erosion and sedimentation) is prevented, minimized, and/or otherwise appropriately treated prior to surface runoff being discharged from the subject property. The project also would be required to comply with SCAQMD Rule 403 to minimize water and windborne erosion. Lastly, the project would be required to prepare and implement a Water

Quality Management Plan (WQMP), which is a site-specific post-construction water quality management program designed to minimize the release of waterborne pollutants, including pollutants of concern for downstream receiving waters, under long-term conditions via BMPs. The WQMP also is required to establish a post-construction implementation and maintenance plan to ensure on-going, long-term erosion protection. Therefore, with adherence to SCAQMD Rule 403, and preparation of a SWPPP and WQMP, the proposed project would result in less-than-significant-impacts related to soil erosion.

c. **Less than Significant Impact.** The project site does not contain substantial natural or man-made slopes under existing conditions. Additionally, there are no hillsides in the vicinity of the project site with a potential to expose the site to landslide hazards. Therefore, no impact would occur related to landslides.

Lateral spreading is primarily associated with liquefaction hazards. As previously mentioned in Section 3.7.3(a)(ii), above, the project would be required to comply with the grading and construction recommendations contained within the geotechnical report for the project (*Appendix D*) to further reduce the risk of seismic-related ground failure due to liquefaction. Therefore, impacts associated with liquefaction and lateral spreading would be less than significant.

Based on the conditions encountered at subsurface testing locations at the project site, the geotechnical investigation determined that the site's settlement potential can be attenuated through the removal of surface and near surface soils down to competent materials and replacement with properly compacted fill. The project would be required to comply with the site-specific ground preparation and construction recommendations contained in *Appendix D*. Therefore, soil shrinkage/subsidence and collapse impacts would be less than significant.

d. **Less than Significant Impact.** According to the Web Soil Survey, the project site consists of desert land comprised of Coachella fine sand, fluvents, Gilman fine sandy loam, and Indio fine sandy loam. In addition, no clay soils were observed in the near surface soils during the geotechnical investigation. Due to the low clay content in underlying soils, these near surface soils can be anticipated to have very low expansion characteristics. The project site is not located in an area known for expansive soil (as defined in Table 18-1-B of the Uniform Building Code (1994)), and the potential for the project to create substantial risks to life or property, relating to expansive soils, is very low. Therefore, impacts would be less than significant.

e. **No Impact.** The project would not involve the use of septic tanks or any other alternative wastewater disposal systems. Sanitary sewer will be extended to the project site, and treatment will occur at existing CVWD facilities. Therefore, there would be no impacts associated with septic tanks or alternative wastewater systems.

f. **Less than Significant with Mitigation Incorporated.** PaleoWest conducted a paleontological resource assessment (*Appendix E*) for the project site to assess the potential for impacts to paleontological resources. According to the published geologic maps, the project site is immediately underlain by Holocene age surficial alluvial sediments and beneath are older Pleistocene-age Lake Cahuilla deposits. According to CVWD's Subsequent IS/MND (SCH#2019079095), the off-site improvement area also is underlain by surficial sediments of the Holocene period, which are generally too young to contain fossilized material. Shallow excavations in the project area (approximately 10 feet in depth or less) are unlikely to yield any significant paleontological resources because younger Quaternary deposits are void of fossils and near-surface alluvium is usually too young to contain fossils, and therefore possess low sensitivity. As a result, no effects to paleontological resources would occur from earth-moving activities at shallow depths at the project site. However, deeper excavations that may extend into older Quaternary (Pleistocene) Lake Cahuilla beds are more likely to unearth fossil remains. Older Quaternary deposits underlying the project area are considered to have a high paleontological sensitivity because they have proven to yield significant paleontological resources (i.e., identifiable vertebrate fossils). Generally, ground-disturbing activities exceeding depths beyond Holocene soils and younger Quaternary alluvium would encounter older Quaternary alluvium and, consequently, should be monitored by a qualified paleontologist to identify and effectively salvage any recovered resources as described in Mitigation Measures GEO-1 through GEO-4 below. Therefore, with implementation of Mitigation Measures GEO-1 through GEO-4, potential impacts to a unique paleontological resource or site or unique geologic feature would be reduced to less than significant.

3.7.4 Mitigation

The following mitigation measures are required:

GEO-1 Prior to the start of the proposed project activities, all field personnel will receive a worker's environmental awareness training on paleontological resources. The training will provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the project area, the role of the paleontological monitor, outline steps to follow in the event that a fossil discovery is made and provide contact information for the project paleontologist. The training will be developed by the project paleontologist and can be delivered concurrent with other training including cultural, biological, safety, etc.

GEO-2 Prior to the commencement of ground-disturbing activities, a professional paleontologist will be retained to prepare and implement a PRMMP for the proposed project. The PRMMP will describe the monitoring required during excavations that extend into older Quaternary (Pleistocene) age sediments, and the location of areas deemed to have a high paleontological resource potential. Part-time monitoring, or spot checking may be required during shallow ground-disturbances (< 10 feet below ground surface) to confirm that sensitive geologic units are not being impacted. Monitoring will entail the visual inspection of excavated or graded areas and trench sidewalls.

GEO-3 In the event that a paleontological resource is discovered, the monitor will have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the project paleontologist shall implement the recovery of resources to professional standards, as established in the PRMMP.

GEO-4 Upon completion of ground disturbing activity (and curation of fossils if necessary) the project paleontologist shall prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program and provide it to the City for its file. The report shall include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

3.7.5 Level of Significance after Mitigation

With implementation of Mitigation Measures GEO-1 through GEO-4, impacts associated with geology and soils would be reduced to less than significant.

3.8 Greenhouse Gas Emissions

3.8.1 Sources

- *Vista Environmental, Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis Coachella Airport Business Park Project, March 17, 2021* (Appendix A)
- *City of Coachella, Climate Action Plan Public Draft, June 2014* *https://www.coachella.org/home/showdocument?id=2880%20*

3.8.2 Environmental Setting

According to the Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018, prepared by EPA, April 13, 2020, in 2018 total U.S. GHG emissions were 6,676.6 million metric tons (MMT) of CO2 equivalent (CO2e) emissions. Total U.S. emissions have increased by 3.7 percent between 1990 and 2018, which is down from a high of 15.2 percent above 1990 levels in 2007. Emissions increased by 2.9 percent or 188.4 MMTCO2e between 2017 and 2018. The recent increase in GHG emissions was largely driven by an increase in CO2 emissions from fossil fuel combustion, which was a result of multiple factors including greater heating and cooling needs due to a colder winter and hotter summer in 2018 compared to 2017.

According to CARB, the State of California created 424.1 MMTCO2e in 2017. The breakdown of California GHG emissions by sector consists of: 41 percent from transportation; 24 percent from industrial; 15 percent from electricity generation; 8 percent from agriculture; 7 percent from residential buildings; and 5 percent from commercial buildings. In 2017, GHG emissions were 5 MMTCO2e lower than 2016 levels, which is 7 MMTCO2e below the 2020 GHG limit of 431 MMTCO2e established by AB 32.

In June 2014, the City of Coachella adopted the *Climate Action Plan(CAP)*. The CAP quantifies emissions from buildout of the General Plan and includes additional policies and implementation actions to help the City further reduce emissions. The CAP was developed in order to be utilized as a tiering document for the streamlined review of project-level GHG emissions under CEQA for development projects within the City.

3.8.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Greenhouse Gas Emissions – Would the project:				
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?	☐	☐	☒	☐

a/b. Less than Significant Impact. The applicable plan for the proposed project is the *Climate Action Public Draft City of Coachella* (CAP) that was developed in order to be utilized as a tiering document for the streamlined review of project-level GHG emissions under CEQA for development projects within the City.

As detailed in Section 9.6 of *Appendix A*, the service population reduction targets established in the CAP of 15 percent below year 2010 levels by year 2020 and 49 percent below year 2010 levels by year 2035 were developed to meet the statewide emissions targets provided in Executive Order S-03-5 that require GHG emissions to be reduced to 1990 levels by 2020 and reduced to 80 percent below 1990 levels by 2050. Since it is not possible to demonstrate that the proposed project would be within the CAP service population targets, this analysis has utilized the CAP's GHG emission reduction target of 26 percent below business-as-usual year 2010 emissions level by opening year 2025. The 26 percent reduction by opening year 2025 was calculated by linear project of the CAP's 15 percent reduction target for the year 2020 and 49 percent reduction target for the year 2035.

In order to determine if the proposed project would comply with the GHG emissions reduction targets in the CAP, the GHG emissions from the proposed project were analyzed for both business-as-usual year 2010 and project opening year 2025. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed in Section 8.1 of *Appendix A*. A summary of the results is shown below in Table 10.

Table 11 Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Year 2010 BAU Emissions				
Area Sources[1]	0.02	0.00	0.00	0.03
Energy Usage[2]	3,016.34	0.07	0.03	3,027.00
Mobile Sources[3]	4,946.39	0.73	0.00	4,964.63
Off-Road Equipment[4]	116.39	0.03	0.00	117.23
Solid Waste[5]	158.86	9.39	0.00	393.57
Water and Wastewater[6]	1,012.38	4.75	0.10	1,213.09
Construction[7]	121.68	0.02	0.00	122.10
Total 2010 Emissions	**9,372.05**	**14.99**	**0.13**	**9,837.64**
Year 2025 Emissions				
Area Sources[1]	0.02	0.00	0.00	0.03
Energy Usage[2]	1,892.25	0.05	0.02	1,899.40
Mobile Sources[3]	3,333.84	0.18	0.00	3,338.39
Off-Road Equipment[4]	104.75	0.03	0.00	105.59
Solid Waste[5]	79.43	4.69	0.00	196.79
Water and Wastewater[6]	624.52	4.00	0.10	754.30
Construction[7]	121.68	0.02	0.00	122.10
Total 2025 Emissions	**6,156.48**	**8.97**	**0.12**	**6,416.59**
Percent Reduction between 2010 and 2025				**34.8%**
City of Coachella Reduction Target for Opening Year 2025				**26%**
			Exceed Threshold?	**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] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered.
[5] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2016.3.2.

The data provided in Table 10 shows that the proposed project would create 9,837.64 $MTCO_2e$ per year based on business-as-usual year 2010 GHG emissions rates and would create 6,416.59 $MTCO_2e$ per year in the project opening year 2025, which is based on approved Statewide GHG reduction regulations that would be fully implemented by year 2025. More specifically the approved Statewide GHG reduction regulations include, but are not limited to implementation of: EO N-79-20 that requires all passenger vehicles sold in California to be zero-emission by 2035 and commercial trucks to be zero emission by 2045, 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 10 shows that the proposed project's GHG emissions would be reduced by 34.8 percent and would meet the GHG emissions reduction target of 26 percent below year 2010 emissions level by opening year 2025 as detailed in the CAP. Therefore, the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment and is consistent with the CAP and would not conflict with the applicable plan adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

3.8.4 Mitigation

No mitigation is required.

3.8.5 Level of Significance after Mitigation

Less than significant.

3.9 Hazards and Hazardous Materials

3.9.1 Sources

- *City of Coachella General Plan Update 2035*
- *City of Coachella General Plan Update Final Environmental Impact Report (EIR) 2035*
- *State Water Resources Control Board, GeoTracker. Accessed August 10, 2021, https://www.waterboards.ca.gov/.*
- *Altec Testing & Engineering, Inc., Phase I Environmental Site Assessment Coachella Airport Business Park, February 23, 2021* (Appendix F)

3.9.2 Environmental Setting

Prior to 1953, the project site was undeveloped. In approximately 1953, the project site was used for agricultural purposes until at least 1984. After 1984, no site use was identified, with the exception of grading or weed abatement activities on the southwest portion of the site in 1996. The proposed project site is currently vacant and undeveloped and located at the northwest corner of Airport Boulevard and State Highway 86.

Regulatory Setting

Federal

Resource Conservation and Recovery Act

The 1976 Federal Resource Conservation and Recovery Act (RCRA) and the 1984 RCRA amendments regulate the treatment, storage, and disposal of hazardous and non-hazardous wastes. The legislation mandated that hazardous wastes be tracked from the point of generation to their ultimate fate in the environment. This includes detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities. The 1984 RCRA amendments provide the framework for a regulatory program designed to prevent releases from underground storage tanks (UST).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 introduced active federal involvement with emergency response, site remediation, and spill prevention, most notably through the Superfund program. The act was intended to be comprehensive in encompassing both the prevention of, and response to, uncontrolled hazardous substances release. The act includes environmental response, providing mechanisms for reacting to emergencies and to chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it is also designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

State of California

California Health and Safety Code

The California Environmental Protection Agency (CalEPA) has established rules governing the use of hazardous materials and the management of hazardous wastes. California Health and Safety Code (HSC) Sections 25531, et. seq. incorporates the requirements of Superfund Amendments and Reauthorization Act and the Clean Air Act as they pertain to hazardous materials.

California Environmental Protection Agency Unified Program

CalEPA administers the Unified Program that consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. The state agencies responsible for these programs set the standards for their program while local governments implement the standards. The state agency partners involved in the Unified Program have the responsibility of setting program element standards, working with CalEPA on ensuring program consistency and providing technical assistance to the Certified Unified Program Agencies (CUPAs) and Participating Agencies. The Secretary of CalEPA is directly responsible for coordinating the administration and certification of the Unified Program. The Secretary has certified 83 CUPAs as of March 2012, including the Riverside County Fire Department and the County of Riverside Department of Environmental Health (DEH). These 83 CUPAs carry out the responsibilities previously handled by approximately 1,300 state and local agencies. The following state agencies are involved with the Unified Program:

State Water Resources Control Board (SWRCB)

The State Water Resources Control Board provides technical assistance and evaluation for the underground storage tank program in addition to handling the oversight and enforcement for the aboveground storage tank program.

Department of Toxic Substances Control

The Department of Toxic Substances Control (DTSC) provides technical assistance and evaluation for the hazardous waste generator program including onsite treatment (tiered permitting).

County of Riverside Department of Environmental Health

The Department of Environmental Health is designated as the CUPA by CalEPA. The role of the CUPA is to assure consolidation, consistency, and coordination of the hazardous materials programs within the County. The Branch is responsible for inspecting facilities that handle hazardous materials, generate hazardous waste, treat hazardous waste, own/operate underground storage tanks, own/operate aboveground petroleum storage tanks, or handle other materials subject to the California Accidental Release Program. In addition, the Branch maintains an emergency response team that responds to hazardous materials and other environmental health emergencies.

3.9.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident condition 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) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

a/b. Less than Significant with Mitigation Incorporated.

Existing Site Conditions

No historical recognized environmental conditions (HRECs) and controlled recognized environmental conditions (CRECs) are located on the project site.

From approximately 1953 to 1984, the project site contained agricultural crops; therefore, the potential exists for residues of pesticides to be present in the site's soils. The potential for the presence of pesticides on the site is identified as a recognized environmental condition (REC). As described in Mitigation Measure HAZ-1, a soils investigation would be required prior to grading permit issuance to assess pesticide concentration levels in the site's soils. If pesticide concentration levels exceed regulatory agency screening levels, soil remediation would be implemented to ensure pesticide concentration levels would be reduced below the regulatory agency screening levels. With implementation of Mitigation Measure HAZ-1, pesticide impacts would be reduced to less-than-significant levels.

Construction

Proposed project construction activities for each phase of development may involve the use and transport of hazardous materials. These materials may include but not be limited to fuels, oils, mechanical fluids, and other chemicals that are associated with construction activities. The transportation and disposal of hazardous materials will comply with State, local, and Federal laws. This includes federal regulations such as the Federal Resource Conservation and Recovery Act (RCRA), which mandates that hazardous waste be tracked from the point of generation to their ultimate destination in the environment. This would involve detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities. Furthermore, the City of Coachella General Plan 2035 EIR states that all motor carriers and drivers involved in transportation of hazardous materials must apply for and obtain a hazardous materials transportation license from the California Highway Patrol. In addition, to further assure the safety of the public, the California Health and Safety Code (CalEPA) establishes rules governing the use of hazardous materials and the management of hazardous waste. For prevention of and response to of hazardous materials, the Comprehensive Environmental Response, Compensation, and Liability (CERCLA) is in place for uncontrolled hazardous substance release. The Coachella Fire Services, as part of the Riverside County Fire Department, supports the Riverside County Health Department in maintaining a program requiring that anyone operating a hazardous occupancy or using, storing, or transporting hazardous material has a permit. Finally, upon the completion of each individual project phase, all hazardous materials would be removed from the project site. Therefore, routine transport, use, or disposal of hazardous materials would be less than significant.

Operations

It is anticipated that long term operations would result in the storage of hazardous materials of various types and quantities that may include but are not limited to solvents, acids, paints, refrigerant, and gases. However, the use of these materials is all dependent on the occupancy of each building . Although the type and quantity of these materials cannot be perceived at this time, the County of Riverside's Department of Environmental Health requires that facilities storing hazardous materials prepare a Hazardous Materials Business Plan (HMBP). The information from the HMBP is made available to first responders in the county for emergency response activities. All handlers are required to disclose their inventory of hazardous materials in the HMBP. Therefore, impacts associated with the significant hazard to the public or the environment through reasonably foreseeable upset and accident condition involving the release of hazardous materials into the environment will be less than significant.

c. **No Impact.** The nearest school to the project site is John Kelley Elementary School in the City of Thermal located at 87163 Center Street. The school is approximately 2.6 miles to the northwest of the proposed project site. Therefore, the proposed project would not impact schools within a quarter mile of the site.

d. **Less than Significant Impact.** According to the Department of Toxic and Substance Control Envirostor Database, the nearest cleanup site is located at 56-850 Higgins Drive in Thermal, which is approximately 4.3 miles from the site. This site is the Jacqueline Cochran Regional Airport, which has been categorized as a "Military Evaluation." Potential contaminants for the site include explosives, lead, munitions debris, and perchlorate in the soil. However, the clean-up status for the site has been deemed inactive as of August 15, 2019. The other site identified within the vicinity of the project site is located approximately 3 miles south of 59th Avenue between Polk and Filmore Street in Thermal. The site was designated "Voluntary" clean-up due to metals, organochlorine pesticides, and polynuclear aromatic hydrocarbons in the soil. However, the sites clean-up status has been deemed certified/operation and maintenance as of June 28, 2019. Therefore, impacts would be less than significant.

e. **Less than Significant Impact.** The closest airport to the project area is the Jacqueline Cochran Regional Airport, which is approximately 1.4 miles southwest of the project site. The project site is located within the Riverside County Airport Land Use Compatibility (ALUCP) Airport Influence Area and within Zone D. Zone D prohibits highly noise-sensitive outdoor non-residential uses and hazards to flight. Because the proposed use of the site is not highly noise-sensitive and would reach a maximum height of 50 feet, the project would not result in a safety hazard for people residing or working in the project area, and the Airport Land Use Commission (ALUC) found the project consistent with the ALUCP. Impacts would be less than significant.

f. **Less than Significant Impact.** The project site is bounded by Airport Boulevard and SR-86. According to the City of Coachella, evacuation routes include Highway 111, Grapefruit Boulevard, SR-86, 52nd Avenue, 50th Avenue, and 48th Avenue. Airport Boulevard is not designated an evacuation route according to the City of Coachella. The project site is not proposing to alter the exiting routes or circulation patterns to and from the City. Furthermore, access points would adhere to Riverside County Fire Department Fire Code to provide for adequate emergency access. As such, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant.

g. **No Impact.** According to Map My County, the project site area is not located within a fire State Responsibility Area (SRA) or a Local Responsibility Area (LRA). The project site and its surrounding areas are not located within a very high fire hazard area. Therefore, the proposed project site would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. No impact would occur.

3.9.4 Mitigation

HAZ-1 Prior to building permit issuance, a soils investigation shall be conducted by a qualified soils engineer to assess the pesticide contamination levels in the project site's soils. If the pesticide contamination levels exceed regulatory agency screening levels, the applicant shall implement a remediation program to reduce the soil's pesticide concentration levels to below regulatory agency screening levels. All activities will be coordinated with the City and the County Department of Environmental Health.

3.9.5 Level of Significance after Mitigation

With implementation of mitigation measure HAZ-1, impacts will be less than significant.

3.10 Hydrology and Water Quality

3.10.1 Sources

- *The Altum Group, Coachella Airport Business Park in the City of Coachella, CA Preliminary Hydrology Report, December 31, 2020.* (Appendix G)
- *The Altum Group, Project-Specific Preliminary Water Quality Management Plan for: Coachella Airport Business Park, December 31, 2020.* (Appendix H)
- *The Altum Group, Water Supply Assessment and Water Supply Verification for the proposed Coachella Airport Business Park Project, October 13, 2020.* (Appendix I)
- *California Water Boards. Accessed August 23, 2021* https://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.html
- *South Coast Air Quality Management District* https://www.aqmd.gov/home/rules-compliance/compliance/rule-403-dust-control-information
- FEMA Flood Map Service Center, 2021.
- *City of Coachella, Municipal Code. Accessed August 23, 2021* https://library.municode.com/ca/coachella/codes/code_of_ordinances?nodeId=TIT13PUSE_CH13.16WAQUCO
- *California Department of Water Resources. Accessed August 23, 2021* https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management

3.10.2 Environmental Setting

The project site is located in the Indio Subbasin of the Coachella Valley Groundwater Basin, which is part of the Colorado Rover Hydrologic Region. The Indio Subbasin is located northwest of the Salton Sea and receives low precipitation, averaging about 6 inches per year, and a wide range of temperature. The Banning Fault bounds the subbasin on the north and the semi-permeable rocks of the Indio Hills mark the northeast boundary. Impermeable rocks of the San Jacinto and Santa Rosa Mountains bound the subbasin on the south. A bedrock constriction separates the Indio Subbasin from the San Gorgonio Pass Subbasin on the northwest. The Salton Sea is the eastern boundary and the subbasin's primary discharge area. A low drainage divide forms a short boundary with the West Salton Sea Groundwater Basin in the southeast.

The Indio Subbasin (now identified as the Whitewater River Subbasin) is drained by the Whitewater River and its tributaries (located adjacent to the project property). The Whitewater River rarely flows throughout the year and flow in tributaries such as the San Gorgonio River is intermittent. Surface flow is southeastward to the Salton Sea. The Colorado River Aqueduct and the Coachella Branch of the All-American Canal convey imported water into the Coachella Valley which overlies the subbasin. The project site is currently within FEMA flood Zone AE.

3.10.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
c.i.) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
c.ii.) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
c.iii.) 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; or	☐	☐	☒	☐
c.iv) Impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

a. **Less than Significant Impact.** Construction of the project would be subject to National Pollutant Discharge Elimination System (NPDES) stormwater regulations for construction, which are required when there is a soil disturbance of more than one acre. The applicant will be required to comply with all rules, regulations, and procedures of the NPDES permit for municipal, construction, and industrial activities as outlined by the California State Water Resources Control Board or any of its Regional Water Quality Control Boards (Colorado River Basin – Region 7). As a result, the applicant must comply with the State's most current Construction General Permit (CGP) Order 2009-0009-DWQ. The CGP requires the development of a Storm Water Pollution Prevention Plan (SWPPP), which is designed to help prevent potential adverse effects to surface water quality that would occur during the construction of the proposed project.

During construction of the project, = future development would be required to comply with South Coast Air Quality Management (SCAQMD) Rule 403 and 403.1. Rule 403 requires the implementation of best available dust control measures (BACM) during active operations that are capable of generating fugitive dust, such as the construction of the proposed project. Rule 403.1 is a supplemental rule to 403, which applies only to fugitive dust sources that occur in the Coachella Valley. This rule will assist in reducing fugitive dust and resulting PM10 emissions from made-made sources in the Coachella Valley. Although, these rules are intended to protect air quality, they would also assist in supporting with water quality protection by preventing sediment track out and erosion.

Additionally, a project specific Water Quality Management Plan (WQMP) was prepared to determine and describe the Best Management Practices (BMPs) that will be implemented on the project site to address pollutants of concern that may potentially be generated from the uses on the project site. Per the WQMP, the BMPs have been selected and implemented to comply with Section 3.5 of the WQMP, and consists of site design BMP concepts, source control, LID/site design and, if/where necessary, treatment control BMP's. Furthermore, the hydrology study prepared for the proposed project collects and stores 100% of the runoff generated during the 100-year storm event on-site per City of Coachella drainage standards. The onsite retention basins will be designed in a manner that allows the stored volume generated from the 100-year design storm event to completely evacuate via percolation into the soil within a 72 hour period. Therefore, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Impacts would be less than significant.

b. **Less than Significant Impact.** No potable ground water wells are proposed by the project and the project would be served with potable water by Coachella Valley Water District (CVWD). According to the Water Supply Assessment (*Appendix I*) prepared for the project, CVWD would have a sufficient amount of water to serve the project. Therefore, the project would not substantially deplete groundwater supplies and the project's impact to groundwater supplies would be less than significant.

Development of the project would increase impervious surface coverage on the property, which would reduce the amount of water percolating down into the underground aquifer that underlies the project site and a majority of the City. However, according to the City's General Plan EIR, groundwater replenishment from direct precipitation is negligible due to the small amount of rainfall on the valley floor. Percolation of water from stream flows, which originate in the adjacent mountain areas, serves as the largest natural source of groundwater replenishment in the Lower Coachella Valley. Furthermore, water captured by the proposed project's underground detention system and landscaped areas would have the opportunity to percolate into the ground. Therefore, buildout of the project would not interfere substantially with groundwater recharge and impacts would be less than significant.

Please see Section 3.19 for an analysis of the water supply requirements for the proposed project. As noted in that section, the project will not significantly impact water supplies, and the Water Supply Assessment (WSA) prepared for the project found that the City has sufficient water to supply project water demand in normal, single and multiple dry year conditions. Impacts would be less than significant.

c-i. **Less than Significant Impact.** It is expected that the project would be mass graded, affecting the entire property, and constructed as a mixed-use business park, which would change the site's existing ground contours and alter the existing drainage patterns interior to the project site. However, upon buildout of the project, stormwater flow generated on the project site would continue to be conveyed to the west into the Whitewater River Storm Water Channel. Although the project would alter the subject property's internal drainage patterns, such changes would not result in substantial erosion or siltation on- or off-site because the City will require, as it does for all projects, the retention of the 100-year storm event onsite.

Under post-development conditions, a majority of the site would be covered with impervious surfaces and, therefore, the amount of exposed soils on the project site would be minimal. Also, the project would construct an integrated storm drain system on-site with site design BMPs (i.e., retention basins) to minimize the amount of water-borne pollutants carried from the project site, consistent with the City's NPDES requirements. The implementation of the retention basins and other design features will allow for control of any existing erosion or siltation that is attributed to the undeveloped site. Accordingly the project would not result in substantial erosion or siltation onsite or offsite and a less-than-significant impact would occur.

c-ii. Less than Significant Impact. As described in Section 3.10.3(c)(i), above, implementation of the project would alter the site's existing drainage patterns but would not substantially alter the drainage pattern of the local area.

The site will be required to collect and store 100% of runoff generated during the 100-year storm event. To achieve this the proposed project's hydrologic design separated the site into three main subareas and storm water collections system boundaries. The majority of the site is designed to surface flow to a series of drain inlets, gutters and swales where runoff can be collected and conveyed in an underground storm drain system toward retention basins located along the westerly side of the property. A smaller portion of the project located at the northerly interior of the site will drain its surface runoff toward an interim retention basin location. A portion of project located on the easterly boundary will flow to a single retention basin adjacent to the project boundary. There are several depressed loading docks (0.16 acres) serving the proposed warehouse buildings on the northerly side of the project site. These loading docks will drain separately to underground storage facilities as their depth does not allow for gravity flow into the proposed storm drain retention system. The maximum depth of any on-site retention basin will be three (3) feet and will be sized to retain the entire storm volume generated on-site during the 10-year design storm.

The project site will also provide sufficient capacity to contain the runoff volume generated during the 100-year design storm in combination with the retention basins and shallow ponding on surface streets and parking areas at a depth not to exceed 1.5' in depth. In the event of an emergency flooding condition, flows exceeding the capacity of the on-site collection system will overflow at the southeasterly end of project site toward the SR-86 right-of-way and onto an adjacent undeveloped parcel of land. Flows ultimately would then proceed southerly via surface flow where they would make their way into the Coachella Valley Stormwater Channel. Accordingly, implementation of the project would not substantially increase the rate or amount of surface water runoff discharged from the site in a manner that would result in flooding on or offsite.

c-iii. Less than Significant Impact. As previously stated, the project's retention basins would be sized and designed to accommodate all of the site's runoff. Accordingly, the project would not create or contribute runoff which would exceed the capacity of any existing or planned storm water drainage system and impacts would be less than significant.

As discussed under Section 3.10.3(a), the proposed project would be required to comply with a future SWPPP and the project's WQMP (*Appendix H*), which identify required BMPs to be incorporated into the project to ensure that near-term construction activities and long-term post-development activities of the proposed project would not result in substantial amounts of polluted runoff. Therefore, with mandatory compliance with the project's SWPPP and WQMP, the proposed project would not create or contribute substantial additional sources of polluted runoff, and impacts would be less than significant.

c-iv. **Less than Significant Impact.** As previously stated, the project site is located in flood plain Zone AE per FEMA map number 06065C2270H. CVWD maintains the existing Coachella Valley Stormwater Channel and is currently constructing channel lining improvements that would remove the entirety of the project site from the flood plain. The applicant intends to go forward with development in a manner that protects the site from off-site flows by established elevated grades along the affected portion of the project perimeter. CVWD will conduct a flood development review of the project development on behalf of FEMA before final engineering drawings are submitted to the City for review to confirm project design protects the development from off-site flows. Through proposed design features the proposed project would not impede or redirect flood flows and impacts would be less than significant.

d. **Less than Significant Impact**. The project site is located within FEMA Flood Zone AE due to the project site being adjacent to the Coachella Water District's Coachella Valley Stormwater Channel. Improvements to the channel will remove the project site from the flood plain and the project would require approval from the City and CVWD to confirm project design protects the development from off-site flows. Furthermore, the project site is not located within the vicinity of any other water bodies. Due to the project site location being far away from the ocean and far away from any lakes or dams, there is no possibility of dam failure, tsunami or seiche. Therefore, impacts would be less than significant.

e. **Less than Significant Impact**. As discussed in Section 3.10.3(b) and Section 3.19, project water demand can be accommodated by the City, which has sufficient water supplies to serve the project. The project would adhere to all applicable water quality standards and would implement a project specific WQMP approved by the City and the Regional Water Quality Control Board for both construction and operational activities. The WQMP incorporates design features that would prevent the project from conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts would be less than significant.

3.10.4 Mitigation

No mitigation is required.

3.10.5 Level of Significance after Mitigation

Less than significant.

3.11 Land Use and Planning

3.11.1 Sources

The following sources were utilized to support the conclusions made in this section:

- *City of Coachella General Plan Update 2035 Draft Environmental Impact Report (EIR)*
- *City of Coachella General Plan Update 2035*

3.11.2 Environmental Setting

The project site is designated Industrial District and it is zoned Heavy Industrial (M-H). In addition, the project site is located in the City's Sub-Area 8, which contains a variety of industrial and office uses. Sub-Area 8 – East Industrial District, is located east of the Whitewater River, west of Filmore and between Airport Boulevard and Avenue 52. Approximately two-thirds of the subarea is within the City limits and the other one-third is located in the Sphere of Influence. This area is topographically flat and contains agricultural uses.

The City of Coachella 2035 General Plan Update also discusses the vision and policy direction for the Sub-Area 8, which involves transforming the subarea over time to an employment district that as mentioned will contain a variety of industrial and office uses. It is stated that the area should take advantage of the SR-86 that runs along the eastern side of the subarea. Development along Avenue 52 could occur for retail as well as office since this corridor transforms into a major east-west thoroughfare.

The project site is bounded by SR-86 to the east as well as agricultural land, the Coachella Valley Stormwater Channel and some small industrial buildings to the west, vacant land to the north, and mobile park homes to the south. Part of the project will include a site to the north of the project which will house an Imperial Irrigation District Electric Substation from excess Caltrans right-of-way. Caltrans will remove this parcel from their right-of-way through a separate process called an abandonment of right-of-way which is exempt from CEQA per Section 66428 (a) (2) of the Subdivision Map Act.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
LAND USE AND PLANNING – Would the project:				
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?	☐	☐	☒	☐

a. **No Impact**. Development of the project would not physically disrupt or divide an established community. Under existing conditions, the project site is vacant, and surrounded by roadways and the Channel. No impact would occur.

Less Than Significant Impact. The development of the project would consist of a mixed-use business park development which includes warehouse/commercial cannabis-related uses, small business uses, self- and auto-storage and a drive-thru restaurant and service station/mini mart-related uses. The project site is currently zoned Heavy Industrial (M-H) and it is located in General Plan Sub-Area 8,. The project Change of Zone would change the current Heavy-Industrial (M-H) zone to Manufacturing Service (M-S) and C-G. The zone change would allow for the proposed project to include cannabis cultivation, processing, testing, manufacturing, and/or wholesale distribution. The proposed project would not conflict with the underlying General Plan land use designation and the underlying zoning for the project site, subject to approval of a Change of Zone, and CUP's.

The project also would not conflict with any applicable goals, objectives, and policies of the SCAQMD's AQMP, SCAG's Connect SoCal, and SCAG's Regional Comprehensive Plan. Impacts would be less than significant.

3.11.3 Mitigation

No mitigation required.

3.11.4 Level of Significance after Mitigation

Less than significant.

3.12 Mineral Resources

3.12.1 Sources

- *City of Coachella, General Plan 2035 Environmental Impact Report (EIR). Accessed August 23, 2021.* https://cityofcoachellageneralplanupdate.weebly.com/final-eir.html
- *United States Department of Agriculture Natural Resources Conservation Service, Web Soil Survey, 2021.*

3.12.2 Environmental Setting

The City of Coachella is located in the mineral resource zone 1 (MR-1), which means that there are no significant mineral deposits present or likely to be present. As previously stated, the project area consists of vacant land and is void of any physical structures. The project area consists of desert land comprised of Coachella fine sand, fluvents, Gilman fine sandy loam, and Indio fine sandy loam, according to the Web Soil Survey.

3.12.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
MINERAL RESOURCES – Would the project:				
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-b. **Less Than Significant Impact.** According to the City General Plan EIR, the project area is located in an MRZ-1 zone, which indicates there is little likelihood for presence of significant mineral resources. The project site is currently zoned M-H (Heavy Industrial) and will be rezoned to MS-IP (Manufacturing Service) and C-G per the City's Official Zoning Map. Neither the existing nor proposed zoning designations allow for mineral production. If a potential mineral extraction operation were to be located within the project site, it would be incompatible both with the land use designation and surrounding land uses. Therefore, development of the project would result in a less-than-significant impact relating to mineral resources.

3.12.4 Mitigation

No Mitigation Required

3.12.5 Level of Significance after Mitigation

Less than significant.

3.13 Noise

3.13.1 Sources

- *City of Coachella, City of Coachella Municipal Code, June 26, 2021.*

3.13.2 Environmental Setting

Noise

Noise has been defined as an 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. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise sources by discriminating against very low and very high frequencies of the spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

Vibration

According to the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment Manual*, vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibration include natural or human made causes. In addition, vibration sources may be continuous such as, factory machinery, or transient, such as explosions.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration.

City of Coachella Noise Standards

Construction Activities

The City's Municipal Code Chapter 7.04, Noise Control, states construction activities are permitted October 1st through April 30th Mondays through Fridays 6:00 a.m. to 5:30 p.m., Saturdays, Sundays, and Holidays 8:00 a.m. to 5:00 p.m.; and May 1st through September 30th Mondays through Fridays 5:00 a.m. to 7:00 p.m., Saturdays, Sundays, and Holidays 8:00 a.m. to 5:00 p.m.

Fixed Noise Sources

The City's Municipal Code Chapter 7.04 also states that the threshold for all commercial-zoned development between 6:00 a.m. to 10:00 p.m. is 65 dBA and between 10:00 p.m. to 6:00 a.m. is 55 dBA.

3.13.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

a. Less than Significant Impact. Construction activities for the project would create temporary periods of noise when heavy construction equipment is in operation and would cause a short-term increase in ambient noise levels. However, project construction activities would occur during the permitted hours pursuant to the City's Noise Ordinance. Furthermore, mufflers would be placed on construction equipment to minimize noise and the equipment would be placed so that emitted noise is directed away from the noise sensitive receptors nearest the project area. Therefore, project impacts to construction noise would be less than significant and no mitigation is required.

Stationary (on-site) noises associated with long-term project operations are expected to include idling trucks, delivery truck and automobile parking, delivery truck backup alarms, roof-mounted equipment (e.g., heating/ventilation equipment), as well as noise associated with the loading and unloading of dry goods. The nearest sensitive receptors to the project are the mobile park homes located approximately 50 feet south of the project site. However, the proposed service station/mini mart, drive-thru restaurant, small businesses, and self- and auto-storage area would be developed in between the proposed warehouses and mobile homes and act as a buffer to minimize noise from stationary warehouse equipment as well as idling trucks. In addition, pursuant to California Air Resources Board (CARB), all project trucks would only be allowed to be idle for up to 5 minutes, which would minimize noise from project trucks. Based on the foregoing, long-term operational noise impacts would be less than significant.

b. Less than Significant Impact. Neither the County nor the State of California have adopted criteria or regulations for ground-borne vibration. However, the U.S. Department of Transportation's Federal Transit Administration (FTA) provides criteria for acceptable levels of ground-borne vibration for various types of building that are susceptible to vibration. The human reaction to vibration is highly subjective and varies from person to person, but generally speaking, 65 VdB (vibration decibels) is considered to be the threshold of perception. Vibrations beyond that amount can be annoying to some people. Vibrations below that amount can have secondary audible effects, such as slight rattling of doors, fixtures, and dishes.

<u>Construction Analysis</u>

Project construction activities would produce some level of vibration. Construction activities would typically require at least one piece of large equipment to be operating at fairly regular intervals, especially during the earlier stages when grading and/or drilling would take place. A large bulldozer or a loaded truck can create ground vibration in excess of 80 VdB at 25 feet from the vibration source. However, the nearest sensitive receptor (i.e., mobile homes) to the project site is approximately 50 feet to the south of the southern boundary of the site. Vibration decreases the further away the receptor gets from the source. According to the FTA's ground-borne vibration criteria, the vibration threshold in residential settings for infrequent vibration events (less than 70 events per day) is 80 VdB. Considering the distance of the nearest sensitive receptor to the potential vibration source (50 feet), the vibration experienced at that location would be below 80 VdB. Furthermore, impacts at the site of the closest sensitive receptor are unlikely to be sustained during the entire construction period, but rather only during the times that heavy construction equipment is operating, particularly near the southern boundary. Construction on the project site would typically be restricted to daylight hours (October 1st through April 30th Mondays through Fridays 6:00 a.m. to 5:30 p.m., Saturdays, Sundays, and Holidays 8:00 a.m. to 5:00 p.m.; and May 1st through September 30th Mondays through Fridays 5:00 a.m. to 7:00 p.m., Saturdays, Sundays, and Holidays 8:00 a.m. to 5:00 p.m), thus eliminating impacts during evening hours. Considering these findings, project construction impacts related to ground-borne vibration or ground-borne noise levels would be less than significant.

<u>Operational Analysis</u>

Under long-term conditions, the project would not include nor require equipment facilities or activities that would result in substantial or perceptible ground-borne vibration. Trucks would travel to-and-from the project site during long-term operation; however, vibration levels for heavy trucks operating. at low-to-normal speeds on smooth, paved surfaces – as is expected on the project site and along surrounding roadways – typically do not exceed 65 VdB. Truck deliveries transiting on-site would travel at very low speeds, so it is expected long-term operations at the project site would not exceed the FTA's allowable levels. Therefore, operational use of the project would have less-than-significant impacts related to ground-borne vibration or ground-borne noise levels.

c. Less than Significant Impact. The closest airport to the project site is the Jacqueline Cochran Regional Airport, which is approximately 1.4 miles southwest of the project site. The project site is located within the Riverside County Airport Land Use Compatibility (ALUCP) Airport Influence Area; however, the project site is located outside of the 65 community noise equivalent level (CNEL) noise contour. In addition, the Airport Land Use Commission found the project consistent with the ALUCP. Therefore, although the project is within two miles of a public airport, the project would not expose people residing or working in the project area to excessive noise levels associated with airports, and no mitigation is required.

3.13.4 Mitigation

No mitigation is required.

3.13.5 Level of Significance after Mitigation

Less than significant.

3.14 Population and Housing

3.14.1 Sources

- *Southern California Association of Governments, Pre-Certified Local Housing Data for the City of Coachella, April 2021*
- *United States Census Bureau, July 1, 2019.*

3.14.2 Environmental Setting

According to the United States Census Bureau, the City of Coachella had a population of 45,743 in 2019, and the population increased by 12.4% from 2010. The number of households from 2015-2019 was 15,451 with an average household size at 2.92 persons per household.

3.14.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
POPULATION AND HOUSING – Would the project:				
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 people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a. Less than Significant Impact. The proposed project would result in development of the property with mixed-use business park uses that would add employment opportunities to the area. It is anticipated that the employment base for both the construction and operational phases of the project would come from the existing population in the Inland Empire, which comprises Riverside County and San Bernardino County. Furthermore, according to SCAG's *Profile of the City of Coachella*, approximately 86% of City of

Coachella residents commute outside of the City for work. Therefore, the project would provide job opportunities closer to home for existing and future Coachella residents.

There are no components of the project that would reasonably result in indirect or unplanned population growth because the surrounding area is mostly developed under existing conditions with some vacant, undeveloped land to the north. The project will be accessible via existing roads and infrastructure. The project site also will be served by existing utilities, and no roads would need to be extended to serve the Project. Extensions for water and sewer are project-specific, and would not induce growth on surrounding lands.

Based on the foregoing analysis, the project would not result in substantial, direct or indirect population growth that would cause a significant direct or indirect impact to the environment. Impacts would be less than significant.

b. **No Impact.** The proposed development of the mixed-use business park will take place on a vacant lot. No structures or housing will be eliminated as a result of the project and no persons will be displaced. Therefore, there would be no impacts, relating to the displacement of people or housing.

3.14.4 Mitigation

No mitigation is required.

3.14.5 Level of Significance after Mitigation

Less than significant.

3.15 Public Services

3.15.1 Sources

- *City of Coachella, Fire Department website* https://www.coachella.org/departments/fire-department, *Accessed on August 13, 2021.*
- *City of Coachella, Police Department website* https://www.coachella.org/departments/police-department, *Accessed on August 13, 2021.*
- *Coachella Valley Unified School District website* https://www.cvusd.us/, *Accessed on August 13, 2021.*
- *City of Coachella General Plan 2035*

3.15.2 Environmental Setting

Fire Protection Services
The Coachella Fire Department provides for fire, paramedic, and emergency services within the corporate boundaries of the City. Fire Station #79, located at 1377 Sixth Street, serves the City.

Police Protection Services
Police protection services are provided by the City's Police Department, which is contracted from the County Sherriff. The Department is located at 86625 Airport Boulevard.

Schools

The Coachella Valley Unified School District (CVUSD) provides educational services for grades K-12 in the City of Coachella. CVUSD receives funding from school facilities fees, state funding, and local funding. CVUSD is authorized to collect school facilities fees as provided for in Government Code Section 53080 *et. seq.* and 65995 et seq. in the amount of $0.66 per square foot for all new commercial/industrial construction.

Parks

The City of Coachella contains 60.2 acres of park and 109 acres of parkland and open space, offering a number of recreation opportunities, including: baseball fields, soccer fields, swimming pools, playgrounds, picnic area, and basketball court.

3.15.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new of 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-i. Less than Significant Impact. The Coachella Fire Department provides fire protection services to the project site and surrounding area. The Coachella Fire Department Fire Station (#79) is located at 1377 Sixth Street, approximately 3.8 miles southeast from the project site. Based on the project site's proximity to the existing fire station, the project would be adequately served by fire protection services, and no new or expanded unplanned facilities would be required. Additionally, the project would feature fire safety and fire suppression designs, including type of building construction, fire sprinklers, a fire hydrant system, and paved access. The Coachella Fire Department will review and approve project plans to ensure all applicable fire standards and regulations are met. Therefore, impacts associated with fire protection services would be less than significant.

a-ii. Less than Significant Impact. The Coachella Police Department provides police protection services to the project site and surrounding area. The Department is located at 86625 Airport Boulevard, approximately 0.9 miles west of the project site. Based on the project site's proximity to the existing police station, the Project would be adequately served by police protection services, and no new or expanded unplanned facilities would be required. The Coachella Police Department will review and approve project plans to ensure all applicable police standards and regulations are met. Therefore, impacts associated with police protection services would be less than significant.

a-iii. Less than Significant Impact. The nearest school is the John Kelley Elementary School, which is located approximately 0.9 miles southwest of the project site at 87163 Center Street in Thermal. The project is proposing the development of a business park, which will consist of industrial and commercial uses. There is no housing proposed on the project site that would lead to the increase in population. In addition the proposed project is required to pay the State mandated school impact fees, which were designed to mitigate impacts to schools. Therefore, impacts would be less than significant.

a-iv. Less than Significant Impact. The City of Coachella requires new developments to dedicate land for recreational purposes or pay in-lieu fees. The proposed project is not anticipated to increase the use of parks such that substantial park lands would be required. The proposed project consists of commercial and industrial uses that would attract people for a temporary amount of time. It is not generating any new dwelling units for permanent or temporary housing that would increase the use of parks. The proposed project would result in a negligible population increase and a negligible demand for park facilities. Therefore, the payment of the City's in-lieu fee will assure that the impacts to City parks would be less than significant.

a-v. Less than Significant Impact. The project would result in less-than-significant impacts to other public facilities. As stated above, the proposed project is not proposing any new dwelling units. Due to this it is not expected that the project would result in an increase in population that would require the provision of additional public facilities, including libraries, community recreation centers, post offices, and/or animal shelters within the City of Coachella. As such, implementation of the project would not adversely affect other public facilities or require the construction of new or modified public facilities and impacts would be less than significant,

3.15.4 Mitigation

No mitigation is required.

3.15.5 Level of Significance after Mitigation

Less than significant.

3.16 Recreation

3.16.1 Sources

The following sources were utilized to support the conclusions made in this section:

- *City of Coachella General Plan 2035*
- *City of Coachella General Plan Final Environmental Impact Report (EIR) 2035*

3.16.2 Environmental Setting

Parks and recreational facilities provide residents, visitors, and the community with both passive and active recreational benefits. Within the City of Coachella, there are traditional parks, school, recreational facilities, additional services, and trails. The City of Coachella is located within the Coachella Valley Recreation and Park District (CVRPD), which provides park and recreation services for the City. Currently, there are no regional parks located within the City of Coachella.

Within the City of Coachella there are seven public parks and one tot lot, which total approximately 60.2 acres of community parks, neighborhood parks, mini-parks, and pocket parks. Within the City there are three mini-parks that total approximately 5.1 acres. In addition, the Ye'we'vichem Park is sized at approximately 0.6 acres and is considered a special use park that includes benches and a small monument. Lastly, there is one Tot-lot within the City, which consist of 0.2 acres and is comprised of sandboxes and play equipment.

The City of Coachella also provides recreation facilities, which include the Coachella Valley Boxing Club, Jack Delgado Karate Club, and Eleanor Shadowen Senior Citizen Center. The City of Coachella contracts with the Coachella Valley Boxing Club and leases the indoor boxing club and fitness facility located at 51303 Douma Street. In addition, the City also leases classrooms located at 1538 7^{th} Street to the Jack Delgado Karate Club. The City operates the Eleanor Shadowen Senior Center which is located in downtown at 1540 7^{th} Street.

3.16.3 Impacts

	Potentially Significant Impact	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
RECREATION				
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. **No Impact**. The project would develop the subject property with industrial land 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 a regional park, thus, no impact would occur.

b. **No Impact.** The proposed project is a mixed-use development that would not propose recreational facilities or require the construction or expansion of recreation facilities that would cause an adverse physical effect on the environment. No impact would occur.

3.16.4 Mitigation

No mitigation required.

3.16.5 Level of Significance after Mitigation

Less than significant.

3.17 Transportation

3.17.1 Sources

- *Integrated Engineering Group, Coachella Airport Business Park Traffic Impact Analysis, March 2021* (Appendix J)

3.17.2 Environmental Setting

Project Access

The project is proposed to be developed in three phases on a vacant site located at the northwest quadrant of SR-86 and Airport Boulevard. Access to the project site will be provided via a newly constructed driveway along the western end of the property on Airport Boulevard which will be signalized at Phase III of the project. Additionally, a secondary access east of the primary access on Airport Boulevard will be provided for emergency access use only.

Roadway Network

Airport Boulevard from Harrison Street to Pierce Street functions as a 2-lane major arterial that is currently under County of Riverside jurisdiction, within the City of Coachella sphere of influence. The posted speed limit on Airport Boulevard is 45 miles per hour (mph) between Polk Street and Fillmore Street and 55 mph east and west of this segment. Per the City of Coachella General Plan and the County of Riverside General Plan, the buildout classification for this segment of Airport Boulevard is a 6-lane major arterial.

Transit System

The SunLine Transit Agency is the main transit agency servicing the City of Coachella. Currently, SunLine operates buses on two routes within the vicinity of the project including Routes 91 and 95. Route 91 operates seven days a week and connects Coachella to Indio, Thermal, Oasis and Mecca. Weekday service frequency is 60 minutes and weekend service frequency is 80 minutes. Bus stops for Route 91 are currently located west of the project at the intersection of Airport Boulevard and Palm Street. Pedestrian accessibility and connectivity from the project site to this bus stop is provided along the south side of Airport Blvd. Route 95 operates seven days a week and connects Coachella to North Shore. Weekday and weekend service frequency is 180 minutes. Bus stops for Route 95 are currently located along the project frontage on Airport Boulevard.

Active Transportation System

Active transportation facilities including pedestrian and bicycle facilities within the study area of the project are limited. Pedestrian crosswalks are generally provided at sign intersections along Airport Boulevard. Neither bicycle facilities nor sidewalks currently exist along the project frontage on Airport Boulevard. However, Pedestrian crosswalks and sidewalks are provided along the south side of Airport Boulevard. Bicycle facilities do not currently exist along Airport Boulevard. Project is proposing to provide half width right-of-way improvements along the property frontage including vehicular travel lane, bike lanes, curb, gutter and sidewalk.

3.17.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC – Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access	☐	☐	☒	☐

a. Less than Significant Impact with Mitigation Incorporated.

City of Coachella General Plan

In coordination with City staff, the project's Traffic Impact Analysis (*Appendix J*) identified level of service (LOS) deficiencies for compliance with City of Coachella General Plan goals subsequent to July 1, 2020 but are not considered significant environmental impacts. Instead, deficiencies and improvements may be incorporated into project conditions of approval as deemed satisfactory to the City engineer. The City has established LOS D as the minimum allowable LOS at intersections. Therefore, any intersection operating at LOS E or worse will be considered deficient for the purposes of this analysis.

The study area for this project was developed consistent with the Riverside County Traffic Impact Analysis Preparation Guide, including all intersections at which the proposed project will add 50 or more peak hour trips. There are a total of 9 intersections and 3 roadway segments located within the project study area (refer to *Appendix J*). Below is an analysis of the intersections and roadway segments operating conditions under Existing (2020), Opening Year Phase 1 (2025), Opening Year Phase 2 (2030), and Buildout (2035) traffic conditions.

The traffic analysis determined that the project would generate 3,307 daily trips at Phase 1, 4,078 daily trips at Phase 2, and a total of 4,786 trips at build out.

Existing Year (2020) Scenario

The analysis considered 8 intersections in the project area, including both north- and south-bound ramps at Highway 86, and found that all the studied intersections currently operate at an acceptable level of service. In addition, the analysis found that all three roadway segments studies currently operate at an acceptable level (please see Table 3-1 and Table 3-2 of *Appendix J)*.

Opening Year (2025) Scenario
The Opening Year 2025 Baseline Conditions traffic volumes were developed by applying annual growth factors to the La Entrada Specific Plan 2012 counts for 13 years. For intersections 3 and 4, annual growth factors per intersection was applied to 2020 counts for 5 years. Phase I Project traffic volumes were then added to the Opening Year 2025 Baseline Conditions traffic volumes to develop Opening Year 2025 with Project Phase I Conditions traffic volumes.

Per the analysis results shown in Table 4-1 of *Appendix J*, all analyzed intersections operate at an acceptable LOS under the Opening Year with project 2025 scenario except for the Airport Boulevard and Tyler Street intersection, which operates at LOS E during AM peak hour. The intersection of Airport Boulevard and Tyler Street warrants a traffic signal under Opening Year 2025 scenario. . In order to assure that this signalization improvement reduces impacts to this intersection, the project will be required to pay the City's Development Impact Fee (DIF) and TUMF fees, which will offset the project's contribution to deficiencies at this intersection.

As shown in Table 4-3 of *Appendix J*, all analyzed roadway segments operate at acceptable LOS under the Opening Year 2025 scenario.

Opening Year (2030) Scenario
The same growth factors used for the Phase 1 scenario were extended for the Phase 2 scenario. As shown in Table 5-1 of *Appendix J*, all 8 studied intersections and the project driveway operate at acceptable levels, except the intersections of Airport Boulevard and Filmore and Tyler Streets, which both operate at unacceptable levels during the AM peak hour. As with the Phase 1 scenario, the Tyler intersection requires signalization, as does the Filmore intersection. As with the Phase 1 scenario, with the installation of a traffic signal, both intersections operate at acceptable levels. In order to assure that these signalization improvement reduce impacts to these intersections, the project will be required to pay the City's Development Impact Fee (DIF) and TUMF fees, which will offset the project's contribution to deficiencies at these intersections.

As shown in Table 5-3 of *Appendix J*, all analyzed roadway segments operate at an acceptable LOS under the Opening Year 2030 scenario.

Buildout (2035) Scenario
The same growth projections were applied to build out of the project, extended to 2035. However, for the purpose of roadway segment capacity analysis, the buildout classification of 6-lane urban arterial for Airport Boulevard was assumed; consistent with the City of Coachella General Plan. Per the analysis results shown in Table 6-1 of *Appendix I*, only the Airport Boulevard and Polk and Palm Street intersections would operate at an acceptable LOS under Buildout with project 2035 Conditions:

In order to provide adequate LOS, and consistency with the General Plan, the following improvements will be required:

- Airport Boulevard and Pierce Street – Convert intersection to all-way stop control and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane, 1 through lane and 1 shared through-right turn lane in the northbound direction; 1 exclusive left turn lane, 1 through lane and 1 shared through-right turn lane in the southbound direction; 1 exclusive left turn lane and 1 shared through-right turn lane in the eastbound direction; and 1 exclusive left turn lane and 1 shared through-right turn lane in the westbound direction.

- Airport Boulevard and Filmore Street – Signalize the intersection and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane and 1 shared through-right turn lane in the northbound direction; 1 shared through-left turn lane and 1 exclusive right turn lane in the southbound direction; and 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction.
- Airport Boulevard and SR-86 NB Ramps – Widening of Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps and add 1 exclusive right turn lane in the eastbound direction.
- Airport Boulevard and Tyler Street – Signalize the intersection Airport Boulevard and SR-86 SB Ramps – Add 1 exclusive left turn lane in the southbound direction and widen Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps. and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane and 1 shared through-right turn lane in the southbound direction; 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction; and 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the westbound direction.
- Airport Boulevard and Harrison Street - Widen or reconfigure intersection approaches to add 1 through lane in the northbound direction; add 1 exclusive left turn lane and 1 through lane in the southbound direction; provide 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction; and add 1 exclusive left turn lane and 1 through lane in the westbound direction.
- Airport Boulevard and Project Driveway – Signalize the intersection.

The project's share of these improvements will be made conditions of approval for the project, thereby assuring that the project is consistent with the General Plan's LOS policies. The applicant would be required to contribute toward the construction of all deficient locations through development fee payments toward adopting funding mechanisms including Transportation Uniform Mitigation Fee (TUMF), City of Coachella Development Impact Fee (DIF). The project will be conditioned to fully construct and signalize the main access point to the development at the intersection of Airport Boulevard and Project Driveway. With mandatory fees and intersection improvement to Airport Boulevard and Project Driveway, the project would maintain an acceptable LOS established in the City's General Plan.

Per the analysis results shown in Table 6-2 of *Appendix J*, there will be excess queue demand as the anticipated vehicular queues exceed the stacking area available for the eastbound left turn movement at Airport Boulevard and SR-86 Southbound Ramps and the southbound left turn movement at the project driveway. The project will extend the existing eastbound left turn pocket at the southbound SR-86 ramps to 200 feet.

As shown in Table 6-3 of *Appendix J*, all analyzed roadway segments would operate at an acceptable LOS under Buildout (2035) Conditions.

The SunLine Transit Agency is the main transit agency servicing the City. Currently, SunLine operates buses on two routes within the vicinity of the project including Routes 91 and 95. Pedestrian accessibility and connectivity from the project site to Route 91 is provided along the south side of Airport Boulevard and to Route 95 is along the project site frontage on Airport Boulevard. The project would not interfere with the bus routes within the project site vicinity.

No bicycle facilities or sidewalks currently exist along the project site frontage on Airport Boulevard. However, pedestrian crosswalks and sidewalks are provided along the south side of Airport Boulevard. Bicycle facilities do not currently exist along Airport Boulevard. The applicant is proposing to provide half width right-of-way improvements along the property frontage including a vehicular travel lane, bike lane, curb, gutter, and sidewalk. The applicant would comply with the City's design and development standards; therefore, the project would not interfere with existing or planned bicycle facilities or sidewalks in the City.

In conclusion, implementation of the project would be consistent with the goals and policies of the City's General Plan and impacts would be less than significant.

b. Less than Significant Impact. The City, In absence of direct guidance from the lead agency, statewide guidance was used as the basis to evaluate VMT for this project.

The Riverside Transportation Analysis Model (RIVTAM) was used to assess the proposed project's VMT. VMT for the comparable region is summarized in Table 11, below.

Table 12 Regional VMT Estimates

Year	Coachella			5-Mile Buffer of Coachella			10-Mile Buffer of Coachella			CVAG		
	VMT	SP	VMT/SP	VMT	SP	VMT/SP	VMT	SP	VMT/SP	VMT	SP	VMT/SP
2012 No Project	539,185	50,573	10.66	2,733,799	159,987	17.09	5,097,400	285,640	17.85	12,264,233	607,952	20.17
2012 With Project	545,381	51,361	10.62	2,741,885	160,775	17.05	5,105,122	286,428	17.82	12,275,343	608,740	20.17
Change			*-0.04*			*-0.03*			*-0.02*			*-0.01*
2020 No Project	718,774	67,796	10.60	3,492,724	193,971	18.01	6,200,457	338,255	18.33	14,881,615	728,251	20.43
2020 With Project	725,215	68,584	10.57	3,499,630	194,759	17.97	6,207,277	339,043	18.31	14,890,746	729,039	20.43
Change			*-0.03*			*-0.04*			*-0.02*			*-0.01*
2040 No Project	1,167,746	110,852	10.53	5,390,034	278,930	19.32	8,958,101	469,794	19.07	21,425,068	1,028,998	20.82
2040 With Project	1,174,800	111,640	10.52	5,393,992	279,718	19.28	8,962,665	470,582	19.05	21,429,255	1,029,786	20.81
Change			*-0.01*			*-0.04*			*-0.02*			*-0.01*

Notes:
1. *SP – Service Population (sum of population and employment within the region).*
2. *VMT/SP = VMT per Service Population*

Source: Fehr & Peers, 2020

As shown in Table 11, VMT slightly increases throughout each region in the base year and future year model runs with increased employment included in the model. This increase is expected with any increase in population or employment in a region which is why it is recommended to normalize VMT by the service population. When comparing the VMT per service population across the various regions, there are decreases across all regions. The VMT per service population is expected to decrease within the City of Coachella boundary, a 5-mile buffer of the City of Coachella, a 10-mile buffer of the City of Coachella, and the CVAG boundary. Therefore, the project is anticipated to result in a less-than-significant transportation impact related to VMT.

c/d Less than Significant Impact. Primary access to the project site will be provided to Airport Boulevard via the southwest driveway. The applicant proposes to install a signalized intersection on Airport Boulevard and southwest project driveway. As described above, the project applicant proposes to provide a half-width right-of-way improvement along the property frontage including a vehicular travel lane, bike lanes, curb, gutter, and sidewalk. A second access point to the project site would be provided on Airport Boulevard, which would be used for emergency access. Two access points also would be provided along the northern project site boundary. The Fire Department and the Police Department will review the proposed site plan to ensure that all safety design features and measures related to emergency access and geometric design are compliant with existing standards prior to final project approval; therefore, with implementation of the on-site roadway and site access improvements listed above, the project would not substantially increase hazards due to a geometric design and would not result in inadequate emergency access. Therefore, project impacts would be less than significant impact, and not mitigation is required.

3.17.4 Mitigation

No mitigation is required.

3.17.5 Level of Significance after Mitigation

Less than significant.

3.18 Tribal Cultural Resources

3.18.1 Sources

- *AB 52 Tribal Consultation Letters*

3.18.2 Environmental Setting

The project area is situated east of the Peninsular Ranges in the southern extent of the Coachella Valley at the western edge of the Colorado Desert. The Coachella Valley is bordered by the San Jacinto and Santa Rosa mountains (part of the Peninsular Ranges) to the southwest and by the low, rolling Indio and Mecca hills to the northeast. From the steep slopes of the San Jacinto Mountains, the desert floor descends suddenly at less than 3 kilometers (2 miles) eastward to sea level at the city of Indio, some 10.5 kilometers (6.5 miles) northeast of where the project area is located.

The City conducted Tribal consultation in conformance with both SB 18 and AB 52. The City received three responses: the Morongo Band and the Fort Yuma Queshan Tribe declined consultation. The Agua Caliente did request consultation, and the City met with the Tribe to review the proposal and the site.

3.18.3 Impacts

	Potentially Significant Impact	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
TRIBL CULTURAL RESOURCES – Would the project:				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

a.i. Less than Significant Impact. As previously discussed in Section 3.5.3, Cultural Resources, of this IS/MND, the Cultural Report showed that no fewer than 15 pervious investigations have been conducted and documented within the project site area since 1974. In addition, the data review indicated that no fewer than 22 cultural resources have been previously documented within one mile of the project area. These resources included 2 historic-period archaeological sites and 20 historic-period built environment resources. The report indicated that none of those resources are prehistoric and none of them have been identified within the project area. A segment of the Whitewater River Storm Water Channel (33-017259), an earthen and concrete-lined channel constructed in 1915, borders the project area to the west; however, the Channel is not considered eligible for the CRHR or the NRHP. In addition, no cultural resources were found at the off-site improvement area according to CVWD's Subsequent IS/MND (SCH#2019079095). Therefore, the proposed project would have a less-than-significant impact to tribal cultural resources and no mitigation is required.

a.ii. Less than Significant Impact. PaleoWest contacted the NAHC, as part of the cultural resource assessment, on March 18, 2020, for a review of SLF. The NAHC recommended that 12 tribal groups be contacted to elicit information regarding cultural resources issues related to the proposed project. Thus, PaleoWest sent out letters to the 12 recommended tribal groups on April 3 and April 6, 2020. As described above, only one Tribe, the Agua Caliente Band of Cahuilla Indians (ACBCI) requested consultation. During the consultation meeting, the City indicated that monitoring of the site would be required for all earth moving activities, as provided in mitigation measure CUL-1. The Tribe requested that not only an archaeological monitor, but also a Tribal monitor be present. This requirement has been added to CUL-1. With implementation of this mitigation measure, impacts to Tribal cultural resources will be reduced to less than significant levels.

3.18.4 Mitigation

See Mitigation Measure CUL-1 above.

3.18.5 Level of Significance after Mitigation

Less than significant.

3.19 Utilities and Services

3.19.1 Sources

- *City of Coachella, General Plan Update, April 22, 2015.*
- *City of Coachella, General Plan Update Final EIR, October 2014.*

3.19.2 Environmental Setting

Domestic Water

Domestic water for the majority of the City is provided by both the Coachella Valley Water District (CVWD); and the City. In the case of the project, the City will provide water service. Groundwater is the principal source of municipal water supply in the Coachella Valley. The main groundwater source for the entire valley is the Coachella Valley Groundwater Basin, Indio Subbasin, and the Whitewater River Subbasin. The Whitewater River Subbasin underlies a major portion of the valley floor and encompasses approximately 400 square miles. The City will provide water services to the project site via a proposed water line that would connect from the water line from Palm Street (located west of the project site) and extend through the Union Pacific Railroad right-of-way and the Whitewater River Channel to serve the site.

Waste Water

The Coachella Valley Water District (CVWD) is the primary service provider wastewater and sewage collection and treatment services in the City. Wastewater is conveyed through sewer trunk lines generally ranging in size from four to 24 inches, relying primarily on gravity flow. CVWD would provide sewer services to the project site via a proposed sewer line that would be located beneath Airport Boulevard.

Solid Waste

The City currently contracts with Burrtec to provide solid waste collection and disposal management services. Municipal solid waste generated in the City is taken to the Coachella Valley Transfer Station, which currently receives an average of 328 tons of waste per day and has a capacity of 1,100 tons of waste per day.

3.19.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

a-e. Less than Significant Impact.

Domestic Water

The City would provide domestic water services to the project site. Implementation of the project would require approximately 104.67 acre-feet (AFY). Implementation of the project would result in a marginal increase in water demand within the City's service area; however, the City would have sufficient water supplies serve to the project and reasonably foreseeable future development during normal, dry, and multiple dry years, as described in the project-specific Water Supply Assessment (WSA) prepared for the project (*Appendix K)*.

Additionally, the project will be required to implement all water conservation measures imposed by the City under normal as well as drought conditions over the life of the project. These include requirements of Executive Order B-29-15, mandating reductions in water use by 36% in the Coachella Valley. The project would provide a new water line that would connect from the water line from Palm Street (located west of the project site) and extend through the Union Pacific Railroad right-of-way and the Channel to service the site. No new wells or additional water infrastructure or entitlements will be required. Therefore, the project would have a less-than-significant impact and no mitigation is required.

Waste Water

Wastewater generated from the project site would be treated through the CVWD. The project would generate a minimal increase in wastewater and since WRP 10 has a capacity of 18 mgd and treats an average of 10 mgd, the project would not result in a significant impact.

The project would provide a new sewer line that would be located beneath Airport Boulevard, and wastewater will be transported to WRP 10. All applicable requirement of the Colorado River Basin Regional Water Quality Control Board would be implemented, and no violations of wastewater treatment requirements are anticipated. Therefore, the project would have a less-than-significant impact and no mitigation is required.

Stormwater

The City requires on-site detention and/or retention basins for all new developments to manage surface water flows and reduce runoff from sources such as stormwater and landscape irrigation. The project complies with this requirement by including on-site retention basins to ensure stormwater is retained on-site. Additional measures to address onsite stormwater management are described in Section 3.10, *Hydrology and Water Quality*. Project-related impacts to stormwater management systems are expected to be less-than-significant. Therefore, the project would have a less-than-significant impact and no mitigation is required.

Solid Waste

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 AB 939, which requires a minimum of 50 percent of all construction waste and debris to be recycled. Additionally, the project would be required to comply with mandatory waste reduction requirements as described below. Solid waste generated by the project would be disposed at the Coachella Valley Transfer Station, which currently receives an average of 328 tons of waste per day and has a capacity of 1,100 tons of waste per day.

Construction Impact Analysis

Solid waste requiring disposal would be generated by the construction process, primarily consisting of discarded materials and packaging. Based on the size of the project (624,150 s.f. building) and the United States Environmental Protection Agency's (U.S. EPA) construction waste generation factor of 4.34 pounds per square foot for non-residential uses, approximately 1,354 tons of waste is expected to be generated during the project's construction phase. CalGreen requires that a minimum of 65% of all construction waste be diverted from landfills (by recycling, reusing, and other waste reduction strategies); therefore, the project is estimated to generate a total of approximately 474 tons of solid waste requiring landfill disposal during project construction.

Non-recyclable construction waste generated by the project would be disposed at the Coachella Valley Transfer Station. As described above, these landfills receive well below their maximum permitted daily disposal volume; thus, the relatively minimal construction waste generated by the project is not anticipated to cause the landfill to exceed its maximum permitted daily disposal volume. Furthermore, the Coachella Valley Transfer Station is not expected to reach its total maximum permitted disposal capacities during the project's construction period. The Coachella Valley Transfer Station has sufficient daily capacity to accept solid waste generated by the project's construction phase; therefore, impacts to landfill capacity associated with the project's near-term construction activities would be less than significant.

Operational Impact Analysis

Based on a daily waste generation factor of 1.42 pounds of waste per 100 square feet of industrial building area obtained from CalRecycle, long-term, on-going operation of the project would generate approximately 4.43 tons of solid waste per day. Pursuant to AB 939, at least 50 percent of the project's solid waste is required to be diverted from landfills; therefore, the project would generate a maximum of 2.22 tons of solid waste per day requiring landfilling.

Non-recyclable solid waste generated during long-term operation of the project would be disposed at the Coachella Valley Transfer Station. As described above, these landfills receive well below their maximum permitted daily disposal volume; thus, waste generated by the project's operation is not anticipated to cause the landfill to exceed its maximum permitted daily disposal volume. Because the project would generate a relatively small amount of solid waste per day as compared to the permitted daily capacities at receiving landfills, impacts to regional landfill facilities during the project's long-term operational activities would be less than significant.

3.19.4 Mitigation

No mitigation is required.

3.19.5 Level of Significance after Mitigation

Less than significant.

3.20 Wildfire

3.20.1 Sources

- *California Department of Forestry and Fire Protection (CAL FIRE), Map of CAL FIRE's Fire Severity Zones in Local Responsibility Areas – Western Riverside County, December 24, 2009. Accessed August 13, 2021* *https://osfm.fire.ca.gov/media/6754/fhszl_map60.pdf*
- *CAL FIRE, Fire Hazard Severity Zones in SRA, November 7, 2007. Accessed August 31, 2021* *https://osfm.fire.ca.gov/media/6752/fhszs_map60.pdf*
- *City of Coachella General Plan Update 2035*

3.20.2 Environmental Setting

The project site is situated in the southern area of Coachella. The project site is located within an area of the City that is somewhat developed. According to CAL FIRE maps, the project site is not located within a very high fire hazard severity zone or a fire hazard severity zone in a State Responsibility Area (SRA).

3.20.3 Impacts

	Potentially Significant Impact	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

a-d. Less than Significant Impact. The project site is not located in or near SRA or lands within a very high fire hazard severity zone; therefore, the project would not exacerbate wildfire hazard risks or expose people or the environment to adverse environmental effects related to wildfires. As such, no impact would occur.

3.20.4 Mitigation

No mitigation is required.

3.20.5 Level of Significance after Mitigation

Less than significant.

3.21 Mandatory Findings of Significance

3.21.1 Sources

All sources previously listed were used to support the conclusions made in this section.

3.21.2 Environmental Setting

The environmental setting for the project is summarized within Sections 2.1 through 2.20 of the Initial Study for each environmental issue.

3.21.3 Impacts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
MANDATORY FINDINGS OF SIGNIFICANCE				
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	☐	☒	☐	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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. Less than Significant with Mitigation Incorporated. All impacts to the environment, including impacts to habitat for fish and wildlife species, fish and wildlife populations, plant and animal communities, rare and endangered plants and animals, and historical and pre-historical resources were evaluated as part of this Initial Study. Throughout this Initial Study, where impacts were determined to be potentially significant, mitigation measures have been imposed to reduce those impacts to less than significant levels. Accordingly, with incorporation of the mitigation measures imposed throughout this Initial Study, the project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Impacts would be reduced to less than significant levels with mitigation incorporated.

b. Less than Significant with Mitigation Incorporated. The environmental evaluation of this Initial Study concluded that, with adherence to all mitigation measures the project's cumulatively considerable impacts would be mitigated to less-than-significant levels.

c. Less than Significant with Mitigation Incorporated. The project could result in environmental impacts to humans directly or indirectly. All project environmental impacts would be less than significant or less than significant with mitigation incorporated. The project would therefore not result in environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly.

Chapter 4 Report Preparers

Lead Agency

Gabriel Perez
City of Coachella
1515 6th Street
Coachella, CA 92260

The Altum Group

Anna Choudhuri, Environmental Planning Manager
Rich Malacoff, AICP, Principal Planner
Heather Boland, Assistant Planner
Katie Davis, Production Manager

Hydrology Report, Water Quality Management Plan
James R. Bauza, Engineer, PE

Water Supply Assessment
Max Antono

Subconsultants

Air Quality, Energy, Greenhouse Gas Emissions, Health Risk Assessment
Greg Tonkovich, Senior Analyst, AICP – Vista Environmental

Biological Resources
Christian Nordal, Associate Biologist – Rincon Consultants, Inc.
Sherri Miller, Principal Biologist – Rincon Consultants, Inc.

Cultural Resources
Roberta Thomas, Senior Archaeologist, M.A., RPA – PaleoWest Archaeology
Niranjala Kottachchi, Senior Paleontologist – PaleoWest Archaeology
Jessica DeBusk, Principal Investigator/Project Manager – PaleoWest Archaeology

Geology and Soils
James E. Harris, Principal, G.E. – Geotechnical Professionals Inc.

Phase I Environmental Site Assessment
Lynn Laborde – Altec Testing & Engineering, Inc.

Transportation, VMT
Integrated Engineering Group

Appendix A

Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis

Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis

Coachella Airport Business Park Project

City of Coachella

Lead Agency:

City of Coachella
1515 6th Street
Coachella, CA 92236

Prepared by:

Vista Environmental
1021 Didrickson Way
Laguna Beach, CA 92651
949 510 5355
Greg Tonkovich, AICP

Project No. 19039

March 17, 2021

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Purpose of Analysis and Study Objectives 1
1.2 Site Locations and Study Area.. 1
1.3 Proposed Project Description 2
1.4 Executive Summary.. 3
1.5 Project Design Features Incorporated into the Proposed Project.. 4
1.6 Mitigation Measures for the Proposed Project 4

2.0 Air Pollutants... 8

2.1 Criteria Pollutants and Ozone Precursors.. 8
2.2 Other Pollutants of Concern 10

3.0 Greenhouse Gases 13

3.1 Greenhouse Gases 13
3.2 Global Warming Potential... 15
3.3 Greenhouse Gas Emissions Inventory... 16

4.0 Air Quality Management 17

4.1 Federal – United States Environmental Protection Agency... 17
4.2 State – California Air Resources Board 20
4.3 Regional – Southern California 21
4.4 Local – City of Coachella 25

5.0 Energy Conservation Management 26

5.1 State 26
5.2 Local - City of Coachella 28

6.0 Global Climate Change Management 29

6.1 International 29
6.2 Federal – United States Environmental Protection Agency... 29
6.3 State 30
6.4 Regional – Southern California 35
6.5 Local – City of Coachella 36

7.0 Atmospheric Setting 38

7.3 Monitored Local Air Quality... 39
7.4 Toxic Air Contaminant Levels in the Air Basin 41

8.0 Modeling Parameters and Assumptions.. 42

8.1 CalEEMod Model Input Parameters 42
8.2 Energy Use Calculations... 47
8.3 Toxic Air Contaminant Emissions Modeling.. 50

9.0 Thresholds of Significance... 56

TABLE OF CONTENTS CONTINUED

9.1 Regional Air Quality 56
9.2 Local Air Quality 56
9.3 Toxic Air Contaminants 58
9.4 Odor Impacts 58
9.5 Energy Conservation 59
9.6 Greenhouse Gas Emissions 59

10.0 Impact Analysis 62

10.1 CEQA Thresholds of Significance 62
10.2 Air Quality Compliance 62
10.3 Cumulative Net Increase in Non-Attainment Pollution 64
10.4 Sensitive Receptors 70
10.5 Odor Emissions 76
10.6 Energy Consumption 77
10.7 Energy Plan Consistency 82
10.8 Generation of Greenhouse Gas Emissions and Consistency With Applicable Plan 83

11.0 References 86

APPENDICES

Appendix A – CalEEMod Model Daily Printouts

Appendix B – EMFAC2017 Model Printouts

Appendix C – Gas Station Cancer RiskTool (V1.103) Printouts

Appendix D – AERMOD Model Years 2025 – 2027 Operational PM10 Printouts

Appendix E – AERMOD Model Years 2027 – 2041 Operational PM10 Printouts

Appendix F – AERMOD Model Years 2041 – 2054 Operational PM10 Printouts

Appendix G – CalEEMod Model Business-As-Usual Year 2010 Annual Printouts

Appendix H – CalEEMod Model Opening Year 2025 Annual Printouts

LIST OF FIGURES

Figure 1 – Project Local Study Area 6

Figure 2 – Proposed Site Plan 7

Figure 3 – AERMOD Model Sources and Receptor Placement 55

LIST OF TABLES

Table A – Proposed Project Details ... 2
Table B – Diesel Emission Pollutants that Cause Acute and Chronic Health Impacts ... 11
Table C – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs ... 15
Table D – State and Federal Criteria Pollutant Standards ... 17
Table E – South Coast Air Basin Attainment Status ... 18
Table F – Monthly Climate Data ... 38
Table G – Local Area Air Quality Monitoring Summary ... 40
Table H – CalEEMod Land Use Parameters ... 42
Table I – Inventory of Vehicle Trips During Full Operation of Proposed Project ... 45
Table J – Fleet Mix During Full Operation of Proposed Project ... 46
Table K – Off-Road Equipment and Fuel Consumption from Construction of the Proposed Project ... 48
Table L – On-Road Vehicle Trips and Fuel Consumption from Construction of the Proposed Project ... 49
Table M – EMFAC2017 Diesel Truck Running PM10 Emission Rates ... 52
Table N – EMFAC2017 Diesel Truck Idling PM10 Emission Rates ... 52
Table O – AERMOD Model Operational DPM Truck Travel Emissions Sources ... 53
Table P – AERMOD Model Operational DPM Truck Idling Emissions Sources ... 54
Table Q – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance ... 56
Table R – Construction Equipment Modeled in CalEEMod and Acres Disturbed per Day ... 57
Table S – SCAQMD Local Air Quality Thresholds of Significance ... 58
Table T – Construction-Related Regional Criteria Pollutant Emissions ... 65
Table U – Construction-Related Local Criteria Pollutant Emissions ... 66
Table V – Operational Regional Criteria Pollutant Emissions ... 67
Table W – Operations-Related Local Criteria Pollutant Emissions ... 70
Table X – Cancer Risk Calculation Parameters ... 73
Table Y – Diesel Truck DPM Emissions Cancer Risks at Nearby Sensitive Receptors ... 74
Table Z – Proposed Project Compliance with Applicable General Plan Energy Policies ... 82
Table AA – Project Related Greenhouse Gas Annual Emissions ... 84

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
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
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
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
City	City of Coachella
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

kWhr	kilowatt-hour
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/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SO_x	Sulfur oxides
SSAB	Salton Sea Air Basin
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, Energy, Greenhouse Gas (GHG) Emissions and Health Risk Assessment (HRA) Impact Analysis has been completed to determine the air quality, energy, GHG emissions and HRA impacts associated with the proposed Coachella Airport Business Park 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 energy conservation regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality, energy, and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality, energy, and GHG emissions impacts;
- An analysis of the cancer and non-cancer risks (acute and chronic) from operational TAC emissions; and
- An analysis of the conformity of the proposed project with all applicable energy and GHG emissions reduction plans and policies.

1.2 Site Locations and Study Area

The project site is located in the City of Coachella (City) located at northwest quadrant of State Route 86 and Airport Boulevard Interchange. The 42.69-acre project site is vacant. The project site is bounded by vacant land to the north, White Water River Coachella Valley Water District stormwater channel to the west, vacant land and State Route 86 to the east, and Airport Boulevard and a mobile home park to the south. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are mobile home park residences located across Airport Boulevard as near as 50 feet to the south of the project site. The nearest school is John Kelley Elementary School, which is located as near as 0.42 miles southwest of the project site and La Familia High School located as near as 0.43 miles southwest of the project site.

1.3 Proposed Project Description

The proposed project consists of development of a business park project that would include the following building types: Large Warehouses, Small Warehouses, Small Business, Personal Vehicle Storage, Self-Storage, and Retail comprised of a Service Station/Mini Mart and Fast Food Restaurant with Drive-Thru as shown in Table B.

Table A – Proposed Project Details

Proposed Building Type	Building Area (square feet)	Parking Stalls Required
Large Warehouse	233,100	263
Small Warehouse	96,000	126
Small Business	81,000	111
Personal Vehicle Storage	76,800	107
Self-Storage	128,600	2
Service Station/Mini Mart[1]	4,000	5
Fast Food Restaurant with Drive Thru[1]	4,650	54
Project Total	624,150	682[(2)]

Notes:
[1] The Mini Mart and Fast Food Restaurant with Drive Thru would be in a connecting structure.
[2] The proposed project is required to provide 668 parking stalls, however the project will provide 682 parking stalls.
Source: Project Applicant

The Service Station/Mini Mart and Fast-Food Restaurant with Drive-Thru are proposed to be developed at the southern end of the project site in concert with the proposed project's two primary access points along Airport Boulevard within close proximity to the SR-86 off ramp. Adjacent to the combined retail building to the north, will be the Small Business sector of the project site that will be comprised of 18 buildings for office and/or warehouse uses that are each 4,500 SF of leasable space. Beyond the Small Business area of the project site, to the west, will be the Personal Vehicle Storage area of the proposed project that will contain a total of four (4) hangar type buildings which are each 19,200 SF, and with a centralized courtyard-type green space between the buildings. The personal vehicle storage area will be designed for storage of automobile models and motorsport vehicles. The Self-Storage area of the proposed project will be located within the western central portion of the project site and be comprised of 17 buildings ranging in building footprints from 5,250 SF to 10,400 SF. The Small Warehouse area of the proposed project will be located within the eastern central portion of the project site and consist of five (5) warehouse buildings ranging from 9,600 SF to 24,000 SF. The Large Warehouse area of the proposed project will be located within the northern portion of the project site and consist of six (6) warehouses (two structures will consisted of connecting warehouses, which results in four total structures) ranging in footprints of 22,400 SF to 48,800 SF. Both the Large and Small Warehouse areas will be built to accommodate both logistical/distribution-related uses (i.e., fulfillment centers) and for cannabis.

The proposed project would also include 682 parking stalls. Primary project access will be provided along the southwestern frontage along Airport Boulevard. The proposed secondary access will be provided further east at the southeastern frontage along Airport Boulevard and will be used as emergency access. A roadway, varying in widths from 30 to 40-feet, will be constructed throughout the proposed project to serve as the central thoroughfare and allow for complete circumnavigation of the project site. The proposed site plan is shown in Figure 2.

1.4 Executive Summary

Standard Air Quality, Energy, 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 201 Permit to Construct – Required for all facilities that need an Air Quality Permit to operate (i.e., gas stations);
- Rule 203 Permit to Operate - Required for all facilities that need an Air Quality Permit to operate (i.e., gas stations);
- 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; 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;
- CCR Title 24 Part 6 – California Building Energy Standards; 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, energy, and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

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.

Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Potentially significant impact. Mitigation Measure 1 has been provided to reduce this impact to less than significant levels.

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;

Less than significant impact.

Conflict with or obstruct a state or local plan for renewable energy;

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 that the project applicant has committed to implementing.

Project Design Feature 1:
All off-road equipment (non-street legal), such as forklifts and street sweepers, used onsite for warehouse operations shall be powered by alternative fuels, electrical batteries or other alternative/non-diesel fuels (e.g., propane or compressed natural gas (CNG)) that do not emit diesel particulate matter, and that are low or zero emission.

1.6 Mitigation Measures for the Proposed Project

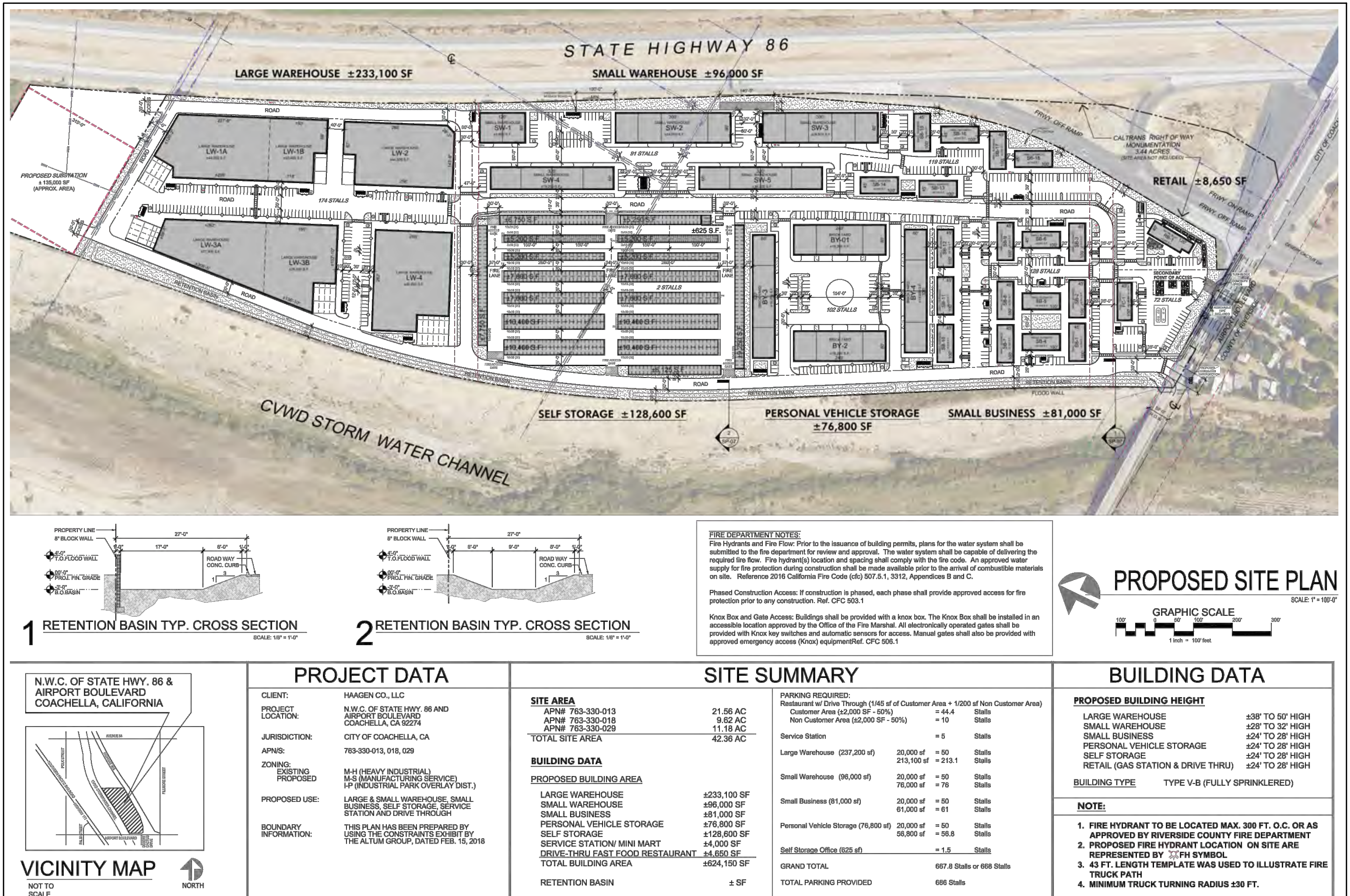
This analysis found that implementation of the State and SCAQMD air quality, energy, and GHG emissions reductions regulations detailed in Section 1.4 above, through implementation of the Project Design Features detailed in Section 1.5 above as well as implementation of the following mitigation would limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels.

Mitigation Measure 1

An Odor Management Plan shall be prepared and approved by the City's Building Department prior to the issuance of a certificate of occupancy for any commercial cannabis business that would be located within the proposed business park. The Odor Management Plan shall demonstrate that the emission of odors from the cannabis operations will be minimized through the use carbon filters, negative ion generators, air tight seals, and/or negative air pressure mechanical forced air systems.

SOURCE: Google Maps.

Figure 1
Project Local Study Area



SOURCE: McKently Malak Architecture.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

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, instead it 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) that are also known as *Respirable Particulate Matter* 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) that are also known as *Fine Particulate Matter* 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.

The various pollutants within DPM that also cause acute and chronic health impacts are detailed below in Table B. Table B was developed through crosschecking all diesel emissions pollutants provided in San Diego Air Pollutant Control District's (SDAPCD) Diesel Fired Engines Emissions Factor Table to the list of acute and chronic reference exposure levels provided at: http://oehha.ca.gov/air/allrels.html.

According to the California Office of Environmental Health and Hazards Assessment (OEHHA), no acute risk had been found to be directly created from DPM, so there is no acute AREL assigned to DPM. However, as detailed in Table B, other TAC emissions associated with diesel exhaust do have an acute REL assigned to them. In order to account for the acute risk from all TAC emissions associated with diesel emissions, a hypothetical acute REL was calculated for DPM through multiplying each TAC with an acute REL to its diesel weight fraction and then adding together the results, which resulted in a hypothetical acute AREL of 2,189 for diesel emissions.

Table B – Diesel Emission Pollutants that Cause Acute and Chronic Health Impacts

TAC	TAC Potency Factors ($\mu g/m^3$)[1]		Percent of DPM	Target Organ Systems
	Acute REL[2]	Chronic REL	Emission Rate[3]	
1,3-Butadiene	660	140	0.51%	Development
Acetaldehyde	470	140	1.84%	Eyes, respiratory system (sensory irritation)
Acrolein	2.5	0.35	0.08%	Eyes, respiratory system
Arsenic	0.2	0.015	0.004%	Reproductive/developmental, cardiovascular system, nervous system
Benzene	27	3	0.44%	Hematologic system, immune system, reproductive/developmental
Cadmium	--	0.02	0.004%	kidney, respiratory system
Chlorobenzene	--	1,000	0.0005%	Eyes, respiratory system
Chromium (hexavalent)	--	0.2	0.001%	Respiratory system, hematologic system
Copper	100	--	0.01%	Respiratory system
Ethyl benzene	--	5	0.03%	Liver, kidney, developmental
Formaldehyde	55	9	4.07%	Eyes, immune system, respiratory
Hexane	--	200	0.06%	Nervous system
Hydrogen Chloride	2,100	9	0.44%	Eyes, respiratory system
Manganese	--	0.09	0.01%	Nervous system
Mercury	0.6	0.03	0.005%	Reproductive/developmental
Naphthalene	--	9	0.05%	Respiratory system
Nickel	0.2	002	0.01%	Immune system, respiratory system
Propylene	--	3000	1.10%	Respiratory System
Selenium	--	20	0.01%	Liver, cardiovascular system, nervous system
Toluene	37000	300	0.25%	Nervous system, eyes, respiratory system, reproductive/developmental
Xylene	22000	700	0.10%	Eyes, nervous and respiratory systems
DPM	--	5	--	Respiratory system

Notes:
[1] Potency factors obtained from: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
[2] REL = Reference Exposure Level

[3] Percentage of DPM Emission Rate calculated by dividing the pollutant's pounds per 1,000 gallons rate by the PM2.5 pounds per 1,000 gallons rate provided by the SDAPCD
Sources: SDAPCD, 2011 and OEHHA, 2014.

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 100 miles east 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. 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 2007 IPCC Fourth Assessment Report, which are used in CARB's 2014 Scoping Plan Update and the CalEEMod Model Version 2016.3.2 and are detailed in Table C. The IPCC has updated the Global Warming Potentials of some gases in their Fifth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

Table C – 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

3.3 Greenhouse Gas Emissions Inventory

According to https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html 9,855 million metric tons (MMT) of CO_2 equivalent (CO_2e) emissions were created globally in the year 2014. According to https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use.

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018,* prepared by EPA, April 13, 2020, in 2018 total U.S. GHG emissions were 6,676.6 million metric tons (MMT) of CO_2 equivalent (CO_2e) emissions. Total U.S. emissions have increased by 3.7 percent between 1990 and 2018, which is down from a high of 15.2 percent above 1990 levels in 2007. Emissions increased by 2.9 percent or 188.4 MMTCO_2e between 2017 and 2018. The recent increase in GHG emissions was largely driven by an increase in CO_2 emissions from fossil fuel combustion, that was a result of multiple factors including greater heating and cooling needs due to a colder winter and hotter summer in 2018 compared to 2017.

According to https://www.arb.ca.gov/cc/inventory/data/data.htm the State of California created 424.1 MMTCO_2e in 2017. The breakdown of California GHG emissions by sector consists of: 41 percent from transportation; 24 percent from industrial; 15 percent from electricity generation; 8 percent from agriculture; 7 percent from residential buildings; and 5 percent from commercial buildings. In 2017, GHG emissions were 5 MMTCO_2e lower than 2016 levels, which is 7 MMTCO_2e below the 2020 GHG limit of 431 MMTCO_2e established by AB 32.

4.0 AIR QUALITY MANAGEMENT

The project site is located within the Coachella Valley portion of the Salton Sea Air Basin (SSAB). 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 D.

Table D – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
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	50 µg/m^3 / 24-hour 20 µg/m^3 / annual	150 µg/m^3 / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Matter (PM_{10})			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 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	
Sulfates	25 µg/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 µg/m^3 / 30-day	0.15 µg/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 .

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 E, the SSAB has been designated by EPA for the national standards as a non-attainment area for ozone and PM10. Currently, the SSAB is in attainment with the national ambient air quality standards for CO, NO_2, SO_2, PM2.5, and lead.

Table E – 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)	8/3/2038
	NAAQS	2015 8-Hour (0.070 ppm)	Pending – Expect Nonattainment (Extreme)	Pending (beyond 2032)
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032

Criteria Pollutant	Standard	Averaging Time	Designation[a)]	Attainment Date[b)]
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)	8/24/2016 (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 (SCAQMD, 2016).

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 $\mu g/m^3$) 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 $\mu g/m^3$) and 24-hour PM2.5 (65 $\mu g/m^3$) 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 $\mu g/m^3$), including: Mira Loma (Air Basin maximum at 14.1 $\mu g/m^3$), Rubidoux, Fontana, Ontario, Central Los Angeles, and Compton. For the 24-hour PM2.5 NAAQS (35.0 $\mu g/m^3$) 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 (SCAQMD, 2016).

The Air Basin is currently in attainment for the federal standards for SO_2, CO, NO_2, and PM10. The Air Basin is designated as partial nonattainment for lead and is based on two source specific monitors in Vernon and in the City of Industry that are both near battery recycling facilities. The 2012 Lead SIP for Los Angeles County provides measures to meet attainment of lead by December 31, 2015. Current monitoring data shows that lead is now below the standards at all monitoring stations, however it will take three years of meeting the standards before Los Angeles County can request to be re-designated by the EPA. 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 Air Basin remains in attainment of the NO_2 NAAQS (SCAQMD, 2016).

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 D. 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 SSAB has been designated by the CARB as a non-attainment area for ozone and PM10. Currently, the SSAB is in attainment with the ambient air quality standards for CO, NO_2, SO_2, PM2.5, lead, 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 SSAB. 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/m^3) 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 2016 AQMP.

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 SSAB. 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 SSAB, and adverse impacts will be minimized.

The following lists the SCAQMD rules that are applicable but not limited to all land development projects in the SSAB.

Rule 201 – Permit to Construct

Rule 201 requires that a permit to construct be obtained prior to start of construction activities for all facilities that need to obtain an Air Quality Permit from the SCAQMD to operate, which includes gas stations.

Rule 203 – Permit to Operate

Rule 201 requires that a permit to operate be obtained prior to start of operational activities for all facilities that need to obtain an Air Quality Permit from the SCAQMD to operate, which includes gas stations.

Rule 402 - Nuisance

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.

Rule 403- Fugitive Dust

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.

Rules 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 all 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 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.

Rule 1401 – New Source Review of Toxic Air Contaminants

Rule 1401 specifies cancer risk limits and noncancer acute and chronic limits that may be created from new permitted sources of toxic air contaminant emissions, which includes gasoline dispensing facilities. This rule requires the quantification of the cancer risk created by the proposed gasoline dispensing facility, which is provided in Section 10.4 of this Report

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. SCAG has prepared the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), adopted April, 2016 to address GHG reduction targets for passenger vehicles and light duty truck sources, and the *2019 Federal Transportation Improvement* Program (FTIP), adopted September 2018, which addresses regional development and growth forecasts and provides an air quality conformance analysis to demonstrate compliance with federal air quality standards. Although the RTP/SCS and FTIP are primarily planning documents for future transportation projects a key component of these plans is to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service, as a way to reduce vehicular emissions. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The RTP/SCS, FTIP, and AQMP are based on growth forecasts based on regional socio-economic modeling by SCAG and land use designations originating within the City and County General Plans.

4.4 Local – City of Coachella

Local jurisdictions, such as the City of Coachella, 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.

The City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City 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.

5.0 ENERGY CONSERVATION MANAGEMENT

The regulatory setting related to energy conservation is primarily addressed through State and City regulations, which are discussed below.

5.1 State

Energy conservation management in the State was initiated by the 1974 Warren-Alquist State Energy Resources Conservation and Development Act that created the California Energy Resource Conservation and Development Commission (currently named California Energy Commission [CEC]), which was originally tasked with certifying new electric generating plants based on the need for the plant and the suitability of the site of the plant. In 1976 the Warren-Alquist Act was expanded to include new restrictions on nuclear generating plants, that effectively resulted in a moratorium of any new nuclear generating plants in the State. The following details specific regulations adopted by the State in order to reduce the consumption of energy.

California Code of Regulations (CCR) Title 20

On November 3, 1976 the CEC adopted the *Regulations for Appliance Efficiency Standards Relating to Refrigerators, Refrigerator-Freezers and Freezers and Air Conditioners,* which were the first energy-efficiency standards for appliances. The appliance efficiency regulations have been updated several times by the Commission and the most current version is the *2016 Appliance Efficiency Regulations*, adopted January 2017 and now includes almost all types of appliances and lamps that use electricity, natural gas as well as plumbing fixtures. The authority for the CEC to control the energy-efficiency of appliances is detailed in California Code of Regulations (CCR), Title 20, Division 2, Chapter 4, Article 4, Sections 1601-1609.

California Code of Regulations (CCR) Title 24, Part 6

The CEC is also responsible for implementing the CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24 Part 6) that were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. On January 1, 2020 the 2019 standards went into effect, that have been designed so that the average new home built in California will now use zero-net-energy and that non-residential buildings will use about 30 percent less energy than the 2016 standards due mainly to lighting upgrades. The 2019 standards also encourage the use of battery storage and heat pump water heaters, require the more widespread use of LED lighting, as well as improve the building's thermal envelope through high performance attics, walls and windows. The 2019 standards also require improvements to ventilation systems by requiring highly efficient air filters to trap hazardous air particulates as well as improvements to kitchen ventilation systems.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (CalGreen) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The CalGreen Building

Standards are also updated every three years and the current version is the 2019 California Green Building Standard Code that become effective on January 1, 2020.

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 2019 CALGreen Code over the prior 2016 CALGreen Code include: an alignment of building code engineering requirements with the national standards that include anchorage requirements for solar panels, provides design requirements for buildings in tsunami zones, increases Minimum Efficiency Reporting Value (MERV) for air filters from 8 to 13, increased electric vehicle charging requirements in parking areas, and sets minimum requirements for use of shade trees.

Senate Bill 100

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. SB 100 codified the interim renewable energy thresholds from the prior Bills of: 33 percent by 2020, 40 percent by December 31, 2024, 45 percent by December 31, 2027, and 50 percent by December 31, 2030.

Executive Order B-48-18 and Assembly Bill 2127

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and requires that the California Energy Commission working with the State Air Resources Board prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

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.

5.2 Local - City of Coachella

The City of Coachella General Plan, Natural Environments, adopted April 22, 2015, provides an Energy Resources that details the following goals and policies.

Goal 2	**Energy. An energy efficient community that relies primarily on renewable and non-polluting energy sources.**
Policy 2.1	**Community development–subdivisions**. When reviewing applications for new Community development–subdivisions. When reviewing applications for n
Policy 2.2	**Passive solar design**. Require new buildings to incorporate energy efficient building and site design strategies for the desert environment that include appropriate solar orientation, thermal mass, use of natural daylight and ventilation, and shading.
Policy 2.3	**Alternative energy**. Promote the incorporation of alternative energy generation (e.g., solar, wind, biomass) in public and private development.
Policy 2.4	**Community Choice Aggregation**. Work with nearby local and regional agencies to develop a community choice aggregation system in order to secure alternative energy supply contracts for the community.
Policy 2.5	**Construction standards**. Consider and evaluate new construction practices and standards that increase building energy efficiency.
Policy 2.6	**Energy performance targets – new construction**. Require new construction to exceed Title 24 energy efficiency standards by 15 percent and incorporate solar photovoltaics.
Policy 2.7	**Energy performance targets – existing buildings**. When existing buildings undergo major retrofits, require the buildings to exceed Title 24 energy efficiency standards by 15 percent and encourage solar photovoltaics.
Policy 2.8	**Renewable energy–open space areas**. Allow the installation of renewable energy systems in areas zoned for open space.
Policy 2.9	**Energy-efficient street lighting**. Implement a program to install the latest energy-efficient technologies for street and parking lot lights to meet City and state standards.
Policy 2.10	**New industries**. Actively promote the City as a place for renewable energy generation, and a place for energy conservation businesses to locate.
Policy 2.11	**Publicly funded buildings**. Require energy conservation as the primary strategy to reduce energy demand in new and renovation projects using public funds.
Policy 2.12	**Solar access**. Prohibit new development and renovations that impair adjacent buildings' solar access, unless it can be demonstrated that the shading benefits substantially offset the impacts of solar energy generation potential.
Policy 2.13	**Use of passive open space**. Allow renewable energy projects in areas zoned for open space, where consistent with other uses and values.
Policy 2.14	**Public buildings**. Require that any new building constructed in whole or in part with City funds incorporate passive solar design features, such as daylighting and passive solar heating, where feasible.

6.0 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.

6.1 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.

6.2 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 October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan and on June 19, 2019 the EPA replaced the Clean Power Plan with the Affordable Clean Energy rule that is anticipated to lower power sector GHG emissions by 11 million tons by the year 2030.

6.3 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.

Executive Order N-79-20

The California Governor issued Executive Order N-79-20 on September 23, 2020 that requires all new passenger cars and trucks and commercial drayage trucks sold in California to be zero-emissions by the year 2035 and all medium- heavy-duty vehicles (commercial trucks) sold in the state to be zero-emission by 2045 for all operations where feasible. Executive Order N-79-20 also requires all off-road vehicles and equipment to transition to 100 percent zero-emission equipment, where feasible by 2035.

California Code of Regulations (CCR) Title 24, Part 6

The Title 24 Part 6 standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the Title 24 Part 6 building standards would also reduce GHG emissions, since energy usage is the primary source of human generated GHG emissions.

California Code of Regulations (CCR) Title 24, Part 11

The CalGreen Building standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the CalGreen Building standards would also reduce GHG emissions, since energy usage is the primary source of human generated GHG emissions.

Senate Bill 100

SB 100 requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-48-18 and Assembly Bill 2127

Executive Order B-48-18 and AB 2127 provides measures to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025 and is described in more detail above in Section 5.1 under Energy Conservation Management.

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.

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 from transportation sources 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 the most current targets are detailed at: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets, which provides GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 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 for emissions from passenger vehicles and light duty trucks. SCAG will need to develop additional strategies in its next revision of the RTP/SCS in order to meet CARB's new 19 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

AB 1109 requires reductions in energy usage for lighting and is described in more detail above in Section 5.1 under Energy Conservation Management.

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. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the "Pavley I" regulations started in 2009.

The second set of regulations "Pavley II" was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were 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 and these GHG emissions standards are currently being implemented nationwide. However, EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA has proposed to amend the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021 through 2026. The EPA's proposed amendments do not include any extension of the legal waiver granted to California by the 1970 Clean Air Act and which has allowed the State to set tighter standards for vehicle pipe emissions than the EPA standards. On September 20, 2019, California filed suit over the EPA decision to revoke California's legal waiver that has been joined by 22 other states.

6.4 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, which is 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, 3,000 $MTCO_2e$ for mixed uses, and 10,000 $MTCO_2e$ for industrial uses.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), adopted April, 2016 and the *2015 Federal Transportation Improvement* Program (FTIP), adopted October 2013, which addresses regional development and growth forecasts. Although the RTP/SCS and FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The RTP/SCS, FTIP, and AQMP are based on projections originating within the City and County General Plans.

6.5 Local – City of Coachella

In June 2014, the City adopted the *Climate Action Public Draft City of Coachella* (CAP). The CAP builds on the 2013 General Plan Update by quantifying emissions from buildout of the General Plan and includes additional policies and implementation actions to help the City further reduce emissions. The CAP establishes emissions reduction targets in in order to meet the statewide emissions targets provided in Executive Order S-03-5 that require GHG emissions to be reduced to 1990 levels by 2020 and reduced to 80 percent below 1990 levels by 2050. The CAP establishes service population reduction targets of 15 percent below year 2010 levels by year 2020 and 49 percent below year 2010 levels by year 2035. The 2035 target was determined by linear projection of the 2020 target (15 percent below 2010 levels) and the 2050 target (80 percent below 1990 levels). The CAP was developed in order to be utilized as a tiering document for the streamlined review of project-level GHG emissions under CEQA for development projects within the City. The CEQA review process within the CAP has four primary compliance paths, which include:

- Ministerial and CEQA exempt projects;
- Projects that demonstrate application of the City's Climate-Ready Development Standards;
- Projects that apply a set of custom GHG mitigation measures and meet the City's performance targets; or
- Projects that pay an in-lieu fee.

7.0 ATMOSPHERIC SETTING

The project site is located within the Coachella Valley portion of the Salton Sea Air Basin (SSAB). The SSAB is bounded by the San Jacinto Mountains to the west and the eastern boundary or the Coachella Valley to the east. The Valley is impacted by transport of pollutants (primarily ozone) from coastal air basins to the west and locally generated particulate matter (PM). The mountains surrounding the region isolate the Valley from coastal influences and create a hot and drying low-lying desert. As the desert heats up it draws cooler coastal air through the narrow San Gorgonio Pass, generating strong and sustained winds.

Each year, winter rains cause erosion of adjacent mountains, and water run-off produces substantial deposits of gravel and sand through the major drainage areas in the Valley. During the spring months and at other times of the year, persistent and strong winds suspend and transport large quantities of sand and dust southeast through the center of the Valley, reducing visibility, damaging property, and constitute a significant health threat.

This process effectively combines water and wind erosion to generate a wide range of sand and very fine dust. Sometimes referred as “blowsand”, this natural sand migration produces particulate matter (PM) in two ways: (1) by direct particle erosion and fragmentation (natural PM), and (2) by secondary effects, such as sand deposits on road surfaces that can be ground into PM by moving vehicles, and re-suspended in the air by those vehicles (manmade PM).

The temperature and precipitation levels for Desert Resorts Station, which is the nearest weather station to the project site with historical data is shown below in Table F. Table F shows that August is typically the warmest month and December 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 F – Monthly Climate Data

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (inches)
January	70.8	38.5	0.52
February	74.6	42.6	0.50
March	79.8	48.4	0.32
April	86.6	55.0	0.07
May	94.0	62.7	0.04
June	102.5	69.2	0.01
July	106.7	75.8	0.17
August	105.5	75.2	0.27
September	101.1	68.6	0.32
October	91.2	57.3	0.15
November	78.6	44.7	0.28
December	70.7	37.7	0.31
Annual	**88.5**	**56.3**	**2.96**

Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8892

In relation to other areas in Southern California, the Coachella Valley, has good air quality. However, in the past few decades, noticeable deterioration of air quality has occurred due to increased development and population growth, traffic, construction activity, and various site disturbances. It is apparent that although air pollution is emitted from various sources in the Coachella Valley, substantial degradation of air quality may be attributed primarily to sources outside the Valley.

7.3 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.

The SCAQMD has designated the Coachella Valley as its unique air-monitoring area (Monitoring Area 30). 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: Indio-Jackson Station (Indio Station) and Palm Springs- Fire Station (Palm Springs Station).

The Indio Station, which is located approximately 6.5 miles northwest of the project site at 46990 Jackson St, Indio and the Palm Springs Station is located approximately 27.3 miles northwest of the project site at 590 Racquet Club Ave, Palm Springs. The monitoring data is presented in Table G and shows the most recent three years of monitoring data from CARB. Ozone, PM2.5, and PM10 were measured at Indio Station and NO_2, was measured at the Palm Springs 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.

Ozone

The State 1-hour concentration standard for ozone has been exceeded between 4 and 8 days each year over the past three years at the Indio Station. The State 8-hour ozone standard has been exceeded between 47 and 52 days each year over the past three years at the Indio Station. The Federal 8-hour ozone standard has been exceeded between 15 and 28 days each year over the past three years at the Indio 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.

Nitrogen Dioxide

The Palm Springs Station did not record an exceedance of either the Federal or State 1-hour NO_2 standards for the last three years.

Table G – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year[1] 2017	2018	2019
Ozone: [1]			
Maximum 1-Hour Concentration (ppm)	0.107	0.106	0.103
Days > CAAQS (0.09 ppm)	**8**	**4**	**4**
Maximum 8-Hour Concentration (ppm)	0.093	0.091	0.087
Days > NAAQS (0.070 ppm)	**27**	**28**	**15**
Days > CAAQs (0.070 ppm)	**47**	**52**	**47**
Nitrogen Dioxide: [2]			
Maximum 1-Hour Concentration (ppb)	42.5	42.6	41.4
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
Inhalable Particulates (PM10) : [1]			
Maximum 24-Hour National Measurement (ug/m^3)	198.6	336.0	141.9
Days > NAAQS (150 ug/m^3)	**1**	**2**	0
Days > CAAQS (50 ug/m^3)	**10**	**14**	**4**
Annual Arithmetic Mean (AAM) (ug/m^3)	34.8	34.8	28.5
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5): [1]			
Maximum 24-Hour National Measurement (ug/m^3)	18.8	28.7	15.0
Days > NAAQS (35 ug/m^3)	0	0	0
Annual Arithmetic Mean (AAM) (ug/m^3)	ND	8.3	7.3
Annual > NAAQS and CAAQS (12 ug/m^3)	ND	No	No

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 Indio Station.
[2] Data obtained from the Palm Springs Station.
Source: http://www.arb.ca.gov/adam/

Particulate Matter

The State 24-hour concentration standard for PM10 did record an exceedance of four to fourteen days at the Indio Station for the past three years. In two of the past three years the Federal 24-hour standard for PM10 did record an exceedance of one to two at the Indio Station. The annual PM10 concentration at the Indio Station has exceeded the State standard for all of the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the federal 24-hour concentration standard for PM2.5 has not been exceeded at the Indio Station. The annual PM2.5 concentrations at the Indio Station has been exceeded the State standards two of 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.

7.4 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 397 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.

8.0 MODELING PARAMETERS AND ASSUMPTIONS

8.1 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 the Salton Sea 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 model were set to a project location of the Salton Sea Air Basin portion of Riverside County, a Climate Zone of 10, and utility company of Imperial Irrigation District. The CalEEMod model was run for both opening year of 2025 and business-as-usual 2010 conditions.

Land Use Parameters

The proposed project consists of development of a business park project that would include the following building types: Large Warehouses, Small Warehouses, Small Business, Personal Vehicle Storage, Self-Storage, and Retail comprised of a Service Station/Mini Mart and Fast Food Restaurant with Drive-Thru. The proposed project would also include onsite roads and driveways and parking lots that would include a total of 682 parking spaces. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table H.

Table H – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving[3] (square feet)
Large Warehouses, Small Warehouses, Personal Vehicle Storage, Small Businesses	Industrial Park	486.90 TSF	23.03	486,900
Self-Storage	Unrefrigerated Warehouse No Rail	128.60 TSF	6.30	128,600
Service Station/Mini Mart	Convenience Market with Gas Pumps	10 VFP	0.06	4,000
Fast Food Restaurant with Drive-Thru	Fast Food Restaurant with Drive Thru	4.65 TSF	0.23	4,650
Onsite Roads, Driveways, Parking Lots	Parking Lot	682 PS	12.73	274,400

Notes:
[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Position; PS = Parking Space
[2] Lot acreage calculated based on the total project site of 42.36-acres.
[3] Building/Paving square feet represent area where architectural coatings will be applied. Paved area based on CalEEMod default values.

Electricity Emission Factors

The default CalEEMod emission factors for Imperial Irrigation District (from the CEC's year 2008 data) are as follows:

- Carbon dioxide: 1,271 pounds per megawatt-hour

- Methane: 0.029 pounds per megawatt-hour
- Nitrous oxide: 0.006 pounds per megawatt-hour

According to the *Climate Action Plan Public* Draft (CAP) prepared for the City of Coachella, June 2014, in the year 2010 the Imperial Irrigation District's electricity emission factors are as follows:

- Carbon dioxide: 1,181.61 pounds per megawatt-hour
- Methane: 0.029 pounds per megawatt-hour
- Nitrous oxide: 0.011 pounds per megawatt-hour

According to page 39 of the CAP, by the year 2020 the Imperial Irrigation District's electricity emission factors will decline by 26.3 percent over the 2010 emission factors and would result in a 33 percent renewable portfolio standard as required by SB 107. This results in the following emission factors for the year 2020:

- Carbon dioxide: 870.85 pounds per megawatt-hour
- Methane: 0.021 pounds per megawatt-hour
- Nitrous oxide: 0.008 pounds per megawatt-hour

According to SB 100, by December 31, 2024, the Imperial Irrigation District is required to provide 40 percent of the electricity provided from renewable energy resources, which would result in an additional 7 percent reduction over the year 2020 emission factors (i.e., 40% – 33% =7%). This results in the following emission factors for the opening year 2025 for the proposed project that were entered into CalEEMod:

- Carbon dioxide: 809.89 pounds per megawatt-hour
- Methane: 0.020 pounds per megawatt-hour
- Nitrous oxide: 0.008 pounds per megawatt-hour

Construction Parameters

Construction of the proposed project is anticipated to occur in multiple phases, however in order to provide a worst-case analysis, construction of the proposed project was analyzed in one phase, starting in Fall 2021 and would be completed in 3.2 years. 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.

The CalEEMod model provides the selection of "mitigation" to account for project conditions that would result in less emissions than a project without these conditions, however it should be noted that this "mitigation" may represent regulatory requirements. This includes the required to adherence to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Site Preparation

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation phase is anticipated to start October 2021 and was modeled as occurring over six weeks, which is based on the CalEEMod default timing. The site preparation activities would require 18 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 three rubber-tired dozers, and four of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas two 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.

Grading

The grading phase would occur after completion of the site preparation phase and was modeled as occurring over 15 weeks, which is based on the CalEEMod default timing. The proposed grading is anticipated to include 35,565 cubic yards of material cut and 20,370 cubic yards of fill. When subsidence, and shrinkage are accounted for, it is anticipated that grading will require the import of 21,040 cubic yards of material. The import of dirt would generate a total of 2,630 haul truck trips (average 35 haul truck trips per day over the 15-week grading phase).

The CalEEMod model default onsite grading equipment consists of two excavators, one grader, two scrapers, one rubber-tired dozer, and two of either tractors, loaders, or backhoes. In order to account for the amount of dirt being moved onsite, two scrapers were added to the default grading equipment list. The grading activities would generate 20 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 two 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.

Building Construction

The building construction would occur after the completion of the grading phase and was modeled as occurring over 2 year and 9 months, which is based on the CalEEMod default timing. The building construction phase would generate 379 worker trips and 148 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, three forklifts, one generator, one welder, and three of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix.

Paving

The paving phase would consist of paving the onsite roads, driveways, and parking lots. The paving phase was modeled as occurring concurrently with the year of the building construction phase. The paving phase would generate 15 worker trips per day. The onsite equipment would consist of the simultaneous operation of two pavers, two paving equipment, and two rollers, which is based on the CalEEMod default equipment mix.

Architectural Coating

The application of architectural coatings was modeled as occurring concurrently with the final year of the building construction phase. The architectural coating phase was modeled based on covering 963,225 square feet of non-residential interior area, 312,075 square feet of non-residential exterior area, and 16,464 square feet of parking area. The architectural coating phase would generate 76 worker trips per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix. In order to account for SCAQMD Rule 1113 VOC limits for architectural coatings, the non-residential interior architectural coating VOC emissions was set to 100 grams per liter in the CalEEMod model.

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.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. The daily vehicle trip rates associated with the proposed project have been obtained from *Coachella Airport Business Park Traffic Impact Analysis* (Traffic Analysis), prepared by Integrated Engineering Group, November 2020. It should be noted that since the Traffic Analysis was prepared, the proposed project building square footages have been slightly reduced. As such, the trip generation rates from the Traffic Analysis have been utilized, however the total daily trips analyzed in this analysis, is slightly lower than what is depicted in the Traffic Analysis, due to the proposed project's smaller building square footage. The vehicle trips rates utilized for each land use are provided in Table I.

Table I – Inventory of Vehicle Trips During Full Operation of Proposed Project

Land Use Type in CalEEMod	Land Use Size[1]	Daily Trip Generation Rates	
		Trips Rates[2]	Total Daily Trips
Industrial Park	486.90 TSF	3.37 per TSF	1,641
Unrefrigerated Warehouse No Rail	133.28 TSF	1.51 per TSF	194
Convenience Market with Gas Station	10 VFP	231.52 per VFP	2,315
Fast Food Restaurant with Drive Thru	4.65 TSF	470.95 per TSF	2,190
Parking Lot	682 PS	0 per PS	0

Notes:
[1] TSF = Thousand Square Foot, VFP = vehicle fueling position, PS = Parking Space
[2] Daily Trip rates obtained from the Traffic Analysis (Integrated Engineering Group, 2020).

In order to account for the 5.38 percent 2-axle, 6.67 percent 3-axle, and 20.13 percent 4+-axle daily truck trips generated by the proposed Industrial Park land use, the vehicle mixes utilized in the CalEEMod model were adjusted to match the truck generation rates provided in the Traffic Analysis. In addition, the vehicle mixes for the other proposed land uses were also adjusted to remove the truck trips from these land uses, since the Traffic Analysis analyzed all truck trips generated from the proposed project under the Industrial Park land use. The vehicle mixes utilized in the CalEEMod model are shown in Table J. No other changes were made to the CalEEMod default mobile source parameters.

Table J – Fleet Mix During Full Operation of Proposed Project

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	MCY
Industrial Park[1]	0.423	0.027	0.143	0.082	0.039	0.015	0.067	0.201	0.003
All Other Land Uses	0.625	0.039	0.211	0.121	0	0	0	0	0.004

Notes:
LDA = Light Duty Auto; LDT1 = Light-Duty Trucks (less than 3,750 pounds gross vehicle weight rating [GVWR]); LDT2 = Light-Duty Trucks (3,751 to 6,000 pounds GVWR); MDV = Medium-Duty Trucks (6,000 to 8,500 pounds GVWR); LHD1 = Light-Heavy-Duty Trucks 1 (8,501 to 10,000 pounds GVWR); LHD2 = Light-Heavy-Duty Trucks 2 (GVWR 10,001 to 14,000 pounds); MHD = Medium-Heavy-Duty Trucks (GVWR 19,501 to 33,000 pounds); HHD = Heavy-Heavy-Duty Trucks (GVWR 33,000+ pounds); and MCY = motorcycles.
[1] The Industrial Park Truck fleet mix was based on the Truck Fleet Mix provided in the Traffic Analysis (Integrated Engineering Group, 2020), with 2-axle trucks analyzed as LDT1 and LDT2, 3-axle trucks analyzed as MHD, and 4+-axle trucks analyzed as HHD.

The CalEEMod model provides the selection of "mitigation" to account for project conditions that would result in less emissions than a project without these conditions, however it should be noted that this "mitigation" may represent current conditions, such as development that is in close proximity to an existing transit facility, where a project built at such location would create less vehicle trips and associated emissions than a project that was not built in close proximity to an existing transit facility. The mobile source emissions analysis for the project included the CalEEMod "mitigation" of improved pedestrian network on project site and increase transit accessibility with 0.01 mile to the nearest transit to account for the existing Sunline Transit Airport Blvd Desert Cactus Bus Stop located, adjacent to the project site.

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 project 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 project in the CalEEMod Model. No changes were made to the default energy usage parameters in the CalEEMod model.

The new 2019 Title 24, Part 6 building energy efficiency standards went into effect January 1, 2020 and require new lighting energy improvements that are 30 percent more efficient than the prior 2016 building standards. In order to account for the new standards, the CalEEMod "mitigation" of 30 percent lighting energy improvement was selected. A summary of the new 2019 Title 24 standards can be found at:
https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

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 rate of 783 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 50 percent reduction in landfill waste was selected to account for implementation of AB 341 that provides strategies to reduce, recycle or compost solid waste by 75 percent by 2020. Only 50 percent was selected, since AB 341 builds upon the waste reduction measures of SB 939 and 1374 and therefore, it was assumed approximately 25 percent of the waste reduction target has already been accounted for in the CalEEMod model.

Water and Wastewater

Water includes the water used for the interior of the buildings 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 145,086,813 gallons per year of water use. 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 2019 CCR Title 24 Part 11 (CalGreen) requirements, which lowered the calculated water use for the proposed project to 34,001,400 gallons per year.

Off-Road Equipment

The primary activity that would require the use of off-road equipment would be associated with forklifts unloading/loading of truck deliveries. Forklifts would most likely be operated at the six proposed large warehouses. Although the other proposed land uses would also have truck deliveries, due to the size of the other buildings, the unloading activities would most likely be performed with hand trucks or small electric powered forklifts, which do not create air emissions. As such, it has been assumed that each of the six large warehouses would have one forklift that would operate 8 hours per day. In order to account for Project Design Feature 2, that restricts the operation of diesel-powered off-road equipment on the project site during long-term operations of the project, the forklifts were analyzed based on being powered with compressed natural gas (CNG).

8.2 Energy Use Calculations

The proposed project is anticipated to consume energy during both construction and operation of the proposed project and the parameters utilized to calculate energy use from construction and operation of the proposed project are detailed separately below.

Construction-Related Energy Use

Construction of the proposed project is anticipated to use energy in the forms of petroleum fuel for both off-road equipment as well as from the transport of workers and materials to and from the project site and the calculations for each source are described below.

Off-Road Construction Equipment

The off-road construction equipment fuel usage was calculated through use of the CalEEMod model's default off-road equipment assumptions detailed above in Section 8.1. For each piece of off-road equipment, the fuel usage was calculated through use of the *2017 Off-road Diesel Emission Factors* spreadsheet, prepared by CARB (https://ww3.arb.ca.gov/msei/ordiesel.htm). The Spreadsheet provides the following formula to calculate fuel usage from off-road equipment:

Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion

Where:

Load Factor - Obtained from CalEEMod default values

Horsepower – Obtained from CalEEMod default values

Total Operational Hours – Calculated by multiplying CalEEMod default daily hours by CalEEMod default number of working days for each phase of construction

BSFC – Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367

Unit Conversion – Converts pounds to gallons = 7.109

Table K shows the off-road construction equipment fuel calculations based on the above formula. Table K shows that the off-road equipment utilized during construction of the proposed project would consume 167,988 gallons of fuel.

Table K – Off-Road Equipment and Fuel Consumption from Construction of the Proposed Project

Equipment Type	Equipment Quantity	Horse-power	Load Factor	Operating Hours per Day	Total Operational Hours[1]	Fuel Used (gallons)
Site Preparation						
Rubber Tired Dozers	3	247	0.4	8	720	3,672
Tractors/Loaders/Backhoes	4	97	0.37	8	960	1,977
Grading						
Excavators	2	158	0.38	8	1,200	3,719
Graders	1	187	0.41	8	600	2,375
Rubber Tired Dozers	1	247	0.4	8	600	3,060
Scrapers	4	367	0.48	8	2,400	21,826
Tractors/Loaders/Backhoes	2	97	0.37	8	1,200	2,472
Building Construction						
Cranes	1	231	0.29	7	5,180	17,914
Forklifts	3	89	0.2	8	17,760	18,143
Generator Sets	1	84	0.74	8	5,920	21,120
Tractors/Loaders/Backhoes	3	97	0.37	7	15,540	32,009
Welders	1	46	0.45	8	5,920	7,033
Paving						
Pavers	2	130	0.42	8	4,176	11,771
Paving Equipment	2	132	0.36	8	4,176	10,245
Rollers	2	80	0.38	8	4,176	7,286
Architectural Coating						
Air Compressor	1	78	0.48	6	1,566	3,365
	Total Off-Road Equipment Fuel Used during Construction (gallons)					**167,988**

Notes:

[1] Based on: 30 days for Site Preparation, 75 days for Grading; 740 days for Building Construction; 261 days for Paving; and 261 days for Architectural Coating.

Source: CalEEMod Version 2016.3.2 (see Appendix A); CARB, 2017.

On-Road Construction-Related Vehicle Trips

The on-road construction-related vehicle trips fuel usage was calculated through use of the construction vehicle trip assumptions from the CalEEMod model run as detailed above in Section 8.1. The calculated total construction miles were then divided by the fleet average for the Salton Sea portion of Riverside County miles per gallon rates for the year 2021 calculated through use of the EMFAC2017 model (https://www.arb.ca.gov/emfac/2017/) and the EMFAC2017 model printouts are shown in Appendix B. Table L shows the on-road construction vehicle trips modeled in CalEEMod and the fuel usage calculations.

Table L – On-Road Vehicle Trips and Fuel Consumption from Construction of the Proposed Project

Vehicle Trip Types	Daily Trips	Trip Length (miles)	Total Miles per Day	Total Miles per Phase[1]	Fleet Average Miles per Gallon[2]	Fuel Used (gallons)
Site Preparation						
Worker Trips	18	11	198	5,940	24.6	242
Vendor Truck Trips	6	5.4	32	972	7.6	128
Grading						
Worker Trips	20	11	220	16,500	24.6	672
Vendor Truck Trips	6	5.4	32	2,430	7.6	320
Haul Truck Trips	35	20	701	52,600	7.6	6,933
Building Construction						
Worker Trips	379	11	4,169	3,085,060	24.6	125,555
Vendor Truck Trips	148	5.4	799	591,408	7.6	77,949
Paving						
Worker Trips	15	11	165	43,065	24.6	1,753
Architectural Coating						
Worker Trips	76	11	836	218,196	24.6	8,880
Total Fuel Used from On-Road Construction Vehicles (gallons)						**222,430**

Notes:
[1] Based on: 30 days for Site Preparation, 75 days for Grading; 740 days for Building Construction; 261 days for Paving; and 261 days for Architectural Coating.
[2] From EMFAC 2017 model (see Appendix B). Worker Trips based on entire fleet of gasoline vehicles and Vendor Trips based on only truck fleet of diesel vehicles.
Source: CalEEMod Version 2016.3.2; CARB, 2018.

Table L shows that the on-road construction-related vehicle trips would consume 222,430 gallons of fuel and as detailed above, Table K shows that the off-road construction equipment would consume 167,988 gallons of fuel. This would result in the total consumption of 390,418 gallons of petroleum fuel from construction of the proposed project.

Operations-Related Energy Use

The operation of the proposed project is anticipated to use energy in the forms of petroleum fuel, electricity, and natural gas, and the calculations for each source are described below.

Operational Petroleum Fuel

The on-road operations-related vehicle trips fuel usage was calculated through use of the total annual vehicle miles traveled assumptions from the CalEEMod model run as detailed above in Section 8.1, which found that operation of the proposed project would generate 4,389,591 vehicle miles traveled per year from autos and would generate 1,117,896 vehicle miles traveled per year from trucks. The calculated total operational miles were then divided by the Salton Sea area portion of Riverside County fleet average rates of 27.5 miles per gallon for automobiles and the fleet average rate of 8.4 miles per gallon for trucks, which was calculated through use of the EMFAC2017 model and based on the project opening year 2025. The EMFAC2017 model printouts are shown in Appendix B. Based on the above calculation methodology, the operation of automobiles would consume 159,747 gallons per year and from trucks would consume 132,675 gallons per year. The total petroleum use from operation of the proposed project would be 292,422 gallons per year.

Operational Electricity Use

The operations-related electricity usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that depicts the electricity use from each land use that are shown below in kilo-watt hours (kWh) per year (CalEEMod land use shown in brackets):

- Service Station/Mini Mart (Convenience Market with Gas Pumps) – 43,788 kWh/year
- Fast Food Restaurant with Drive Thru (Fast Food Restaurant with Drive Thru) – 211,547 kWh/year
- Large Warehouses, Small Warehouses, Personal Vehicle Storage, Small Businesses (Industrial Park) – 4,100,670 kWh/year
- Onsite Roads, Driveways, Parking Lots (Parking Lot) – 67,228 kWh/year
- Self Storage (Unrefrigerated Warehouse No Rail) – 258,357 kWh/year

Based on the above, it is anticipated that the proposed project would utilize 4,681,590 kWh per year of electricity.

Operational Natural Gas Use

The operations-related natural gas usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that depicts the natural gas use from each land use that are shown below in kilo British Thermal Units (kBTU) per year (CalEEMod land use shown in brackets):

- Service Station/Mini Mart (Convenience Market with Gas Pumps) – 8,880 kBTU/year
- Fast Food Restaurant with Drive Thru (Fast Food Restaurant with Drive Thru) – 1,271,000 kBTU/year
- Large Warehouses, Small Warehouses, Personal Vehicle Storage, Small Businesses (Industrial Park) – 1,689,540 kBTU/year
- Onsite Roads, Driveways, Parking Lots (Parking Lot) – 0 kBTU/year
- Self Storage (Unrefrigerated Warehouse No Rail) – 261,058 kBTU/year

Based on the above, it is anticipated that the proposed project will use 3,230,478 kBTU per year, which is equivalent to 3,230 mega-British Thermal units (MBTU) per year of natural gas.

8.3 Toxic Air Contaminant Emissions Modeling

The dispersion modeling utilized for analyzing the TAC emissions in this analysis has been based on the recommended methodology described in *Health Risk Assessment Guidance for Analyzing Cancer Risks* *from Mobile Source Diesel idling Emissions for CEQA Air Quality Analysis* (SCAQMD HRA Guidance), prepared by SCAQMD, 2003, *Air Toxics Hot Spots Program Risk Assessment Guidelines* (OEHHA Guidelines), prepared by Office of Environmental Health Hazard, February 2015, and *Risk Assessment Procedures for Rules 1401, 1401.1 and 212* (SCAQMD Risk Assessment Procedures), prepared by SCAQMD, September 1, 2017. Important issues that affect the dispersion modeling include the following: 1) Model Selection, 2) Source Treatment, 3) Meteorological Data, and 4) Receptor Grid. Each of these issues is addressed below.

Model Selection

The AERMOD View Version 9.9.0 Model was used for all dispersion modeling. Key dispersion modeling options selected included the regulatory default options and urban modeling option for Riverside County with a population of 2,189,641. Flagpole receptor height was set to 0 meters, which is based on SCAQMD recommended modeling parameters. AERMAP (the terrain pre-processor for AERMOD) was run with a USGS 7.5-meter map of Indio for the project site and a 7.5-meter map of Thermal Canyon for the area east of the project site.

Meteorological Data

Meteorological data from the SCAQMD's Jacqueline Cochran Regional Airport (KTRM) Airport monitoring site was selected for this modeling application, which is located as near as 1.1 mile west of the project site. The SCAQMD's meteorological data is provided at: Meteorological Data for AERMOD (aqmd.gov). It should be noted that the SCAQMD provides data for the Jacqueline Cochran Regional Airport under the name of Desert Hot Springs Airport. This can be confirmed by looking at the coordinates and call letters of KTRM provided for this Airport that align with Jacqueline Cochran Regional Airport. Five full years of sequential meteorological data were collected at the KTRM Airport Station by the SCAQMD for 2012, 2013, 2014, 2015, and 2016. The SCAQMD processed the data for input to the model. An elevation of -36 meters was utilized for the KTRM Airport Station per SCAQMD guidance.

Receptor Grid

The nearest sensitive receptors that may be impacted by the proposed project are mobile homes located across Airport Boulevard as near as 50 feet to the south of the project site. There are also single and multi-family homes located on both sides of Orange Street and on the south side of Airport Frontage Road. Discrete receptors were placed at 11 representative nearby homes. Figure 3 shows the locations of the sources and receptors modeled in the AERMOD model for TAC emissions.

EMFAC2017 Model

The truck travel and truck idling emission rates were obtained from the EMFAC2017 model Version 1.0.7. The EMFAC2017 model is the latest emissions inventory model released by CARB that calculates motor vehicle emissions from vehicles operating on roads in California. The EMFAC2017 includes the latest data on California's car and truck fleets and travel activity and also reflects the emissions reductions associated with CARB's recent rulemaking, including on-road diesel fleet rules, Advanced Clean Car Standards, and the Smartway/Phase I Heavy-Duty Vehicle GHG Regulations.

The operational 3-axle and 4+-axle truck trips were modeled in the EMFAC2017 model through use of the Truck 2 Vehicle Category that covers all truck classifications over 14,000 pounds. The operational 2-axle (small truck) trips were modeled in the EMFAC2017 model through use of the Truck 1 Vehicle Category that covers all truck classifications between 8,500 and 14,000 pounds. Since vehicle emission factors are dependent on vehicle speed, emission factors were obtained for 10 and 35 miles per hour and idling rates. The EMFAC2017 model run printout is provided in Appendix B.

The cancer risk analysis is based on a 30-year analysis period. Therefore, the analysis period was segmented into three age sensitivity time periods, consistent with the cancer risk estimation methodology. The DPM PM10 truck running emission rates utilized in this assessment are shown in Table M; the DPM PM10 truck idling emission rates utilized in this assessment are shown in Table N.

Table M – EMFAC2017 Diesel Truck Running PM10 Emission Rates

Vehicle Class	Speed (mph)	EMFAC2017 PM10 Running Emissions Rates (grams/mile)		
		2025 to 2027	2027 to 2041	2041 to 2054
Truck 1	10	0.0340	0.0227	0.0162
	35	0.0155	0.0115	0.0090
Truck 2	10	0.0095	0.0088	0.0085
	35	0.0065	0.0061	0.0060

Source: EMFAC2017 version 1.0.2.

Table N – EMFAC2017 Diesel Truck Idling PM10 Emission Rates

Vehicle Class	EMFAC2017 PM10 Idling Emissions Rates (grams/hour)		
	2025 to 2027	2027 to 2041	2041 to 2054
Truck 1	0.793	0.794	0.797
Truck 2	0.011	0.010	0.010

Source: EMFAC2017 version 1.0.2.

TAC Emission Sources

Operational DPM emissions would be generated from truck trips generated by the operation of the proposed project. None of the business park structures will be utilized as a refrigerated warehouse. As such, no transport refrigeration units will operate on the project site. In addition, Project Design Feature 1 is provided that restricts the use of diesel-powered forklifts on the project site during on-going operations of the project.

As detailed above in Section 8.1, the proposed project would generate for the 5.38 percent 2-axle, 6.67 percent 3-axle, and 20.13 percent 4+-axle daily truck trips generated by the proposed Industrial Park land use, which equates to 88.3 2-axle truck trips, 109.4 3-axle truck trips, and 330.3 4+-axle truck trips per day. The project-related truck emissions have been analyzed separately for truck travel and truck idling that utilized emission rates from the EMFAC model.

Operational Truck Travel

The onsite diesel truck travel was modeled based on half of the truck trips traveling on the east onsite road to Large Warehouses LW-1A, LW-1B, and LW-2 and the other half of the truck trips traveling on the west onsite road to Large Warehouses LW-3A, LW-3B, and LW-4. The Traffic Analysis (Integrated Engineering Group, 2020), found that 20 percent of the trips would travel on Airport Boulevard west of the project site and 80 percent of the trips would travel on Airport Boulevard east of the project site to State Route 86.

The emission rates utilized in the AERMOD model were calculated by converting the emissions created for one truck to grams per second and then calculating the time it takes to travel the road length and multiplying this time by the per day and then dividing by 24 hours. The calculated emission rates are shown in Table O. The diesel truck line volume source truck routes were modeled with a 6-foot height and 12-foot width for the onsite roads and a 40-foot width on Airport Boulevard.

Table O – AERMOD Model Operational DPM Truck Travel Emissions Sources

Source ID	Description	Daily Truck Trips[1]	Length of Truck Route (meters)	DPM Emission Rates (grams/second)		
				2025-2027	2027-2041	2041-2054
	Onsite Roads					
RDONW	2-axle and 3-axle Truck Trips	44	858	9.27E-06	6.18E-06	4.42E-06
	4-axle Truck Trips	220	858	1.28E-06	1.19E-05	1.16E-05
	Onsite Road West	**264**	--	**2.21E-05**	**1.81E-05**	**1.60E-05**
RDONE	2-axle and 3-axle Truck Trips	44	877	9.48E-06	6.32E-06	4.52E-06
	4-axle Truck Trips	220	877	1.31E-05	1.22E-05	1.18E-05
	Onsite Road East	**264**	--	**2.26E-05**	**1.85E-05**	**1.64E-05**
	Offsite Roads					
RDAIRW	2-axle and 3-axle Truck Trips	18	827	1.63E-06	1.20E-06	9.47E-07
	4-axle Truck Trips	88	827	3.38E-06	3.19E-06	3.13E-06
	Airport Boulevard west of Project Site	**106**	--	**5.00E-06**	**4.39E-06**	**4.07E-06**
RDAIRE	2-axle and 3-axle Truck Trips	71	484	3.81E-06	2.82E-06	2.22E-06
	4-axle Truck Trips	352	484	7.91E-06	7.47E-06	7.32E-06
	Airport Boulevard east of Project Site	**422**	--	**1.17E-05**	**1.03E-05**	**9.54E-06**

Notes:
[1] Daily truck trips represent one-way trips (i.e., entering the project site or leaving the project site equal one trip).
Source: Integrated Engineering Group, 2020.

Onsite Truck Idling

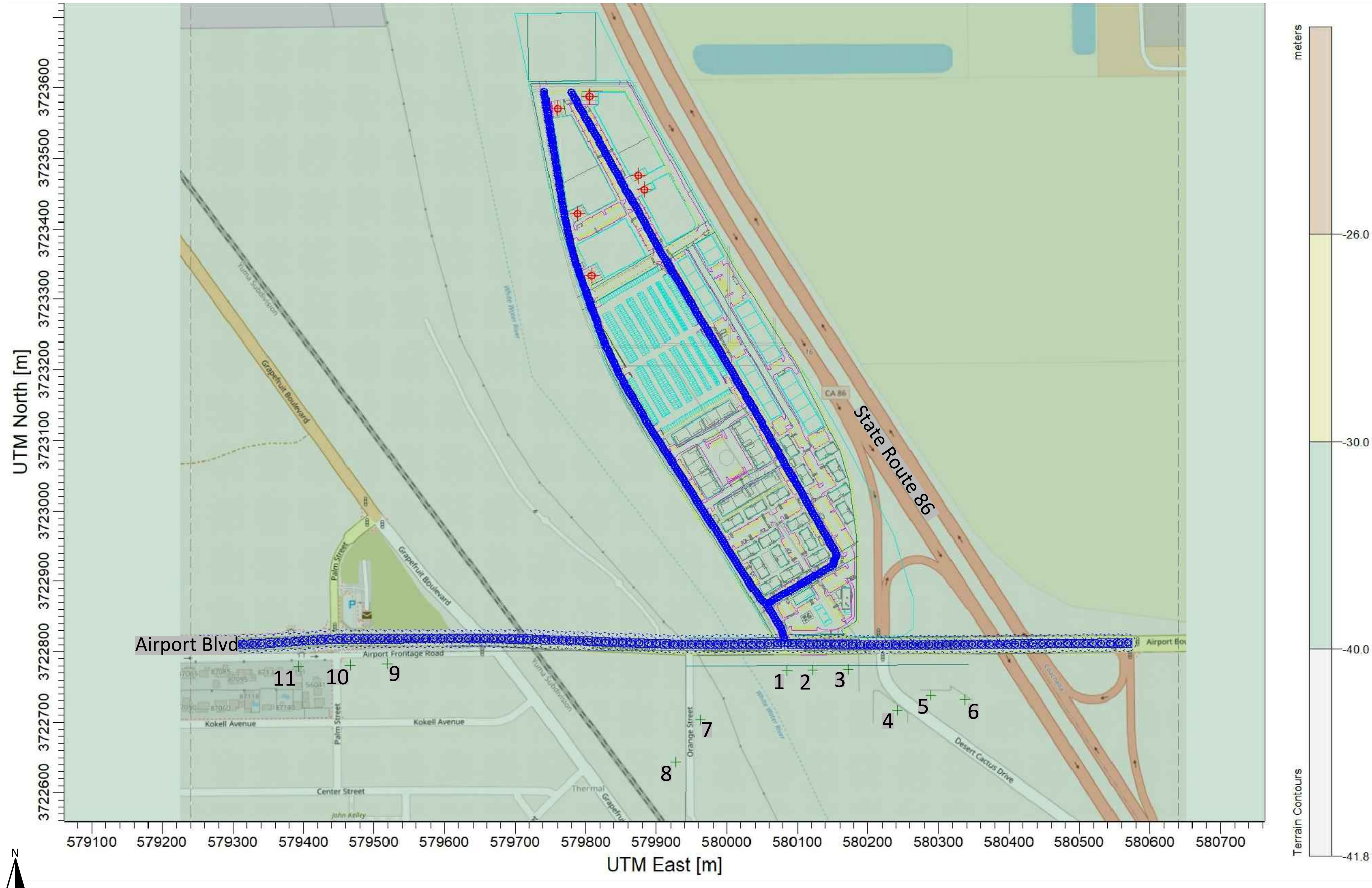
The onsite diesel truck idling emissions were modeled as six point sources located in the center of each of the six Large Warehouses loading areas. The analysis was based on each truck delivery idling on the project site for 15 minutes or 5 minutes for arriving to the loading area, 5 minutes for leaving the loading area, and 5 minutes for queueing activities at the loading area. The 5-minute period is based on Section 2485 of the California Code of Regulations that limits commercial truck idling to 5 minutes at any location.

The idling point source was modeled in the AERMOD model with a 12.6-foot height, a 0.1-meter diameter, a velocity of 50 meters per second, and a temperature of 366°K. The idling point source emission rates entered into the AERMOD model are shown in Table P. The idling source emissions were determined by multiplying 15 minutes by the daily truck operations and dividing it by 24 hours in order to determine the percent of daily idling time. The daily idling time was then multiplied by the EMFAC2017 emissions rates that are detailed above and were converted to grams per second.

Table P – AERMOD Model Operational DPM Truck Idling Emissions Sources

Source ID	Description	Daily Truck Deliveries[1]	DPM Emission Rates (grams/second)		
			2025-2027	2027-2041	2041-2054
	2-axle and 3-axle Truck Idling	7	1.69E-05	1.69E-05	1.70E-05
	4-axle Truck Idling	37	1.12E-06	1.08E-06	1.07E-06
IDLING1-6	**Idling Total (for one of six Idling Sources)**	**44**	**1.80E-05**	**1.80E-05**	**1.80E-05**

Notes:
[1] Each daily truck delivery represent two trips (i.e., one entering the project site and one leaving the project site).
Source: EMFAC2017; Gibson Transportation Consulting, Inc, 2020.



SOURCE: AERMOD View Version 9.9.0.

VISTA ENVIRONMENTAL

Figure 3
AERMOD Model Sources and Receptors Placement

9.0 THRESHOLDS OF SIGNIFICANCE

9.1 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 Coachella Valley portion of the Salton Sea 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 Q.

Table Q – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)[1]						
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**	**Lead**
Construction	75	100	550	150	150	55	3
Operation	75	100	550	150	150	55	3

Notes:
[1] The SCAQMD operational thresholds for the Coachella Valley are the same as the construction thresholds.
Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

9.2 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. As detailed above in Section 7.3, the project site is located in Monitoring Area 30, which covers the Coachella Valley.

The Look-Up Tables include site acreage sizes of 1-acre, 2-acres and 5-acres. The *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*, prepared by SCAQMD, 2015, provides guidance on how to determine the appropriate site acreage size to utilize for a project. The Fact Sheet details the site acreage should be based on the maximum number of acres disturbed on the peak day of construction that is calculated on the construction equipment list utilized in the CalEEMod model, where crawler tractors, graders, and rubber-tired dozers are all assumed to disturb 0.5-acre in an 8-hour day and scrapers are assumed to disturb 1.0-acre in an 8-hour day. It should be noted that the methodology in the Fact Sheet was developed from the CalEEMod User Guide Appendix A, page 9, where the same acres disturbed per equipment type is detailed and is utilized in the CalEEMod model in order to determine the acres per day disturbed during site preparation and grading phases.

Table R lists all of the construction equipment modeled in CalEEMod and utilizes the methodology in the Fact Sheet to calculate the acres disturbed per day. As shown in Table R, the maximum disturbed per day would occur during the grading phase when 5-acres would be disturbed. As such, the 5-acre project site shown in the Look-Up Tables has been utilized in this analysis.

Table R – Construction Equipment Modeled in CalEEMod and Acres Disturbed per Day

Construction Activity	Equipment Type	Equipment Quantity	Acres Disturbed per piece of Equipment per Day[1]	Operating Hours per Day	Acres Disturbed per Day
Site Preparation	Rubber Tired Dozers	3	0.5	8	1.5
	Tractors/Loaders/Backhoes	4	0	8	0
	Total Acres Disturbed per Day During Site Preparation				1.5
Grading	Graders	1	0.5	8	0.5
	Excavators	2	0	8	0
	Rubber Tired Dozers	1	0.5	8	0.5
	Scrapers	4	1.0	8	4.0
	Tractors/Loaders/Backhoes	2	0	8	0
	Total Acres Disturbed per Day During Grading				5.0
Building Construction	Cranes	1	0	7	0
	Forklifts	3	0	8	0
	Generator Sets	1	0	8	0
	Tractors/Loaders/Backhoes	3	0	7	0
	Welders	1	0	8	0
	Total Acres Disturbed per Day During Building Construction				0
Paving	Pavers	2	0	8	0
	Paving Equipment	2	0	8	0
	Rollers	2	0	8	0
	Total Acres Disturbed per Day During Paving				0
Architectural Coating	Air Compressor	1	0	6	0
	Total Acres Disturbed per Day During Architectural Coating				0
	Maximum Acres Disturbed during All Construction Activities				**5.0**

Notes:
[1] Based on the Fact Sheet for Applying CalEEMod to Localized Significance Thresholds where crawler tractors, graders, and rubber-tired dozers disturb 0.5-acre in an 8-hour day and scrapers disturb 1.0-acre in an 8-hour day. All other equipment disturb 0 acres per 8-hour day.
Source: CalEEMod Version 2016.3.2; SCAQMD, 2015.

The nearest sensitive receptors to the project site are mobile home park residences located across Airport Boulevard as near as 15 meters (50 feet) to the south. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25-meter thresholds. Table S below shows the LSTs for NO_2, PM10 and PM2.5 for both construction and operational activities.

Table S – SCAQMD Local Air Quality Thresholds of Significance

Activity	Allowable Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Construction	304	2,292	14	8
Operation	304	2,292	4	2

Notes:
[1] The nearest sensitive receptors to the project site are mobile home park residences located across Airport Boulevard as near as 15 meters (50 feet) to the south. 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 five acres in Air Monitoring Area 30, Coachella Valley.

9.3 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 comprehensive HRA for both construction and operation of the proposed project can be found below in Section 10.4.

9.4 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.

9.5 Energy Conservation

The 2018 amendments and additions to the CEQA Checklist now include an Energy Section that analyzes the proposed project's energy consumption in order to avoid or reduce inefficient, wasteful or unnecessary consumption of energy. Appendix F of the 2020 CEQA Statute and Guidelines, states the following:

> The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include:
>
> (1) Decreasing overall per capita energy consumption,
>
> (2) Decreasing reliance on fossil fuels such as coal, natural gas and oil, and
>
> (3) Increasing reliance on renewable energy sources.

Since the Energy Section was recently added, no state or local agencies have adopted specific criteria or thresholds to be utilized in an energy impact analysis. However, the 2018 *Guidelines for the Implementation of the California Environmental Quality Act,* provide the following direction on how to analyze a project's energy consumption:

> "If analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project. (Guidance on information that may be included in such an analysis is presented in Appendix F.) This analysis is subject to the rule of reason and shall focus on energy use that is caused by the project. This analysis may be included in related analyses of air quality, greenhouse gas emissions, transportation or utilities in the discretion of the lead agency."

If the proposed project creates inefficient, wasteful or unnecessary consumption of energy during construction or operation activities or conflicts with a state or local plan for renewable energy or energy efficiency, then the proposed project would create a significant energy impact.

9.6 Greenhouse Gas Emissions

In June 2014, the City adopted the *Climate Action Public Draft City of Coachella* (CAP). The CAP builds on the 2013 General Plan Update by quantifying emissions from buildout of the General Plan and includes additional policies and implementation actions to help the City further reduce emissions. The CAP establishes emissions reduction targets in in order to meet the statewide emissions targets provided in Executive Order S-03-5 that require GHG emissions to be reduced to 1990 levels by 2020 and reduced to 80 percent below 1990 levels by 2050. The CAP establishes service population reduction targets of 15 percent below year 2010 levels by year 2020 and 49 percent below year 2010 levels by year 2035. The 2035 target was determined by linear projection of the 2020 target (15 percent below 2010 levels) and the 2050 target (80 percent below 1990 levels). The CAP was developed in order to be utilized as a tiering document for the streamlined review of project-level GHG emissions under CEQA for development projects within the City. The CEQA review process within the CAP has four primary compliance paths, which include:

- Ministerial and CEQA exempt projects;
- Projects that demonstrate application of the City's Climate-Ready Development Standards;
- Projects that apply a set of custom GHG mitigation measures and meet the City's performance targets; or
- Projects that pay an in-lieu fee.

Since the proposed project is not ministerial or exempt from CEQA and since the City never developed procedures for paying an in-lieu fee, the project is limited to the compliance paths of either demonstrating application of the City's Climate-Ready Development Standards, or to apply a custom GHG measures to meet the City's performance targets.

The project applicant reviewed the City's Climate-Ready Development Standards and found that several of the development standards were either too vague to implement, such as the design features that require the project to exceed Title 24 standards, but do not define what Title 24 standards to exceed (i.e., the 2013 Title 24 standards that were in effect at time of preparation of the CAP or the current 2019 Title 24 standards, or the anticipated 2022 Title 24 standards that will be in effect at the time building permits are pulled for the project). The CAP also requires the installation of streets that are narrower than the City's Public Works Department currently allows, requires entrances to buildings every 75 feet, which does not work with the proposed business park uses, particularly for the self-storage and personal vehicle storage buildings. There are also measures that would be of significant cost and provide no benefit, such as the requirement to install a recycled water system and the City does not currently have a recycled water lines in the vicinity of the project site to connect to, so the system would remain unused. Due to these reasons, this analysis has relied on the compliance path of providing custom GHG measures to meet the City's performance targets.

The CAP provides a performance target for new development of 4.5 $MTCO_2e$ per service population for the project's opening year of 2025. The CAP provides the following definition for Service Population: "A measure of the total number of residents and employees (jobs) in a jurisdiction." The *Coachella Airport Business Park VMT Assessment Memo* (VMT Memo), prepared by Fehr and Peers, August 17, 2020, utilized the RIVTAM model for the without and with project scenarios that analyzed the five and ten mile radius areas around the project site and the RIVTAM model found that development of the proposed project would result in a decrease in vehicle miles traveled (VMT) between 2 and 4 percent. The VMT Memo shows that the development of the proposed project would provide needed commercial services, businesses and industries in a more proximate location to the nearby residents, which would reduce the miles driven by these residents, when compared to the without project condition. The VMT Memo only provides the proposed project's reduction in VMT when considered in a 5 mile and 10 mile radius areas. As such, the VMT Memo does not provide adequate information to quantify the GHG emissions per service population in order to determine if the project would exceed the CAP's year 2025 4.5 $MTCO_2e$ per service population threshold. Therefore, even though it is documented in the VMT Memo that implementation of the project would reduce the GHG emissions per service population, it is not possible to compare the project area jurisdiction (i.e., 5 mile or 10 mile radius area) to the service population threshold provided in the CAP.

As detailed above, the service population reduction targets established in the CAP of 15 percent below year 2010 levels by year 2020 and 49 percent below year 2010 levels by year 2035 were developed to meet the statewide emissions targets provided in Executive Order S-03-5 that require GHG emissions to be reduced to 1990 levels by 2020 and reduced to 80 percent below 1990 levels by 2050. Since, as detailed above, it is not possible to demonstrate that the proposed project would be within the CAP service population targets, this analysis has utilized the CAP's GHG emission reduction target of 26 percent below business-as-usual year 2010 emissions level by opening year 2025. The 26 percent reduction by opening year 2025 was calculated by linear project of the CAP's 15 percent reduction target for the year 2020 and 49 percent reduction target for the year 2035.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 10.8 and 10.9.

10.0 IMPACT ANALYSIS

10.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality, energy, and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy;
- 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.

10.2 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 9.1 or local thresholds of significance discussed above in Section 9.2. 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 9.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not 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 ensure 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 Coachella General Plan's Land Use Plan defines the long range land use assumptions that are represented in AQMP.

The project site is currently designated Light Industrial (IL) in the General Plan and is zoned Heavy-Industrial (M-H). Although the proposed project's land uses of: Large Warehouses, Small Warehouses, Small Business, Personal Vehicle Storage, Self-Storage, and Retail comprised of a Service Station/Mini Mart and Fast Food Restaurant with Drive-Thru, are allowed land uses in the Light Industrial land use designation, the applicant is requesting a General Plan Amendment (GPA) to be adopted by the City to incorporate the project site into Sub-Area 7 – South Employment District in order to allow for commercial cannabis-related uses. The proposed project will request for City adoption of a change of zone from the existing M-H to Manufacturing Service (M-S). The change of zone to M-S will allow for the proposed project to be included within the City's Industrial Park (I-P) Overlay Zone, which was amended in April 2017 (per Ordinance No. 1103) to include cannabis cultivation, processing, testing, manufacturing and/or wholesale distribution.

Although the proposed project is requesting a GPA and zone change, the requested change in designation is solely to allow for cannabis uses within the proposed industrial park, which would not alter the vehicle trips or other parameters utilized by SCAG in generating the forecasts provided in the RTP/SCS. Therefore, the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. 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.

10.3 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.

The SCAQMD has published a report on how to address cumulative impacts from air pollution: White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf). In this report the AQMD clearly states (Page D-3):

> "*…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or Environmental Impact Report (EIR). The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility- wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.*"

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project- specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. 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 42.69-acre-acre project site, building construction of the business park, paving of the onsite roads and parking areas and application of architectural coatings. Although, the proposed project is anticipated to be constructed in three phases, in order to provide a conservative or worst-case analysis, this analysis has analyzed the entire project being constructed in one phase. The construction emissions have been analyzed for both regional and local air quality impacts.

<u>Construction-Related Regional Impacts</u>

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 8.1. 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 T and the CalEEMod daily printouts are shown in Appendix A. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, Table T also shows the combined regional criteria pollutant emissions from building construction (year 2024), paving and architectural coating phases of construction.

Table T – Construction-Related Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Site Preparation (Year 2021)[1]						
Onsite[2]	3.89	40.50	21.15	0.04	10.17	6.35
Offsite[3]	0.08	0.56	0.61	0.00	0.18	0.05
Total	**3.97**	**41.06**	**21.76**	**0.04**	**10.36**	**6.40**
Grading (Year 2021)[1]						
Onsite[2]	6.05	67.81	44.89	0.09	6.74	4.21
Offsite[3]	0.27	8.23	1.75	0.03	1.40	0.38
Total	**6.32**	**76.04**	**46.63**	**0.12**	**8.13**	**4.60**
Building Construction (Year 2022)						
Onsite	1.71	15.62	16.36	0.03	0.81	0.76
Offsite	1.68	12.90	12.10	0.06	3.95	1.09
Total	**3.38**	**28.51**	**28.46**	**0.09**	**4.76**	**1.85**
Combined Year 2024 Building Construction, Paving, and Architectural Coatings						
Onsite	33.98	24.19	32.60	0.05	1.14	1.07
Offsite	1.73	10.06	12.49	0.06	4.70	1.29
Total	**35.71**	**34.25**	**45.09**	**0.12**	**5.85**	**2.35**
Maximum Daily Construction Emissions	**35.71**	**76.04**	**46.63**	**0.12**	**10.36**	**6.40**
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 T shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during either demolition, 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.

Error! Reference source not found. 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 9.2. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, **Error! Reference source not found.** also shows the combined local criteria pollutant emissions from year 2024 building construction, paving and architectural coating phases of construction.

Table U – Construction-Related Local Criteria Pollutant Emissions

Construction Phase	Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Site Preparation[2]	40.57	21.23	10.20	6.36
Grading[2]	68.83	45.11	6.91	4.26
Building Construction (Year 2022)	17.23	17.88	1.30	0.90
Combined Building Construction (Year 2024), Paving and Architectural Coatings	27.99	34.57	1.93	1.41
Maximum Daily Construction Emissions	**68.83**	**45.11**	**10.20**	**6.36**
SCAQMD Local Construction Thresholds[3]	**270**	**1,746**	**14**	**8**
Exceeds Threshold?	No	No	No	No

Notes:
[1] The Pollutant Emissions include 100% of the On-Site emissions (off-road equipment and fugitive dust) and 1/8 of the Off-Site emissions (on road trucks and worker vehicles), in order to account for the on-road emissions that occur within a ¼ mile of the project site.
[2] Site Preparation and Grading phases based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[3] The nearest offsite sensitive receptors are mobile home park residences located across Airport Boulevard as near as 15 meters (50 feet) to the south. 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 five acres in Air Monitoring Area 30, Coachella Valley.

The data provided in **Error! Reference source not found.** shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either site preparation, grading, 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, emissions from energy usage, onsite area source emissions, and off-road equipment created 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 Regional Criteria Pollutant Analysis

The operations-related regional 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 8.1. 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 V and the CalEEMod daily emissions printouts are shown in Appendix A.

Table V – Operational Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	17.51	0.00	0.13	0.00	0.00	0.00
Energy Usage[2]	0.10	0.87	0.73	0.01	0.07	0.07
Mobile Sources[3]	7.14	38.51	39.68	0.20	12.01	3.30
Off-Road Equipment[4]	0.52	4.91	6.80	0.01	0.26	0.24
Total Emissions	**25.27**	**44.29**	**47.35**	**0.22**	**12.34**	**3.61**
SCQAMD Operational Thresholds[5]	**75**	**100**	**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.
[3] Mobile sources consist of emissions from vehicles and road dust.
[4] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered.
[5] The SCAQMD operational thresholds for the Coachella Valley are the same as the construction thresholds.
Source: Calculated from CalEEMod Version 2016.3.2.

The data provided in Table V 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.

Friant Ranch Case

The operations-related regional criteria air quality impacts In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

This Analysis details the specific health risks created from each criteria pollutant above in Section 4.1 and specifically in Table D. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case.

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf) (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone. As shown above in **Error! Reference source not found.**, project-related construction activities would generate a maximum of 35.71 pounds per day of VOC and 76.04 pounds per day of NOx and as shown above in Table V, operation of the proposed project would generate 25.27 pounds per day of VOC and 44.29 pounds per day NOx. The proposed project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Notwithstanding, this analysis does evaluate the proposed project's localized impact to air quality for emissions of CO, NOX, PM10, and PM2.5 by comparing the proposed project's onsite emissions to the SCAQMD's applicable LST thresholds. As evaluated in this analysis, the proposed project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NOX, PM10, and PM2.5.

<u>Operations-Related Local Air Quality Impacts</u>

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 SSAB.

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

[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.

the proposed project could result in a significant impact to the local air quality. Table N shows the onsite emissions from the CalEEMod model that includes area sources, energy usage, onsite off-road equipment, and vehicles operating in the immediate vicinity of the project site and the calculated emissions thresholds.

Table W – Operations-Related Local Criteria Pollutant Emissions

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Area Sources	0.00	0.13	0.00	0.00
Energy Usage	0.87	0.73	0.07	0.07
Mobile Sources[1]	4.81	4.96	1.50	0.41
Off-Road Equipment[2]	4.91	6.80	0.26	0.24
Total Emissions	**10.59**	**12.63**	**1.83**	**0.72**
SCAQMD Local Operational Thresholds[3]	**304**	**2,292**	**4**	**2**
Exceeds Threshold?	No	No	No	No

Notes:
[3] Mobile sources 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] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered
[3] The nearest sensitive receptors to the project site are site are mobile home park residences located across Airport Boulevard as near as 15 meters (50 feet) to the south. 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 five acres in Air Monitoring Area 30, Coachella Valley.

The data provided in Table N 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 onsite emissions and no mitigation would be required.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

Level of Significance

Less than significant impact.

10.4 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 10.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from local criteria pollutant and toxic air contaminant emissions. The nearest sensitive receptors to the project site are mobile home park residences located across Airport Boulevard as near as 50 feet to the south of the project site.

Construction-Related Sensitive Receptor Impacts

Construction activities 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 has been analyzed above in Section 10.3 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 9.2. 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.

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. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 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, due to the limitations in off-road construction equipment DPM emissions from implementation of Section 2448, a less than 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 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.

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 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.

Operations-Related Toxic Air Contaminant Impacts

The proposed project consists of development of a business park that would generate DPM emissions from truck traffic and delivery trucks and would generate emissions from gasoline dispensing and storage activities, which is also a known source of TAC emissions.

Proposed Gas Station Toxic Air Contaminant Emissions

The proposed project would include a 10 fueling position gas station on the southeastern portion of the project site that is anticipated to have a maximum throughput of 2.0 million gallons of gasoline per year. The SCAQMD provides the RiskTool (V1.103) that calculates the cancer risk from gasoline stations that can be found at http://www.aqmd.gov/home/permits/risk-assessment. The RiskTool has been utilized to calculate the cancer risk at the nearest resident and the RiskTool printout is provided in Appendix C. According to guidance provided by SCAQMD staff, the distance to nearest residents entered into the RiskTool is based on the distance from the nearest residential property line to the center of the proposed gas station canopy, which measures 160 feet (49 meters) for the proposed gas station distance to the mobile home park to the south.

The RiskTool found that the proposed project would create a cancer risk of **3.3 per million persons** at the mobile homes to the south. 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 9.3. 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.

Proposed Diesel Truck Toxic Air Contaminant Emissions

Operation of the proposed project would generate diesel truck emissions, which are known sources of TACs, from truck traffic and delivery trucks. The TAC impacts to the nearby sensitive receptors have been analyzed through use of the AERMOD model and the model input parameters detailed above in Section 6.3. Health risks from TACs are twofold. First, TACs are carcinogens according to the State of California. Second, short-term acute and long-term chronic exposure to TACs can cause health effects to the respiratory system. Each of these health risks is discussed below.

Cancer Risks

According to the OEHHA Guidance (OEHHA, 2015) and *Risk Assessment Procedures for Rules 1401, 1401.1 and 212*, (SCAQMD, 2017), the cancer risk should be calculated using the following formula:

Cancer Risk = [Dose-inh (mg/(Kg-day)] * [Cancer Potency Factor (kg-day)/mg]*[$1x10^6$] * Age Sensitivity Factor * Fraction of Time at Home

$$\text{Dose-inh} = (C_{air} * DBR * A * EF * ED * 10^6) / AT$$

Where:

C_{air}	[Concentration in air (µg/m^3)] = (Calculated by AERMOD Model)
DBR	[Daily breathing rate (L/kg body weight – day)]
A	[Inhalation absorption factor]
EF	[Exposure frequency (days/year)]
ED	[Exposure duration (years)]
10^6	[Micrograms to milligrams conversion]
AT	[Average time period over which exposure is averaged in days]

The cancer risk parameters used in this evaluation for the nearby residential uses are shown in Table X.

Table X – Cancer Risk Calculation Parameters

Parameter	Operations		
	2025 – 2027 (3^{rd} Trimester to 2 years)	**2027 – 2041 (2 to 16 years)**	**2041 – 2054 (16 to 30 years)**
Cancer Potency Factor (mg/kg-day) for DPM	1.1	1.1	1.1
Daily Breathing Rate (L/kg body weight-day)	1,009(1)	572	261
Inhalation Absorption Factor	1	1	1
Exposure Frequency (days/year)	350	350	350
Exposure Duration (years)	2.25	14	13.75
Age Sensitivity Factor	10	3	1
Fraction of Time at Home	1.0	1.0	1.0
Averaging Time[2] (days)	25,550	25,550	25,550
Potential Cancer Risk =	C_{air} * 342	C_{air} * 362	C_{air} * 39.5

Notes:

[1] Based on 95^{th} percentile breathing rate of 361 for 3^{rd} trimester for 3 months and 1,090 for 0 to 2 years for 24 months (OEHHA, 2015; SCAQMD, 2017).

[2] Based on a 70-year average lifetime (OEHHA, 2015; SCAQMD, 2017)

Table Y provides a summary of the calculated diesel emission concentrations at the nearest sensitive receptors and Appendices D, E, and F provide the AERMOD printouts.

Table Y – Diesel Truck DPM Emissions Cancer Risks at Nearby Sensitive Receptors

Sensitive Receptor[1]	Receptor Location		Annual PM10 Concentration (µg/m³)			Cancer Risk Per Million People[2]
	X	Y	2025-2027	2027- 2041	2041-2054	
1	580,086	3,722,773	0.0025	0.0022	0.0021	1.8
2	580,122	3,722,774	0.0030	0.0027	0.0025	2.1
3	580,172	3,722,775	0.0030	0.0026	0.0025	2.1
4	580,242	3,722,717	0.0017	0.0015	0.0014	1.2
5	580,289	3,722,738	0.0018	0.0016	0.0015	1.2
6	580,337	3,722,732	0.0016	0.0014	0.0013	1.1
7	579,963	3,722,704	0.0010	0.0009	0.0009	0.7
8	579,927	3,722,644	0.0008	0.0007	0.0007	0.5
9	579,519	3,722,783	0.0007	0.0006	0.0006	0.5
10	579,466	3,722,781	0.0006	0.0006	0.0005	0.4
11	579,393	3,722,779	0.0006	0.0005	0.0005	0.4
					Threshold of Significance	**10**
					Exceed Threshold?	**No**

Notes:
[1] The locations of each Sensitive Receptor are shown above in Figure 3.
[2] The residential cancer risk based on: C_{air} (2022-2023) * 342 + C_{air} (2023-2038) * 362 + C_{air} (2038-2051) * 39.5.
Source: Calculated from ISC-AERMOD View Version 9.9.0.

Table Y shows that the cancer risk from the proposed project's diesel truck TAC emissions would be as high as 2.1 per million persons at the mobile homes located south of the project site (Sensitive Receptors 2 and 3). When combined with the gas station TAC emissions, this would result in a cancer risk as high as **5.4 per million persons** at the mobile homes located south of the project site. The combined project-related cancer risk from diesel truck and gas station TAC emissions would be within the SCAQMD's threshold of 10 per million persons. Therefore, operation of the proposed project would result in a less than significant impact due to the cancer risk from TAC emissions.

Non-Cancer Risks

In addition to the cancer risk from exposure to TAC emissions there is also the potential TAC exposure may result in adverse health impacts from acute and chronic illnesses, which are detailed below.

Chronic Health Impacts

Chronic health effects are characterized by prolonged or repeated exposure to a TAC over many days, months, or years. Symptoms from chronic health impacts may not be immediately apparent and are often irreversible. The chronic hazard index is based on the most impacted sensitive receptor from the proposed project and is calculated from the annual average concentrations of PM10. The relationship for non-cancer chronic health effects is given by the equation:

$$HI_{DPM} = C_{DPM} / REL_{DPM}$$

Where,

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average diesel particulate matter concentration in μg/m^3.
REL_{DPM}= Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated.

The REL_{DPM} is 5 μg/m^3. The Office of Environmental Health Hazard Assessment has established this concentration as protective for the respiratory system. As shown above in Table Y, the AERMOD model found that the highest annual off-site concentration is 0.0030 μg/m^3 for DPM chronic non-cancer risk emissions. The resulting Hazard Index is:

$$HI_{DPM} = 0.0030 / 5 = 0.0006$$

The criterion for significance is a Chronic Hazard Index increase of 1.0 or greater, which is detailed above in Section 9.3. Therefore, the on-going operations of the proposed project would result in a less than significant impact due to the non-cancer chronic health risk from TAC emissions created by the proposed project.

Acute Health Impacts

Acute health effects are characterized by sudden and severe exposure and rapid absorption of a TAC. Normally, a single large exposure is involved. Acute health effects are often treatable and reversible. The acute hazard index is calculated from the maximum 24-hour concentrations of PM10 at the point of maximum impact (PMI), which has been calculated with the AERMOD model and the parameters detailed above in Section 8.3. The relationship for non-cancer acute health effects is given by the equation:

$$AHI = C / AREL$$

Where,
AHI = Acute Hazard Index; an expression of the potential for non-cancer health effects.
C = Maximum hourly concentration of either PM10 in μg/m^3.
AREL = Acute Reference Exposure Level.

No acute risk has been found to be directly created from DPM, so there is no AREL assigned to DPM, however in order to provide an DPM equivalent AREL, the ARELs from all of the other TACs that are emitted in diesel exhaust were added together based on their diesel weighting shown above in Table B. This resulted in a diesel emission weighted equivalent AREL of 2,189 μg/m^3. The AERMOD model found that the highest 24-hour concentration at the PMI is 0.0054 μg/m^3 for DPM equivalent acute non-cancer risk emissions and Appendix D provides the 24-hour concentrations during year 2025-2027 operations, which was found to create the highest 24-hour DPM concentrations in the AERMOD model. The resulting Hazard Index is:

$$AHI = 0.0054 / 2,189 = 0.0000025$$

The criterion for significance is an Acute Hazard Index increase of 1.0 or greater, which is detailed above in Section 9.3. Therefore, the on-going operations of the proposed project would result in a less than significant impact due to the non-cancer acute health risk from TAC emissions created by the proposed project.

The on-going operations of the proposed 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.

10.5 Odor Emissions

The proposed project would not create objectionable odors affecting a substantial number of people. 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. Potential odor impacts have been analyzed separately for construction and operations below.

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. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, 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. Through compliance with the applicable regulations that reduce odors and 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 of a business park project that would include the following building types: Large Warehouses, Small Warehouses, Small Business, Personal Vehicle Storage, Self-Storage, and Retail comprised of a Service Station/Mini Mart and Fast Food Restaurant with Drive-Thru. In addition, the applicant is requesting a General Plan Amendment (GPA) and zone change to allow for commercial cannabis-related uses. The requested GPA and zone change will allow for cannabis cultivation, processing, testing, manufacturing and/or wholesale distribution within the business park.

Operation of the proposed project may create odors from commercial cannabis activities, gas dispensing activities, diesel truck emissions, and from trash storage bins. 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 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 truck loading and unloading activities at the project site and would not likely be noticeable for extended periods of time beyond the project site boundaries. As such, through compliance with SCAQMD's Rule 461 and City trash storage regulations, less than significant odor impacts would occur from these odor sources. However, commercial cannabis operations have the potential to create significant odor impacts to nearby sensitive receptors. Therefore, a potentially significant odor impact may occur from commercial cannabis operations.

Mitigation Measure 1 is provided that would require the preparation of an Odor Management Plan to be prepared prior to the issuance of certificate of occupancy for any commercial cannabis business that is located within the business park.

The majority of the odors of cannabis come from a class of chemicals called terpenes. Terpenes are among the most common compounds produced by flowering plants and vary widely between each plant. Cannabis produces over 140 different terpenes and these chemicals are found in varying concentrations in different cannabis varieties. There are a variety of measures that may be incorporated into the Odor Management Plan that may include the use of carbon filters, negative ion generators, air tight seals, as well as negative air pressure, in order to minimize the amount of odors that are emitted from any cannabis operations. As such, through implementation of Mitigation Measure 1, the commercial cannabis odor impacts would be reduced to less than significant levels.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1

An Odor Management Plan shall be prepared and approved by the City's Building Department prior to the issuance of a certificate of occupancy for any commercial cannabis business that would be located within the proposed business park. The Odor Management Plan shall demonstrate that the emission of odors from the cannabis operations will be minimized through the use carbon filters, negative ion generators, air tight seals, and/or negative air pressure mechanical forced air systems.

Level of Significance After Mitigation

Less than significant impact.

10.6 Energy Consumption

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, natural gas, and petroleum based fuel supplies and distribution systems. This analysis includes a discussion of the potential energy impacts of the proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. A general definition of each of these energy resources are provided below.

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. In 2019, Imperial Irrigation District, which provides electricity to the project vicinity provided 3,322 Gigawatt-hours per year of electricity[2].

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, mainly located outside the State, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network and, therefore, resource availability is typically not an issue. Natural gas satisfies almost one-third of the State's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet. In 2019, Riverside County consumed 452.99 Million Therms of natural gas[3].

Petroleum-based fuels currently account for a majority of the California's transportation energy sources and primarily consist of diesel and gasoline types of fuels. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHG emissions from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, petroleum-based fuel consumption in California has declined. In 2017, 1,052 million gallons of gasoline and 148 million gallons of diesel was sold in Riverside County[4].

The following section calculates the potential energy consumption associated with the construction and operations of the proposed project and provides a determination if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the proposed project are anticipated to include site preparation and grading of the 42.69-acre-acre project site, building construction of the business park, paving of the onsite roads and parking areas and application of architectural coatings. The proposed project would consume energy resources during construction in three (3) general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, as well as delivery and haul truck trips (e.g. hauling of material to disposal facilities);

2 Obtained from: http://www.ecdms.energy.ca.gov/elecbyutil.aspx
3 Obtained from: http://www.ecdms.energy.ca.gov/gasbycounty.aspx
4 Obtained from: https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/

2. Electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the proposed project would consume electricity to construct the new structures and infrastructure. Electricity would be supplied to the project site by Imperial Irrigation District and would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on fuel consumption. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

Since there are currently power lines in the vicinity of the project site, it is anticipated that only nominal improvements would be required to Imperial Irrigation District distribution lines and equipment with development of the proposed project. Compliance with City's guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the project. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Natural Gas

Construction of the proposed project typically would not involve the consumption of natural gas. Natural gas would not be supplied to support construction activities, thus there would be no demand generated by construction. Since the project site is currently has natural gas service in the vicinity of the project site, construction of the proposed project would be limited to installation of new natural gas connections within the project site. Development of the proposed project would likely not require extensive infrastructure improvements to serve the project site. Construction-related energy usage impacts associated with the installation of natural gas connections are expected to be confined to trenching in order to place the lines below surface. In addition, prior to ground disturbance, the proposed project would notify and coordinate with SoCalGas to identify the locations and depth of all existing gas lines and avoid disruption of gas service. Therefore, construction-related impacts to natural gas supply and infrastructure would be less than significant.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would be utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions and fuel use assumptions shown above in Section 8.2, which found that the off-road equipment utilized during construction of the proposed project would consume 157,075 gallons of fuel. The on-road construction trips fuel usage was calculated through use of the construction vehicle trip assumptions and fuel use assumptions shown above in Section 8.2, which found that the on-road trips generated from construction of the proposed project would consume 224,430 gallons of fuel. As such, the combined fuel used from off-road construction equipment and on-road construction trips for the proposed project would result in the consumption of 379,505 gallons of petroleum fuel. This equates to 0.03 percent of the gasoline and diesel consumed annually in Riverside County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the proposed project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete, it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of the proposed project would require the use of energy resources for multiple purposes including, but not limited to, heating/ventilating/air conditioning (HVAC), refrigeration, lighting, appliances, and electronics. Energy would also be consumed during operations related to water usage, solid waste disposal, landscape equipment and vehicle trips.

Operations-Related Electricity

Operation of the proposed project would result in consumption of electricity at the project site. As detailed above in Section 8.3 the proposed project would consume 4,681,590 kilowatt-hours per year of electricity. This equates to 0.14 percent of the electricity consumed annually by Imperial Irrigation District. As such, the operations-related electricity use would be nominal, when compared to current electricity usage rates in the Imperial Irrigation District service area.

It should be noted that, the proposed project would comply with all Federal, State, and City requirements related to the consumption of electricity, that includes CCR Title 24, Part 6 *Building Energy Efficiency Standards* and CCR Title 24, Part 11: *California Green Building Standards.* The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed business park, including enhanced insulation, use of energy efficient lighting and appliances as well as requiring a variety of other energy-efficiency measures to be incorporated into the proposed structures. Therefore, it is anticipated the proposed project will be designed and built to minimize electricity use and that existing and planned electricity capacity and electricity supplies would be sufficient to support the proposed project's electricity demand. Thus, the project would not result in the wasteful or inefficient use of electricity and no mitigation measures would be required.

<u>Operations-Related Natural Gas</u>

Operation of the proposed project would result in increased consumption of natural gas at the project site. As detailed above in Section 8.3 the proposed project would consume 3,230 MBTU per year of natural gas. This equates to 0.007 percent of the natural gas consumed annually in Riverside County. As such, the operations-related natural gas use would be nominal, when compared to current natural gas usage rates in the County.

It should be noted that, the proposed project would comply with all Federal, State, and City requirements related to the consumption of natural gas, that includes CCR Title 24, Part 6 *Building Energy Efficiency Standards* and CCR Title 24, Part 11: *California Green Building Standards.* The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed business park, including enhanced insulation as well as use of efficient natural gas appliances and HVAC units. Therefore, it is anticipated the proposed project will be designed and built to minimize natural gas use and that existing and planned natural gas capacity and natural gas supplies would be sufficient to support the proposed project's natural gas demand. Thus, impacts with regard to natural gas supply and infrastructure capacity would be less than significant and no mitigation measures would be required

<u>Operations-Related Vehicular Petroleum Fuel Usage</u>

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. As detailed above in Section 8.2 the proposed project would consume 292,422 gallons of petroleum fuel per year from vehicle travel. This equates to 0.02 percent of the gasoline and diesel consumed annually in Riverside County. As such, the operations-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates. Therefore, it is anticipated the proposed project will be designed and built to minimize transportation energy and it is anticipated that existing and planned capacity and supplies of transportation fuels would be sufficient to support the proposed project's demand. Thus, impacts with regard transportation energy supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

In conclusion, the proposed project would comply with regulatory compliance measures outlined by the State and County related to Air Quality, Greenhouse Gas Emissions (GHG), Transportation/Circulation, and Water Supply. Additionally, the proposed project would be constructed in accordance with all applicable City Building and Fire Codes. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.7 Energy Plan Consistency

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The applicable energy plan for the proposed project is the City of Coachella General Plan Update, adopted April 22, 2015. The proposed project's consistency with the applicable energy-related policies in the Sustainability and Natural Environment Section of the General Plan are shown in Table Z.

Table Z – Proposed Project Compliance with Applicable General Plan Energy Policies

Policy No.	General Plan Policy	Proposed Project Implementation Actions
2.2	**Passive solar design.** Require new buildings to incorporate energy efficient building and site design strategies for the desert environment that include appropriate solar orientation, thermal mass, use of natural daylight and ventilation, and shading.	**Consistent.** The proposed structures will be designed in consideration of solar orientation, thermal mass, use of natural daylight, ventilation, and shading. In addition, the proposed structures will be designed to meet the 2019 Title 24 Part 6 building standards that require enhanced insulation in order to reduce energy usage and associated emissions.
2.3	**Alternative energy.** Promote the incorporation of alternative energy generation (e.g., solar, wind, biomass) in public and private development.	**Consistent.** The proposed structures will be designed to meet the 2019 Title 24 Part 11 building standards that require the roofs of all non-residential structures to be designed to be solar-ready, which includes the roofs to be structurally designed for the additional load of the PV solar panels as well as installation of conduit for the future PV systems.
2.5	**Construction standards.** Consider and evaluate new construction practices and standards that increase building energy efficiency.	**Consistent.** Construction activities for the proposed project will utilize new construction practices and standards that increase building energy efficiency.
2.6	**Energy performance targets – new construction.** Require new construction to exceed Title 24 energy efficiency standards by 15 percent and incorporate solar photovoltaics.	**Consistent.** The proposed structures will be designed to meet the 2019 or latter Title 24 energy efficiency standards, which are 30 percent more efficient than the 2016 Title 24 standards, and even more efficient than the 2013 Title 24 standards that were in effect when the General Plan was prepared.
2.9	**Energy-efficient street lighting**. Implement a program to install the latest energy-efficient technologies for street and parking lot lights to meet City and state standards.	**Consistent.** The 2019 Title 24 standards require that all street lighting utilize LED type of lights, which are the most efficient lighting currently available.
2.10	**New industries.** Actively promote the City as a place for renewable energy generation, and a place for energy conservation businesses to locate.	**Consistent.** The project applicant will promote the proposed business park for all sorts of businesses, including businesses interested in energy conservation.
2.12	**Solar access.** Prohibit new development and renovations that impair adjacent buildings' solar access, unless it can be demonstrated that the shading benefits substantially offset the impacts of solar energy generation potential.	**Consistent.** There is currently no structures or solar panels in the immediate vicinity of the project site. As such, no impairment of solar access would occur with development of the proposed project.

Source: City of Coachella, 2015.

As shown in Table Z, the proposed project would be consistent with all applicable energy-related policies from the General Plan. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.8 Generation of Greenhouse Gas Emissions and Consistency With Applicable Plan

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plan for the proposed project is the *Climate Action Public Draft City of Coachella* (CAP) that was developed in order to be utilized as a tiering document for the streamlined review of project-level GHG emissions under CEQA for development projects within the City. As detailed above in Section 9.6, the CAP provides multiple paths to show compliance with the CAP and this analysis will utilize the path of meeting the City's performance target to show compliance with the CAP.

As detailed above in Section 9.6, the service population reduction targets established in the CAP of 15 percent below year 2010 levels by year 2020 and 49 percent below year 2010 levels by year 2035 were developed to meet the statewide emissions targets provided in Executive Order S-03-5 that require GHG emissions to be reduced to 1990 levels by 2020 and reduced to 80 percent below 1990 levels by 2050. Since, as detailed above, it is not possible to demonstrate that the proposed project would be within the CAP service population targets, this analysis has utilized the CAP's GHG emission reduction target of 26 percent below business-as-usual year 2010 emissions level by opening year 2025. The 26 percent reduction by opening year 2025 was calculated by linear project of the CAP's 15 percent reduction target for the year 2020 and 49 percent reduction target for the year 2035.

In order to determine if the proposed project would comply with the GHG emissions reduction targets in the CAP, the GHG emissions from the proposed project were analyzed for both business-as-usual year 2010 and project opening year 2025. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed in Section 8.1 above. A summary of the results is shown below in Table AA and the CalEEMod model run annual printouts for the year 2010 are provided in Appendix G and the year annual printouts for the opening year 2025 are provided in Appendix H.

Table AA – Project Related Greenhouse Gas Annual Emissions

Category	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO_2	CH_4	N_2O	CO_2e
Year 2010 BAU Emissions				
Area Sources[1]	0.02	0.00	0.00	0.03
Energy Usage[2]	3,016.34	0.07	0.03	3,027.00
Mobile Sources[3]	4,946.39	0.73	0.00	4,964.63
Off-Road Equipment[4]	116.39	0.03	0.00	117.23
Solid Waste[5]	158.86	9.39	0.00	393.57
Water and Wastewater[6]	1,012.38	4.75	0.10	1,213.09
Construction[7]	121.68	0.02	0.00	122.10
Total 2010 Emissions	**9,372.05**	**14.99**	**0.13**	**9,837.64**
Year 2025 Emissions				
Area Sources[1]	0.02	0.00	0.00	0.03
Energy Usage[2]	1,892.25	0.05	0.02	1,899.40
Mobile Sources[3]	3,333.84	0.18	0.00	3,338.39
Off-Road Equipment[4]	104.75	0.03	0.00	105.59
Solid Waste[5]	79.43	4.69	0.00	196.79
Water and Wastewater[6]	624.52	4.00	0.10	754.30
Construction[7]	121.68	0.02	0.00	122.10
Total 2025 Emissions	**6,156.48**	**8.97**	**0.12**	**6,416.59**
Percent Reduction between 2010 and 2025				**34.8%**
City of Coachella Reduction Target for Opening Year 2025				**26%**
			Exceed Threshold?	**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] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered.
[5] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2016.3.2.

The data provided in Table AA shows that the proposed project would create 9,837.64 $MTCO_2e$ per year based on business-as-usual year 2010 GHG emissions rates and would create 6,416.59 $MTCO_2e$ per year in the project opening year 2025, which is based on approved Statewide GHG reduction regulations that would be fully implemented by year 2025. More specifically the approved Statewide GHG reduction regulations include, but are not limited to implementation of: EO N-79-20 that requires all passenger vehicles sold in California to be zero-emission by 2035 and commercial trucks to be zero emission by 2045, 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 AA shows that the proposed project's GHG emissions would be reduced by 34.8 percent and would meet the GHG emissions reduction target of 26 percent below year 2010 emissions level by opening year

2025 as detailed in the CAP. Therefore, the proposed project is consistent with the CAP and would not conflict with the applicable plan adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

Level of Significance

Less than significant impact.

11.0 REFERENCES

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APPENDIX A

CalEEMod Model Daily Printouts

Coachella Airport Business Park

Riverside-Salton Sea County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	486.90	1000sqft	23.03	486,900.00	0
Unrefrigerated Warehouse-No Rail	128.60	1000sqft	6.30	128,600.00	0
Parking Lot	686.00	Space	12.73	274,400.00	0
Fast Food Restaurant with Drive Thru	4.65	1000sqft	0.23	4,650.00	0
Convenience Market With Gas Pumps	10.00	Pump	0.06	4,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	15			**Operational Year**	2025
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	809.89	**CH4 Intensity (lb/MWhr)**	0.02	**N2O Intensity (lb/MWhr)**	0.008

1.3 User Entered Comments & Non-Default Data

Coachella Airport Business Park - Riverside-Salton Sea County, Summer

Project Characteristics - IID Intensity Factors obtained from CPA and SB 100

Land Use - Total Project Site: 42.36 acres

Construction Phase - Construction schedule provided by applicant

Trips and VMT - 6 vendor trips per day added to Site Prep and Grading phases to account for water truck emissions

Grading - 21,040 cu yds imported

Architectural Coating - Non Residential interior Architectural Coating VOC set to 100 grams/liter per SCAQMD Rule 1113 minimum requirements

Vehicle Trips - Daily Trip Rates from TIA.

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for SCAQMD Rule 403 minimum requirements

Mobile Land Use Mitigation - Improve Ped Network on Project Site. Distance to Transit Station 0.01 mile (Sunline Bus Stop adjacent to project site)

Energy Mitigation - 30% lighting energy reduction selected to account for the 2019 Title 24 standards,

Water Mitigation - Low flow fixtures and water-efficient irrigation were selected to account for 2019 Title 24 part 11 requirements

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Operational Off-Road Equipment - 6 CNG Forklifts 8 hours per day

Fleet Mix - Fleet Mix - Trucks analyzed under Industrial Park land use. Trucks removed from all other land uses

Off-road Equipment - 2 Scrapers added to Grading (4 total)

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblAreaCoating	Area_Nonresidential_Exterior	312075	314413
tblAreaCoating	Area_Nonresidential_Interior	936225	943238
tblAreaCoating	Area_Parking	16464	16488
tblConstructionPhase	NumDays	55.00	261.00
tblConstructionPhase	NumDays	55.00	261.00
tblFleetMix	HHD	0.07	0.00
tblFleetMix	HHD	0.07	0.00
tblFleetMix	HHD	0.07	0.20
tblFleetMix	HHD	0.07	0.00

Coachella Airport Business Park - Riverside-Salton Sea County, Summer

tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.14
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD1	0.01	0.04
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	LHD2	4.5300e-003	0.02
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MCY	4.4460e-003	3.0000e-003
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.08

tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.07
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblGrading	MaterialImported	0.00	21,040.00
tblLandUse	LandUseSquareFeet	1,411.75	4,000.00
tblLandUse	LotAcreage	11.18	23.03
tblLandUse	LotAcreage	2.95	6.30
tblLandUse	LotAcreage	6.17	12.73
tblLandUse	LotAcreage	0.11	0.23

Coachella Airport Business Park - Riverside-Salton Sea County, Summer

tblLandUse	LotAcreage	0.03	0.06
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	6.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.02
tblProjectCharacteristics	CO2IntensityFactor	1270.9	809.89
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.008
tblSolidWaste	SolidWasteGenerationRate	120.88	125.28
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	147.00	148.00
tblTripsAndVMT	WorkerTripNumber	377.00	379.00
tblTripsAndVMT	WorkerTripNumber	75.00	76.00
tblVehicleTrips	ST_TR	204.47	231.52
tblVehicleTrips	ST_TR	722.03	470.95
tblVehicleTrips	ST_TR	2.49	3.37
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	166.88	231.52
tblVehicleTrips	SU_TR	542.72	470.95
tblVehicleTrips	SU_TR	0.73	3.37
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	542.60	231.52
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	6.83	3.37
tblVehicleTrips	WD_TR	1.68	1.51
tblWater	IndoorWaterUseRate	29,738,750.00	30,821,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.3117	75.9900	46.5541	0.1217	18.2470	2.8432	20.2932	9.9793	2.6166	11.8619	0.0000	12,045.1932	12,045.1932	3.0704	0.0000	12,121.9525
2022	5.5085	64.2068	43.3784	0.1214	9.9041	2.3541	12.2582	3.9174	2.1665	6.0839	0.0000	12,015.3489	12,015.3489	3.0657	0.0000	12,091.9921
2023	3.0929	24.4131	27.3141	0.0865	3.9134	0.7259	4.6394	1.0549	0.6828	1.7377	0.0000	8,675.5364	8,675.5364	0.8691	0.0000	8,697.2637
2024	35.7114	34.2458	45.0960	0.1177	4.6748	1.1731	5.8479	1.2569	1.0970	2.3539	0.0000	11,701.8402	11,701.8402	1.5985	0.0000	11,741.8033
Maximum	**35.7114**	**75.9900**	**46.5541**	**0.1217**	**18.2470**	**2.8432**	**20.2932**	**9.9793**	**2.6166**	**11.8619**	**0.0000**	**12,045.1932**	**12,045.1932**	**3.0704**	**0.0000**	**12,121.9525**

2.1 Overall Construction (Maximum Daily Emission)

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					
2021	6.3117	75.9900	46.5541	0.1217	8.3105	2.8432	10.3568	4.5174	2.6166	6.4000	0.0000	12,045.1932	12,045.1932	3.0704	0.0000	12,121.9525
2022	5.5085	64.2068	43.3784	0.1214	5.1142	2.3541	7.4683	1.9364	2.1665	4.1029	0.0000	12,015.3489	12,015.3489	3.0657	0.0000	12,091.9921
2023	3.0929	24.4131	27.3141	0.0865	3.9134	0.7259	4.6394	1.0549	0.6828	1.7377	0.0000	8,675.5364	8,675.5364	0.8691	0.0000	8,697.2637
2024	35.7114	34.2458	45.0960	0.1177	4.6748	1.1731	5.8479	1.2569	1.0970	2.3539	0.0000	11,701.8402	11,701.8402	1.5985	0.0000	11,741.8033
Maximum	**35.7114**	**75.9900**	**46.5541**	**0.1217**	**8.3105**	**2.8432**	**10.3568**	**4.5174**	**2.6166**	**6.4000**	**0.0000**	**12,045.1932**	**12,045.1932**	**3.0704**	**0.0000**	**12,121.9525**

	ROG	NOx	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**	**40.08**	**0.00**	**34.22**	**45.92**	**0.00**	**33.77**	**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	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Energy	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.4108	1,041.4108	0.0200	0.0191	1,047.5994
Mobile	7.4121	40.8724	47.5023	0.2551	15.8673	0.1399	16.0072	4.2648	0.1307	4.3955		26,305.7718	26,305.7718	1.1731		26,335.0989
Offroad	0.5213	4.9112	6.8025	9.1700e-003		0.2629	0.2629		0.2419	0.2419		888.1850	888.1850	0.2873		895.3664
Total	**25.5402**	**46.6526**	**55.1678**	**0.2695**	**15.8673**	**0.4693**	**16.3366**	**4.2648**	**0.4390**	**4.7038**		**28,235.6557**	**28,235.6557**	**1.4811**	**0.0191**	**28,278.3715**

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	lb/day										lb/day					
Area	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Energy	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.410 8	1,041.410 8	0.0200	0.0191	1,047.599 4
Mobile	7.1416	38.5101	39.6809	0.2043	11.8986	0.1132	12.0118	3.1981	0.1056	3.3037		21,089.08 70	21,089.08 70	1.0681		21,115.79 03
Offroad	0.5213	4.9112	6.8025	9.1700e-003		0.2629	0.2629		0.2419	0.2419		888.1850	888.1850	0.2873		895.3664
Total	**25.2697**	**44.2904**	**47.3464**	**0.2187**	**11.8986**	**0.4425**	**12.3411**	**3.1981**	**0.4139**	**3.6120**		**23,018.97 09**	**23,018.97 09**	**1.3761**	**0.0191**	**23,059.06 28**

	ROG	NOx	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	**1.06**	**5.06**	**14.18**	**18.84**	**25.01**	**5.71**	**24.46**	**25.01**	**5.72**	**23.21**	**0.00**	**18.48**	**18.48**	**7.09**	**0.00**	**18.46**

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	10/5/2021	11/15/2021	5	30	
2	Grading	Grading	11/16/2021	2/28/2022	5	75	
3	Building Construction	Building Construction	3/1/2022	12/30/2024	5	740	
4	Paving	Paving	1/1/2024	12/30/2024	5	261	
5	Architectural Coating	Architectural Coating	1/1/2024	12/30/2024	5	261	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 12.73

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 936,225; Non-Residential Outdoor: 312,075; Striped Parking Area: 16,464 (Architectural Coating – sqft)

OffRoad Equipment

Coachella Airport Business Park - Riverside-Salton Sea County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	2,630.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	379.00	148.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	76.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.656 9**	**3,685.656 9**	**1.1920**		**3,715.457 3**

3.2 Site Preparation - 2021

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	0.0128	0.5209	0.0918	1.3200e-003	0.0301	8.5000e-004	0.0310	8.6700e-003	8.1000e-004	9.4800e-003		138.8654	138.8654	0.0114		139.1495
Worker	0.0702	0.0376	0.5150	1.4500e-003	0.1506	9.2000e-004	0.1515	0.0400	8.4000e-004	0.0408		144.4138	144.4138	3.5100e-003		144.5015
Total	**0.0831**	**0.5585**	**0.6067**	**2.7700e-003**	**0.1807**	**1.7700e-003**	**0.1825**	**0.0486**	**1.6500e-003**	**0.0503**		**283.2792**	**283.2792**	**0.0149**		**283.6510**

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					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.1298**	**2.0445**	**10.1743**	**4.4688**	**1.8809**	**6.3497**	**0.0000**	**3,685.656 9**	**3,685.656 9**	**1.1920**		**3,715.457 3**

3.2 Site Preparation - 2021

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	0.0128	0.5209	0.0918	1.3200e-003	0.0301	8.5000e-004	0.0310	8.6700e-003	8.1000e-004	9.4800e-003		138.8654	138.8654	0.0114		139.1495
Worker	0.0702	0.0376	0.5150	1.4500e-003	0.1506	9.2000e-004	0.1515	0.0400	8.4000e-004	0.0408		144.4138	144.4138	3.5100e-003		144.5015
Total	**0.0831**	**0.5585**	**0.6067**	**2.7700e-003**	**0.1807**	**1.7700e-003**	**0.1825**	**0.0486**	**1.6500e-003**	**0.0503**		**283.2792**	**283.2792**	**0.0149**		**283.6510**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7089	0.0000	8.7089	3.6019	0.0000	3.6019			0.0000			0.0000
Off-Road	6.0501	67.8054	44.8878	0.0923		2.8181	2.8181		2.5927	2.5927		8,942.866 5	8,942.866 5	2.8923		9,015.174 1
Total	**6.0501**	**67.8054**	**44.8878**	**0.0923**	**8.7089**	**2.8181**	**11.5270**	**3.6019**	**2.5927**	**6.1945**		**8,942.866 5**	**8,942.866 5**	**2.8923**		**9,015.174 1**

3.3 Grading - 2021

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	0.1707	7.6220	1.0023	0.0264	1.1725	0.0232	1.1957	0.3054	0.0222	0.3276		2,803.001 5	2,803.001 5	0.1628		2,807.071 7
Vendor	0.0128	0.5209	0.0918	1.3200e-003	0.0301	8.5000e-004	0.0310	8.6700e-003	8.1000e-004	9.4800e-003		138.8654	138.8654	0.0114		139.1495
Worker	0.0780	0.0418	0.5722	1.6100e-003	0.1673	1.0200e-003	0.1684	0.0444	9.4000e-004	0.0453		160.4598	160.4598	3.8900e-003		160.5572
Total	**0.2616**	**8.1846**	**1.6662**	**0.0293**	**1.3699**	**0.0251**	**1.3950**	**0.3584**	**0.0240**	**0.3824**		**3,102.326 7**	**3,102.326 7**	**0.1781**		**3,106.778 5**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9190	0.0000	3.9190	1.6209	0.0000	1.6209			0.0000			0.0000
Off-Road	6.0501	67.8054	44.8878	0.0923		2.8181	2.8181		2.5927	2.5927	0.0000	8,942.866 5	8,942.866 5	2.8923		9,015.174 1
Total	**6.0501**	**67.8054**	**44.8878**	**0.0923**	**3.9190**	**2.8181**	**6.7371**	**1.6209**	**2.5927**	**4.2135**	**0.0000**	**8,942.866 5**	**8,942.866 5**	**2.8923**		**9,015.174 1**

3.3 Grading - 2021

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	0.1707	7.6220	1.0023	0.0264	1.1725	0.0232	1.1957	0.3054	0.0222	0.3276		2,803.0015	2,803.0015	0.1628		2,807.0717
Vendor	0.0128	0.5209	0.0918	1.3200e-003	0.0301	8.5000e-004	0.0310	8.6700e-003	8.1000e-004	9.4800e-003		138.8654	138.8654	0.0114		139.1495
Worker	0.0780	0.0418	0.5722	1.6100e-003	0.1673	1.0200e-003	0.1684	0.0444	9.4000e-004	0.0453		160.4598	160.4598	3.8900e-003		160.5572
Total	**0.2616**	**8.1846**	**1.6662**	**0.0293**	**1.3699**	**0.0251**	**1.3950**	**0.3584**	**0.0240**	**0.3824**		**3,102.3267**	**3,102.3267**	**0.1781**		**3,106.7785**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7089	0.0000	8.7089	3.6019	0.0000	3.6019			0.0000			0.0000
Off-Road	5.2633	56.7305	41.7931	0.0925		2.3331	2.3331		2.1465	2.1465		8,951.9984	8,951.9984	2.8953		9,024.3798
Total	**5.2633**	**56.7305**	**41.7931**	**0.0925**	**8.7089**	**2.3331**	**11.0420**	**3.6019**	**2.1465**	**5.7484**		**8,951.9984**	**8,951.9984**	**2.8953**		**9,024.3798**

3.3 Grading - 2022

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	0.1603	6.9448	0.9726	0.0261	0.9978	0.0192	1.0170	0.2625	0.0184	0.2809		2,771.071 5	2,771.071 5	0.1562		2,774.976 9
Vendor	0.0120	0.4939	0.0853	1.3000e-003	0.0301	7.1000e-004	0.0308	8.6700e-003	6.8000e-004	9.3500e-003		137.6792	137.6792	0.0108		137.9480
Worker	0.0729	0.0376	0.5274	1.5500e-003	0.1673	9.9000e-004	0.1683	0.0444	9.1000e-004	0.0453		154.5999	154.5999	3.5000e-003		154.6873
Total	**0.2452**	**7.4763**	**1.5853**	**0.0289**	**1.1952**	**0.0209**	**1.2162**	**0.3156**	**0.0200**	**0.3355**		**3,063.350 6**	**3,063.350 6**	**0.1705**		**3,067.612 3**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9190	0.0000	3.9190	1.6209	0.0000	1.6209			0.0000			0.0000
Off-Road	5.2633	56.7305	41.7931	0.0925		2.3331	2.3331		2.1465	2.1465	0.0000	8,951.998 4	8,951.998 4	2.8953		9,024.379 8
Total	**5.2633**	**56.7305**	**41.7931**	**0.0925**	**3.9190**	**2.3331**	**6.2521**	**1.6209**	**2.1465**	**3.7673**	**0.0000**	**8,951.998 4**	**8,951.998 4**	**2.8953**		**9,024.379 8**

3.3 Grading - 2022

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	0.1603	6.9448	0.9726	0.0261	0.9978	0.0192	1.0170	0.2625	0.0184	0.2809		2,771.071 5	2,771.071 5	0.1562		2,774.976 9
Vendor	0.0120	0.4939	0.0853	1.3000e-003	0.0301	7.1000e-004	0.0308	8.6700e-003	6.8000e-004	9.3500e-003		137.6792	137.6792	0.0108		137.9480
Worker	0.0729	0.0376	0.5274	1.5500e-003	0.1673	9.9000e-004	0.1683	0.0444	9.1000e-004	0.0453		154.5999	154.5999	3.5000e-003		154.6873
Total	**0.2452**	**7.4763**	**1.5853**	**0.0289**	**1.1952**	**0.0209**	**1.2162**	**0.3156**	**0.0200**	**0.3355**		**3,063.350 6**	**3,063.350 6**	**0.1705**		**3,067.612 3**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

3.4 Building Construction - 2022

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	0.2951	12.1839	2.1032	0.0322	0.7425	0.0176	0.7601	0.2139	0.0168	0.2307		3,396.087 5	3,396.087 5	0.2652		3,402.717 8
Worker	1.3813	0.7125	9.9944	0.0294	3.1710	0.0188	3.1898	0.8411	0.0173	0.8584		2,929.667 7	2,929.667 7	0.0663		2,931.324 3
Total	**1.6764**	**12.8965**	**12.0976**	**0.0616**	**3.9135**	**0.0364**	**3.9498**	**1.0549**	**0.0341**	**1.0891**		**6,325.755 2**	**6,325.755 2**	**0.3315**		**6,334.042 1**

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

3.4 Building Construction - 2022

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	0.2951	12.1839	2.1032	0.0322	0.7425	0.0176	0.7601	0.2139	0.0168	0.2307		3,396.087 5	3,396.087 5	0.2652		3,402.717 8
Worker	1.3813	0.7125	9.9944	0.0294	3.1710	0.0188	3.1898	0.8411	0.0173	0.8584		2,929.667 7	2,929.667 7	0.0663		2,931.324 3
Total	**1.6764**	**12.8965**	**12.0976**	**0.0616**	**3.9135**	**0.0364**	**3.9498**	**1.0549**	**0.0341**	**1.0891**		**6,325.755 2**	**6,325.755 2**	**0.3315**		**6,334.042 1**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.209 9**	**2,555.209 9**	**0.6079**		**2,570.406 1**

3.4 Building Construction - 2023

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	0.2267	9.3860	1.8521	0.0313	0.7425	7.8700e-003	0.7503	0.2139	7.5200e-003	0.2214		3,301.9413	3,301.9413	0.2018		3,306.9860
Worker	1.2934	0.6422	9.2180	0.0283	3.1710	0.0183	3.1893	0.8411	0.0169	0.8580		2,818.3852	2,818.3852	0.0595		2,819.8716
Total	**1.5201**	**10.0282**	**11.0701**	**0.0596**	**3.9134**	**0.0262**	**3.9396**	**1.0549**	**0.0244**	**1.0793**		**6,120.3265**	**6,120.3265**	**0.2613**		**6,126.8577**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

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	0.2267	9.3860	1.8521	0.0313	0.7425	7.8700e-003	0.7503	0.2139	7.5200e-003	0.2214		3,301.9413	3,301.9413	0.2018		3,306.9860
Worker	1.2934	0.6422	9.2180	0.0283	3.1710	0.0183	3.1893	0.8411	0.0169	0.8580		2,818.3852	2,818.3852	0.0595		2,819.8716
Total	**1.5201**	**10.0282**	**11.0701**	**0.0596**	**3.9134**	**0.0262**	**3.9396**	**1.0549**	**0.0244**	**1.0793**		**6,120.3265**	**6,120.3265**	**0.2613**		**6,126.8577**

3.4 Building Construction - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.4 Building Construction - 2024

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	0.2217	9.3368	1.7839	0.0311	0.7424	7.8100e-003	0.7503	0.2138	7.4700e-003	0.2213		3,286.8210	3,286.8210	0.1972		3,291.7501
Worker	1.2171	0.5821	8.6359	0.0273	3.1710	0.0181	3.1891	0.8411	0.0167	0.8578		2,717.7728	2,717.7728	0.0542		2,719.1274
Total	**1.4388**	**9.9189**	**10.4198**	**0.0584**	**3.9134**	**0.0260**	**3.9394**	**1.0549**	**0.0242**	**1.0791**		**6,004.5937**	**6,004.5937**	**0.2514**		**6,010.8775**

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.4 Building Construction - 2024

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	0.2217	9.3368	1.7839	0.0311	0.7424	7.8100e-003	0.7503	0.2138	7.4700e-003	0.2213		3,286.8210	3,286.8210	0.1972		3,291.7501
Worker	1.2171	0.5821	8.6359	0.0273	3.1710	0.0181	3.1891	0.8411	0.0167	0.8578		2,717.7728	2,717.7728	0.0542		2,719.1274
Total	**1.4388**	**9.9189**	**10.4198**	**0.0584**	**3.9134**	**0.0260**	**3.9394**	**1.0549**	**0.0242**	**1.0791**		**6,004.5937**	**6,004.5937**	**0.2514**		**6,010.8775**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.1278					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1160**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.5 Paving - 2024

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	0.0482	0.0230	0.3418	1.0800e-003	0.1255	7.2000e-004	0.1262	0.0333	6.6000e-004	0.0340		107.5636	107.5636	2.1400e-003		107.6172
Total	**0.0482**	**0.0230**	**0.3418**	**1.0800e-003**	**0.1255**	**7.2000e-004**	**0.1262**	**0.0333**	**6.6000e-004**	**0.0340**		**107.5636**	**107.5636**	**2.1400e-003**		**107.6172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.1278					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1160**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.5 Paving - 2024

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	0.0482	0.0230	0.3418	1.0800e-003	0.1255	7.2000e-004	0.1262	0.0333	6.6000e-004	0.0340		107.5636	107.5636	2.1400e-003		107.6172
Total	**0.0482**	**0.0230**	**0.3418**	**1.0800e-003**	**0.1255**	**7.2000e-004**	**0.1262**	**0.0333**	**6.6000e-004**	**0.0340**		**107.5636**	**107.5636**	**2.1400e-003**		**107.6172**

3.6 Architectural Coating - 2024

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	31.2121					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**31.3928**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	0.2441	0.1167	1.7317	5.4700e-003	0.6359	3.6400e-003	0.6395	0.1687	3.3500e-003	0.1720		544.9887	544.9887	0.0109		545.2604
Total	**0.2441**	**0.1167**	**1.7317**	**5.4700e-003**	**0.6359**	**3.6400e-003**	**0.6395**	**0.1687**	**3.3500e-003**	**0.1720**		**544.9887**	**544.9887**	**0.0109**		**545.2604**

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	31.2121					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**31.3928**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	0.2441	0.1167	1.7317	5.4700e-003	0.6359	3.6400e-003	0.6395	0.1687	3.3500e-003	0.1720		544.9887	544.9887	0.0109		545.2604
Total	**0.2441**	**0.1167**	**1.7317**	**5.4700e-003**	**0.6359**	**3.6400e-003**	**0.6395**	**0.1687**	**3.3500e-003**	**0.1720**		**544.9887**	**544.9887**	**0.0109**		**545.2604**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

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	7.1416	38.5101	39.6809	0.2043	11.8986	0.1132	12.0118	3.1981	0.1056	3.3037		21,089.0870	21,089.0870	1.0681		21,115.7903
Unmitigated	7.4121	40.8724	47.5023	0.2551	15.8673	0.1399	16.0072	4.2648	0.1307	4.3955		26,305.7718	26,305.7718	1.1731		26,335.0989

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,315.20	2,315.20	2315.20	783,886	587,825
Fast Food Restaurant with Drive Thru	2,189.92	2,189.92	2189.92	1,298,629	973,823
Industrial Park	1,640.85	1,640.85	1640.85	4,629,675	3,471,726
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	194.19	194.19	194.19	632,248	474,113
Total	6,340.16	6,340.16	6,340.16	7,344,438	5,507,487

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
Convenience Market With Gas	12.50	4.20	5.40	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	12.50	4.20	5.40	2.20	78.80	19.00	29	21	50
Industrial Park	12.50	4.20	5.40	59.00	28.00	13.00	79	19	2
Parking Lot	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	12.50	4.20	5.40	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Industrial Park	0.423000	0.027000	0.143000	0.082000	0.039000	0.015000	0.067000	0.201000	0.000000	0.000000	0.003000	0.000000	0.000000
Parking Lot	0.554334	0.035376	0.188722	0.108173	0.012711	0.004530	0.017449	0.070039	0.001415	0.001123	0.004446	0.000892	0.000789
Unrefrigerated Warehouse-No Rail	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	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	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.410 8	1,041.410 8	0.0200	0.0191	1,047.599 4
NaturalGas Unmitigated	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.410 8	1,041.410 8	0.0200	0.0191	1,047.599 4

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					
Convenience Market With Gas Pumps	24.3288	2.6000e-004	2.3900e-003	2.0000e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8622	2.8622	5.0000e-005	5.0000e-005	2.8792
Fast Food Restaurant with Drive Thru	3483.55	0.0376	0.3415	0.2869	2.0500e-003		0.0260	0.0260		0.0260	0.0260		409.8295	409.8295	7.8600e-003	7.5100e-003	412.2649
Industrial Park	4628.88	0.0499	0.4538	0.3812	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.5747	544.5747	0.0104	9.9800e-003	547.8108
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
Unrefrigerated Warehouse-No Rail	715.227	7.7100e-003	0.0701	0.0589	4.2000e-004		5.3300e-003	5.3300e-003		5.3300e-003	5.3300e-003		84.1444	84.1444	1.6100e-003	1.5400e-003	84.6444
Total		**0.0955**	**0.8678**	**0.7290**	**5.2000e-003**		**0.0660**	**0.0660**		**0.0660**	**0.0660**		**1,041.4108**	**1,041.4108**	**0.0200**	**0.0191**	**1,047.5994**

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					
Convenience Market With Gas Pumps	0.0243288	2.6000e-004	2.3900e-003	2.0000e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8622	2.8622	5.0000e-005	5.0000e-005	2.8792
Fast Food Restaurant with Drive Thru	3.48355	0.0376	0.3415	0.2869	2.0500e-003		0.0260	0.0260		0.0260	0.0260		409.8295	409.8295	7.8600e-003	7.5100e-003	412.2649
Industrial Park	4.62888	0.0499	0.4538	0.3812	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.5747	544.5747	0.0104	9.9800e-003	547.8108
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
Unrefrigerated Warehouse-No Rail	0.715227	7.7100e-003	0.0701	0.0589	4.2000e-004		5.3300e-003	5.3300e-003		5.3300e-003	5.3300e-003		84.1444	84.1444	1.6100e-003	1.5400e-003	84.6444
Total		**0.0955**	**0.8678**	**0.7290**	**5.2000e-003**		**0.0660**	**0.0660**		**0.0660**	**0.0660**		**1,041.4108**	**1,041.4108**	**0.0200**	**0.0191**	**1,047.5994**

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	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Unmitigated	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068

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	4.0450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Total	**17.5113**	**1.2100e-003**	**0.1340**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**		**0.2880**	**0.2880**	**7.5000e-004**		**0.3068**

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	4.0450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Total	**17.5113**	**1.2100e-003**	**0.1340**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**		**0.2880**	**0.2880**	**7.5000e-004**		**0.3068**

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

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
Forklifts	6	8.00	260	89	0.20	CNG

UnMitigated/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
Equipment Type	lb/day										lb/day					
Forklifts	0.5213	4.9112	6.8025	9.1700e-003		0.2629	0.2629		0.2419	0.2419		888.1850	888.1850	0.2873		895.3664
Total	**0.5213**	**4.9112**	**6.8025**	**9.1700e-003**		**0.2629**	**0.2629**		**0.2419**	**0.2419**		**888.1850**	**888.1850**	**0.2873**		**895.3664**

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

Coachella Airport Business Park

Riverside-Salton Sea County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	486.90	1000sqft	23.03	486,900.00	0
Unrefrigerated Warehouse-No Rail	128.60	1000sqft	6.30	128,600.00	0
Parking Lot	686.00	Space	12.73	274,400.00	0
Fast Food Restaurant with Drive Thru	4.65	1000sqft	0.23	4,650.00	0
Convenience Market With Gas Pumps	10.00	Pump	0.06	4,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	15			**Operational Year**	2025
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	809.89	**CH4 Intensity (lb/MWhr)**	0.02	**N2O Intensity (lb/MWhr)**	0.008

1.3 User Entered Comments & Non-Default Data

Project Characteristics - IID Intensity Factors obtained from CPA and SB 100

Land Use - Total Project Site: 42.36 acres

Construction Phase - Construction schedule provided by applicant

Trips and VMT - 6 vendor trips per day added to Site Prep and Grading phases to account for water truck emissions

Grading - 21,040 cu yds imported

Architectural Coating - Non Residential interior Architectural Coating VOC set to 100 grams/liter per SCAQMD Rule 1113 minimum requirements

Vehicle Trips - Daily Trip Rates from TIA.

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for SCAQMD Rule 403 minimum requirements

Mobile Land Use Mitigation - Improve Ped Network on Project Site. Distance to Transit Station 0.01 mile (Sunline Bus Stop adjacent to project site)

Energy Mitigation - 30% lighting energy reduction selected to account for the 2019 Title 24 standards,

Water Mitigation - Low flow fixtures and water-efficient irrigation were selected to account for 2019 Title 24 part 11 requirements

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Operational Off-Road Equipment - 6 CNG Forklifts 8 hours per day

Fleet Mix - Fleet Mix - Trucks analyzed under Industrial Park land use. Trucks removed from all other land uses

Off-road Equipment - 2 Scrapers added to Grading (4 total)

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblAreaCoating	Area_Nonresidential_Exterior	312075	314413
tblAreaCoating	Area_Nonresidential_Interior	936225	943238
tblAreaCoating	Area_Parking	16464	16488
tblConstructionPhase	NumDays	55.00	261.00
tblConstructionPhase	NumDays	55.00	261.00
tblFleetMix	HHD	0.07	0.00
tblFleetMix	HHD	0.07	0.00
tblFleetMix	HHD	0.07	0.20
tblFleetMix	HHD	0.07	0.00

tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.14
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD1	0.01	0.04
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	LHD2	4.5300e-003	0.02
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MCY	4.4460e-003	3.0000e-003
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.08

Coachella Airport Business Park - Riverside-Salton Sea County, Winter

tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.07
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblGrading	MaterialImported	0.00	21,040.00
tblLandUse	LandUseSquareFeet	1,411.75	4,000.00
tblLandUse	LotAcreage	11.18	23.03
tblLandUse	LotAcreage	2.95	6.30
tblLandUse	LotAcreage	6.17	12.73
tblLandUse	LotAcreage	0.11	0.23

tblLandUse	LotAcreage	0.03	0.06
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	6.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.02
tblProjectCharacteristics	CO2IntensityFactor	1270.9	809.89
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.008
tblSolidWaste	SolidWasteGenerationRate	120.88	125.28
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	147.00	148.00
tblTripsAndVMT	WorkerTripNumber	377.00	379.00
tblTripsAndVMT	WorkerTripNumber	75.00	76.00
tblVehicleTrips	ST_TR	204.47	231.52
tblVehicleTrips	ST_TR	722.03	470.95
tblVehicleTrips	ST_TR	2.49	3.37
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	166.88	231.52
tblVehicleTrips	SU_TR	542.72	470.95
tblVehicleTrips	SU_TR	0.73	3.37
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	542.60	231.52
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	6.83	3.37
tblVehicleTrips	WD_TR	1.68	1.51
tblWater	IndoorWaterUseRate	29,738,750.00	30,821,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.3181	76.0365	46.6350	0.1208	18.2470	2.8435	20.2932	9.9793	2.6170	11.8619	0.0000	11,952.16 84	11,952.16 84	3.0865	0.0000	12,029.33 19
2022	5.5149	64.2311	43.4581	0.1205	9.9041	2.3544	12.2585	3.9174	2.1668	6.0842	0.0000	11,923.16 44	11,923.16 44	3.0812	0.0000	12,000.19 48
2023	3.0595	24.2844	25.9230	0.0822	3.9134	0.7263	4.6397	1.0549	0.6831	1.7381	0.0000	8,241.876 9	8,241.876 9	0.8847	0.0000	8,263.993 8
2024	35.6741	34.1212	43.4012	0.1128	4.6748	1.1733	5.8481	1.2569	1.0973	2.3542	0.0000	11,213.17 71	11,213.17 71	1.6126	0.0000	11,253.49 31
Maximum	**35.6741**	**76.0365**	**46.6350**	**0.1208**	**18.2470**	**2.8435**	**20.2932**	**9.9793**	**2.6170**	**11.8619**	**0.0000**	**11,952.16 84**	**11,952.16 84**	**3.0865**	**0.0000**	**12,029.33 19**

Coachella Airport Business Park - Riverside-Salton Sea County, Winter

2.1 Overall Construction (Maximum Daily Emission)

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					
2021	6.3181	76.0365	46.6350	0.1208	8.3105	2.8435	10.3568	4.5174	2.6170	6.4000	0.0000	11,952.16 84	11,952.16 84	3.0865	0.0000	12,029.33 19
2022	5.5149	64.2311	43.4581	0.1205	5.1142	2.3544	7.4686	1.9364	2.1668	4.1032	0.0000	11,923.16 44	11,923.16 44	3.0812	0.0000	12,000.19 48
2023	3.0595	24.2844	25.9230	0.0822	3.9134	0.7263	4.6397	1.0549	0.6831	1.7381	0.0000	8,241.876 9	8,241.876 9	0.8847	0.0000	8,263.993 8
2024	35.6741	34.1212	43.4012	0.1128	4.6748	1.1733	5.8481	1.2569	1.0973	2.3542	0.0000	11,213.17 71	11,213.17 71	1.6126	0.0000	11,253.49 31
Maximum	**35.6741**	**76.0365**	**46.6350**	**0.1208**	**8.3105**	**2.8435**	**10.3568**	**4.5174**	**2.6170**	**6.4000**	**0.0000**	**11,952.16 84**	**11,952.16 84**	**3.0865**	**0.0000**	**12,029.33 19**

	ROG	NOx	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**	**40.08**	**0.00**	**34.22**	**45.92**	**0.00**	**33.77**	**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	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Energy	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.4108	1,041.4108	0.0200	0.0191	1,047.5994
Mobile	5.9919	40.4427	44.6121	0.2387	15.8673	0.1411	16.0084	4.2648	0.1319	4.3966		24,632.1490	24,632.1490	1.2552		24,663.5284
Offroad	0.5213	4.9112	6.8025	9.1700e-003		0.2629	0.2629		0.2419	0.2419		888.1850	888.1850	0.2873		895.3664
Total	**24.1200**	**46.2230**	**52.2776**	**0.2531**	**15.8673**	**0.4705**	**16.3377**	**4.2648**	**0.4402**	**4.7049**		**26,562.0328**	**26,562.0328**	**1.5631**	**0.0191**	**26,606.8009**

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	lb/day										lb/day					
Area	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Energy	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.4108	1,041.4108	0.0200	0.0191	1,047.5994
Mobile	5.7357	37.9620	38.2989	0.1906	11.8986	0.1144	12.0130	3.1981	0.1067	3.3048		19,678.9234	19,678.9234	1.1561		19,707.8257
Offroad	0.5213	4.9112	6.8025	9.1700e-003		0.2629	0.2629		0.2419	0.2419		888.1850	888.1850	0.2873		895.3664
Total	**23.8638**	**43.7423**	**45.9644**	**0.2050**	**11.8986**	**0.4437**	**12.3423**	**3.1981**	**0.4151**	**3.6132**		**21,608.8072**	**21,608.8072**	**1.4641**	**0.0191**	**21,651.0982**

	ROG	NOx	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	**1.06**	**5.37**	**12.08**	**19.02**	**25.01**	**5.69**	**24.46**	**25.01**	**5.70**	**23.21**	**0.00**	**18.65**	**18.65**	**6.34**	**0.00**	**18.63**

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	10/5/2021	11/15/2021	5	30	
2	Grading	Grading	11/16/2021	2/28/2022	5	75	
3	Building Construction	Building Construction	3/1/2022	12/30/2024	5	740	
4	Paving	Paving	1/1/2024	12/30/2024	5	261	
5	Architectural Coating	Architectural Coating	1/1/2024	12/30/2024	5	261	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 12.73

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 936,225; Non-Residential Outdoor: 312,075; Striped Parking Area: 16,464 (Architectural Coating – sqft)

OffRoad Equipment

Coachella Airport Business Park - Riverside-Salton Sea County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	2,630.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	379.00	148.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	76.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.656 9	3,685.656 9	1.1920		3,715.457 3
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.656 9**	**3,685.656 9**	**1.1920**		**3,715.457 3**

3.2 Site Preparation - 2021

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	0.0137	0.5143	0.1100	1.2600e-003	0.0301	8.8000e-004	0.0310	8.6700e-003	8.4000e-004	9.5100e-003		132.6987	132.6987	0.0127		133.0164
Worker	0.0672	0.0389	0.4212	1.3000e-003	0.1506	9.2000e-004	0.1515	0.0400	8.4000e-004	0.0408		129.6236	129.6236	3.0700e-003		129.7004
Total	**0.0809**	**0.5532**	**0.5312**	**2.5600e-003**	**0.1807**	**1.8000e-003**	**0.1825**	**0.0486**	**1.6800e-003**	**0.0503**		**262.3223**	**262.3223**	**0.0158**		**262.7168**

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					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.1298**	**2.0445**	**10.1743**	**4.4688**	**1.8809**	**6.3497**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0137	0.5143	0.1100	1.2600e-003	0.0301	8.8000e-004	0.0310	8.6700e-003	8.4000e-004	9.5100e-003		132.6987	132.6987	0.0127		133.0164
Worker	0.0672	0.0389	0.4212	1.3000e-003	0.1506	9.2000e-004	0.1515	0.0400	8.4000e-004	0.0408		129.6236	129.6236	3.0700e-003		129.7004
Total	**0.0809**	**0.5532**	**0.5312**	**2.5600e-003**	**0.1807**	**1.8000e-003**	**0.1825**	**0.0486**	**1.6800e-003**	**0.0503**		**262.3223**	**262.3223**	**0.0158**		**262.7168**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7089	0.0000	8.7089	3.6019	0.0000	3.6019			0.0000			0.0000
Off-Road	6.0501	67.8054	44.8878	0.0923		2.8181	2.8181		2.5927	2.5927		8,942.8665	8,942.8665	2.8923		9,015.1741
Total	**6.0501**	**67.8054**	**44.8878**	**0.0923**	**8.7089**	**2.8181**	**11.5270**	**3.6019**	**2.5927**	**6.1945**		**8,942.8665**	**8,942.8665**	**2.8923**		**9,015.1741**

3.3 Grading - 2021

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	0.1796	7.6736	1.1692	0.0257	1.1725	0.0236	1.1960	0.3054	0.0225	0.3279		2,732.577 1	2,732.577 1	0.1781		2,737.029 9
Vendor	0.0137	0.5143	0.1100	1.2600e-003	0.0301	8.8000e-004	0.0310	8.6700e-003	8.4000e-004	9.5100e-003		132.6987	132.6987	0.0127		133.0164
Worker	0.0747	0.0432	0.4680	1.4500e-003	0.1673	1.0200e-003	0.1684	0.0444	9.4000e-004	0.0453		144.0262	144.0262	3.4100e-003		144.1115
Total	**0.2680**	**8.2311**	**1.7472**	**0.0285**	**1.3699**	**0.0255**	**1.3954**	**0.3584**	**0.0243**	**0.3827**		**3,009.302 0**	**3,009.302 0**	**0.1942**		**3,014.157 8**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9190	0.0000	3.9190	1.6209	0.0000	1.6209			0.0000			0.0000
Off-Road	6.0501	67.8054	44.8878	0.0923		2.8181	2.8181		2.5927	2.5927	0.0000	8,942.866 5	8,942.866 5	2.8923		9,015.174 1
Total	**6.0501**	**67.8054**	**44.8878**	**0.0923**	**3.9190**	**2.8181**	**6.7371**	**1.6209**	**2.5927**	**4.2135**	**0.0000**	**8,942.866 5**	**8,942.866 5**	**2.8923**		**9,015.174 1**

3.3 Grading - 2021

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	0.1796	7.6736	1.1692	0.0257	1.1725	0.0236	1.1960	0.3054	0.0225	0.3279		2,732.5771	2,732.5771	0.1781		2,737.0299
Vendor	0.0137	0.5143	0.1100	1.2600e-003	0.0301	8.8000e-004	0.0310	8.6700e-003	8.4000e-004	9.5100e-003		132.6987	132.6987	0.0127		133.0164
Worker	0.0747	0.0432	0.4680	1.4500e-003	0.1673	1.0200e-003	0.1684	0.0444	9.4000e-004	0.0453		144.0262	144.0262	3.4100e-003		144.1115
Total	**0.2680**	**8.2311**	**1.7472**	**0.0285**	**1.3699**	**0.0255**	**1.3954**	**0.3584**	**0.0243**	**0.3827**		**3,009.3020**	**3,009.3020**	**0.1942**		**3,014.1578**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7089	0.0000	8.7089	3.6019	0.0000	3.6019			0.0000			0.0000
Off-Road	5.2633	56.7305	41.7931	0.0925		2.3331	2.3331		2.1465	2.1465		8,951.9984	8,951.9984	2.8953		9,024.3798
Total	**5.2633**	**56.7305**	**41.7931**	**0.0925**	**8.7089**	**2.3331**	**11.0420**	**3.6019**	**2.1465**	**5.7484**		**8,951.9984**	**8,951.9984**	**2.8953**		**9,024.3798**

3.3 Grading - 2022

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	0.1689	6.9746	1.1317	0.0254	0.9978	0.0195	1.0174	0.2625	0.0187	0.2812		2,700.861 8	2,700.861 8	0.1709		2,705.133 2
Vendor	0.0128	0.4871	0.1026	1.2500e-003	0.0301	7.4000e-004	0.0308	8.6700e-003	7.1000e-004	9.3800e-003		131.5304	131.5304	0.0120		131.8313
Worker	0.0700	0.0389	0.4307	1.3900e-003	0.1673	9.9000e-004	0.1683	0.0444	9.1000e-004	0.0453		138.7738	138.7738	3.0700e-003		138.8505
Total	**0.2516**	**7.5006**	**1.6649**	**0.0281**	**1.1952**	**0.0213**	**1.2165**	**0.3156**	**0.0203**	**0.3359**		**2,971.166 0**	**2,971.166 0**	**0.1860**		**2,975.815 0**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9190	0.0000	3.9190	1.6209	0.0000	1.6209			0.0000			0.0000
Off-Road	5.2633	56.7305	41.7931	0.0925		2.3331	2.3331		2.1465	2.1465	0.0000	8,951.998 4	8,951.998 4	2.8953		9,024.379 8
Total	**5.2633**	**56.7305**	**41.7931**	**0.0925**	**3.9190**	**2.3331**	**6.2521**	**1.6209**	**2.1465**	**3.7673**	**0.0000**	**8,951.998 4**	**8,951.998 4**	**2.8953**		**9,024.379 8**

3.3 Grading - 2022

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	0.1689	6.9746	1.1317	0.0254	0.9978	0.0195	1.0174	0.2625	0.0187	0.2812		2,700.861 8	2,700.861 8	0.1709		2,705.133 2
Vendor	0.0128	0.4871	0.1026	1.2500e-003	0.0301	7.4000e-004	0.0308	8.6700e-003	7.1000e-004	9.3800e-003		131.5304	131.5304	0.0120		131.8313
Worker	0.0700	0.0389	0.4307	1.3900e-003	0.1673	9.9000e-004	0.1683	0.0444	9.1000e-004	0.0453		138.7738	138.7738	3.0700e-003		138.8505
Total	**0.2516**	**7.5006**	**1.6649**	**0.0281**	**1.1952**	**0.0213**	**1.2165**	**0.3156**	**0.0203**	**0.3359**		**2,971.166 0**	**2,971.166 0**	**0.1860**		**2,975.815 0**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

3.4 Building Construction - 2022

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	0.3154	12.0155	2.5304	0.0308	0.7425	0.0183	0.7608	0.2139	0.0175	0.2314		3,244.416 5	3,244.416 5	0.2969		3,251.837 7
Worker	1.3263	0.7367	8.1613	0.0264	3.1710	0.0188	3.1898	0.8411	0.0173	0.8584		2,629.763 6	2,629.763 6	0.0581		2,631.216 7
Total	**1.6416**	**12.7521**	**10.6916**	**0.0571**	**3.9135**	**0.0371**	**3.9505**	**1.0549**	**0.0348**	**1.0897**		**5,874.180 1**	**5,874.180 1**	**0.3550**		**5,883.054 3**

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

3.4 Building Construction - 2022

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	0.3154	12.0155	2.5304	0.0308	0.7425	0.0183	0.7608	0.2139	0.0175	0.2314		3,244.416 5	3,244.416 5	0.2969		3,251.837 7
Worker	1.3263	0.7367	8.1613	0.0264	3.1710	0.0188	3.1898	0.8411	0.0173	0.8584		2,629.763 6	2,629.763 6	0.0581		2,631.216 7
Total	**1.6416**	**12.7521**	**10.6916**	**0.0571**	**3.9135**	**0.0371**	**3.9505**	**1.0549**	**0.0348**	**1.0897**		**5,874.180 1**	**5,874.180 1**	**0.3550**		**5,883.054 3**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.209 9**	**2,555.209 9**	**0.6079**		**2,570.406 1**

3.4 Building Construction - 2023

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	0.2412	9.2358	2.1639	0.0299	0.7425	8.1900e-003	0.7507	0.2139	7.8300e-003	0.2217		3,156.651 0	3,156.651 0	0.2246		3,162.266 4
Worker	1.2456	0.6637	7.5151	0.0254	3.1710	0.0183	3.1893	0.8411	0.0169	0.8580		2,530.016 0	2,530.016 0	0.0522		2,531.321 4
Total	**1.4867**	**9.8995**	**9.6790**	**0.0553**	**3.9134**	**0.0265**	**3.9400**	**1.0549**	**0.0247**	**1.0796**		**5,686.667 0**	**5,686.667 0**	**0.2768**		**5,693.587 8**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.209 9**	**2,555.209 9**	**0.6079**		**2,570.406 1**

3.4 Building Construction - 2023

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	0.2412	9.2358	2.1639	0.0299	0.7425	8.1900e-003	0.7507	0.2139	7.8300e-003	0.2217		3,156.6510	3,156.6510	0.2246		3,162.2664
Worker	1.2456	0.6637	7.5151	0.0254	3.1710	0.0183	3.1893	0.8411	0.0169	0.8580		2,530.0160	2,530.0160	0.0522		2,531.3214
Total	**1.4867**	**9.8995**	**9.6790**	**0.0553**	**3.9134**	**0.0265**	**3.9400**	**1.0549**	**0.0247**	**1.0796**		**5,686.6670**	**5,686.6670**	**0.2768**		**5,693.5878**

3.4 Building Construction - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.4 Building Construction - 2024

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	0.2360	9.1885	2.0892	0.0298	0.7424	8.1100e-003	0.7505	0.2138	7.7500e-003	0.2216		3,143.460 3	3,143.460 3	0.2195		3,148.946 5
Worker	1.1755	0.6012	7.0230	0.0245	3.1710	0.0181	3.1891	0.8411	0.0167	0.8578		2,439.326 9	2,439.326 9	0.0476		2,440.516 7
Total	**1.4115**	**9.7897**	**9.1123**	**0.0542**	**3.9134**	**0.0263**	**3.9397**	**1.0549**	**0.0244**	**1.0794**		**5,582.787 1**	**5,582.787 1**	**0.2671**		**5,589.463 3**

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.698 9	2,555.698 9	0.6044		2,570.807 7
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.698 9**	**2,555.698 9**	**0.6044**		**2,570.807 7**

3.4 Building Construction - 2024

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	0.2360	9.1885	2.0892	0.0298	0.7424	8.1100e-003	0.7505	0.2138	7.7500e-003	0.2216		3,143.4603	3,143.4603	0.2195		3,148.9465
Worker	1.1755	0.6012	7.0230	0.0245	3.1710	0.0181	3.1891	0.8411	0.0167	0.8578		2,439.3269	2,439.3269	0.0476		2,440.5167
Total	**1.4115**	**9.7897**	**9.1123**	**0.0542**	**3.9134**	**0.0263**	**3.9397**	**1.0549**	**0.0244**	**1.0794**		**5,582.7871**	**5,582.7871**	**0.2671**		**5,589.4633**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.1278					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1160**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.5 Paving - 2024

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	0.0465	0.0238	0.2780	9.7000e-004	0.1255	7.2000e-004	0.1262	0.0333	6.6000e-004	0.0340		96.5433	96.5433	1.8800e-003		96.5904
Total	**0.0465**	**0.0238**	**0.2780**	**9.7000e-004**	**0.1255**	**7.2000e-004**	**0.1262**	**0.0333**	**6.6000e-004**	**0.0340**		**96.5433**	**96.5433**	**1.8800e-003**		**96.5904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.1278					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1160**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.547 2**	**2,207.547 2**	**0.7140**		**2,225.396 3**

3.5 Paving - 2024

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	0.0465	0.0238	0.2780	9.7000e-004	0.1255	7.2000e-004	0.1262	0.0333	6.6000e-004	0.0340		96.5433	96.5433	1.8800e-003		96.5904
Total	**0.0465**	**0.0238**	**0.2780**	**9.7000e-004**	**0.1255**	**7.2000e-004**	**0.1262**	**0.0333**	**6.6000e-004**	**0.0340**		**96.5433**	**96.5433**	**1.8800e-003**		**96.5904**

3.6 Architectural Coating - 2024

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	31.2121					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**31.3928**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	0.2357	0.1206	1.4083	4.9000e-003	0.6359	3.6400e-003	0.6395	0.1687	3.3500e-003	0.1720		489.1526	489.1526	9.5400e-003		489.3912
Total	**0.2357**	**0.1206**	**1.4083**	**4.9000e-003**	**0.6359**	**3.6400e-003**	**0.6395**	**0.1687**	**3.3500e-003**	**0.1720**		**489.1526**	**489.1526**	**9.5400e-003**		**489.3912**

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	31.2121					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**31.3928**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	0.2357	0.1206	1.4083	4.9000e-003	0.6359	3.6400e-003	0.6395	0.1687	3.3500e-003	0.1720		489.1526	489.1526	9.5400e-003		489.3912
Total	**0.2357**	**0.1206**	**1.4083**	**4.9000e-003**	**0.6359**	**3.6400e-003**	**0.6395**	**0.1687**	**3.3500e-003**	**0.1720**		**489.1526**	**489.1526**	**9.5400e-003**		**489.3912**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

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	5.7357	37.9620	38.2989	0.1906	11.8986	0.1144	12.0130	3.1981	0.1067	3.3048		19,678.92 34	19,678.92 34	1.1561		19,707.82 57
Unmitigated	5.9919	40.4427	44.6121	0.2387	15.8673	0.1411	16.0084	4.2648	0.1319	4.3966		24,632.14 90	24,632.14 90	1.2552		24,663.52 84

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,315.20	2,315.20	2315.20	783,886	587,825
Fast Food Restaurant with Drive Thru	2,189.92	2,189.92	2189.92	1,298,629	973,823
Industrial Park	1,640.85	1,640.85	1640.85	4,629,675	3,471,726
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	194.19	194.19	194.19	632,248	474,113
Total	6,340.16	6,340.16	6,340.16	7,344,438	5,507,487

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
Convenience Market With Gas	12.50	4.20	5.40	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	12.50	4.20	5.40	2.20	78.80	19.00	29	21	50
Industrial Park	12.50	4.20	5.40	59.00	28.00	13.00	79	19	2
Parking Lot	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	12.50	4.20	5.40	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Industrial Park	0.423000	0.027000	0.143000	0.082000	0.039000	0.015000	0.067000	0.201000	0.000000	0.000000	0.003000	0.000000	0.000000
Parking Lot	0.554334	0.035376	0.188722	0.108173	0.012711	0.004530	0.017449	0.070039	0.001415	0.001123	0.004446	0.000892	0.000789
Unrefrigerated Warehouse-No Rail	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	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	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.4108	1,041.4108	0.0200	0.0191	1,047.5994
NaturalGas Unmitigated	0.0955	0.8678	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660		1,041.4108	1,041.4108	0.0200	0.0191	1,047.5994

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					
Convenience Market With Gas Pumps	24.3288	2.6000e-004	2.3900e-003	2.0000e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8622	2.8622	5.0000e-005	5.0000e-005	2.8792
Fast Food Restaurant with Drive Thru	3483.55	0.0376	0.3415	0.2869	2.0500e-003		0.0260	0.0260		0.0260	0.0260		409.8295	409.8295	7.8600e-003	7.5100e-003	412.2649
Industrial Park	4628.88	0.0499	0.4538	0.3812	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.5747	544.5747	0.0104	9.9800e-003	547.8108
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
Unrefrigerated Warehouse-No Rail	715.227	7.7100e-003	0.0701	0.0589	4.2000e-004		5.3300e-003	5.3300e-003		5.3300e-003	5.3300e-003		84.1444	84.1444	1.6100e-003	1.5400e-003	84.6444
Total		**0.0955**	**0.8678**	**0.7290**	**5.2000e-003**		**0.0660**	**0.0660**		**0.0660**	**0.0660**		**1,041.4108**	**1,041.4108**	**0.0200**	**0.0191**	**1,047.5994**

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					
Convenience Market With Gas Pumps	0.0243288	2.6000e-004	2.3900e-003	2.0000e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8622	2.8622	5.0000e-005	5.0000e-005	2.8792
Fast Food Restaurant with Drive Thru	3.48355	0.0376	0.3415	0.2869	2.0500e-003		0.0260	0.0260		0.0260	0.0260		409.8295	409.8295	7.8600e-003	7.5100e-003	412.2649
Industrial Park	4.62888	0.0499	0.4538	0.3812	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.5747	544.5747	0.0104	9.9800e-003	547.8108
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
Unrefrigerated Warehouse-No Rail	0.715227	7.7100e-003	0.0701	0.0589	4.2000e-004		5.3300e-003	5.3300e-003		5.3300e-003	5.3300e-003		84.1444	84.1444	1.6100e-003	1.5400e-003	84.6444
Total		**0.0955**	**0.8678**	**0.7290**	**5.2000e-003**		**0.0660**	**0.0660**		**0.0660**	**0.0660**		**1,041.4108**	**1,041.4108**	**0.0200**	**0.0191**	**1,047.5994**

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	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Unmitigated	17.5113	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068

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	4.0450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Total	**17.5113**	**1.2100e-003**	**0.1340**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**		**0.2880**	**0.2880**	**7.5000e-004**		**0.3068**

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	4.0450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0123	1.2100e-003	0.1340	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		0.2880	0.2880	7.5000e-004		0.3068
Total	**17.5113**	**1.2100e-003**	**0.1340**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**		**0.2880**	**0.2880**	**7.5000e-004**		**0.3068**

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

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
Forklifts	6	8.00	260	89	0.20	CNG

UnMitigated/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
Equipment Type	lb/day										lb/day					
Forklifts	0.5213	4.9112	6.8025	9.1700e-003		0.2629	0.2629		0.2419	0.2419		888.1850	888.1850	0.2873		895.3664
Total	**0.5213**	**4.9112**	**6.8025**	**9.1700e-003**		**0.2629**	**0.2629**		**0.2419**	**0.2419**		**888.1850**	**888.1850**	**0.2873**		**895.3664**

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

EMFAC2017 Model Printouts

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: Sub-Area

Region: Riverside (SS)

Calendar Year: 2021

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
Riverside (SS)	2021	HHDT	Aggregated	Aggregated	DSL	7394.4	1155977.1	91370.5	163.9
Riverside (SS)	2021	LDA	Aggregated	Aggregated	DSL	1257.8	45260.4	5996.9	0.9
Riverside (SS)	2021	LDT1	Aggregated	Aggregated	DSL	9.7	244.1	31.3	0.0
Riverside (SS)	2021	LDT2	Aggregated	Aggregated	DSL	312.1	12743.8	1550.1	0.3
Riverside (SS)	2021	LHDT1	Aggregated	Aggregated	DSL	3039.2	116275.0	38228.8	5.5
Riverside (SS)	2021	LHDT2	Aggregated	Aggregated	DSL	1255.5	46432.5	15792.1	2.4
Riverside (SS)	2021	MDV	Aggregated	Aggregated	DSL	760.7	32393.2	3746.2	1.1
Riverside (SS)	2021	MH	Aggregated	Aggregated	DSL	540.7	4780.1	54.1	0.4
Riverside (SS)	2021	MHDT	Aggregated	Aggregated	DSL	3480.2	216403.2	29890.8	20.1
Riverside (SS)	2021	OBUS	Aggregated	Aggregated	DSL	119.0	8996.4	1118.5	1.0
Riverside (SS)	2021	SBUS	Aggregated	Aggregated	DSL	267.4	8476.3	3085.5	1.1
Riverside (SS)	2021	UBUS	Aggregated	Aggregated	DSL	0	0	0	0

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day	1,404,773	185	1,000 gall per day
		185,152	gallons per day
Diesel Truck Fleet Avg Miles per gallon	7.6		

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: Sub-Area

Region: Riverside (SS)

Calendar Year: 2025

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
Riverside (SS)	2025	HHDT	Aggregated	Aggregated	GAS	0.990036	283.994	19.80863	0.058911
Riverside (SS)	2025	LDA	Aggregated	Aggregated	GAS	162141	5282897	768276.7	156.5878
Riverside (SS)	2025	LDT1	Aggregated	Aggregated	GAS	20214.76	710622.3	93200.44	25.33043
Riverside (SS)	2025	LDT2	Aggregated	Aggregated	GAS	62244.3	2227269	292086.8	82.4736
Riverside (SS)	2025	LHDT1	Aggregated	Aggregated	GAS	4139.672	144037.9	61674.94	12.8458
Riverside (SS)	2025	LHDT2	Aggregated	Aggregated	GAS	890.8754	28105.57	13272.72	2.932707
Riverside (SS)	2025	MCY	Aggregated	Aggregated	GAS	7065.725	76578.79	14131.45	1.963748
Riverside (SS)	2025	MDV	Aggregated	Aggregated	GAS	45212.42	1620273	208265	73.80468
Riverside (SS)	2025	MH	Aggregated	Aggregated	GAS	889.2978	8017.017	88.96536	1.474624
Riverside (SS)	2025	MHDT	Aggregated	Aggregated	GAS	736.2273	56092.36	14730.44	10.36319
Riverside (SS)	2025	OBUS	Aggregated	Aggregated	GAS	125.5674	9245.494	2512.352	1.699291
Riverside (SS)	2025	SBUS	Aggregated	Aggregated	GAS	72.52048	5011.555	290.0819	0.516602

vehicle miles per day (All Categories) 10168434

370 1,000 gall per day

370,051 gallons per day

Fleet Avg Miles per gallon 27.5

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: Sub-Area
Region: Riverside (SS)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
Riverside (SS)	2025	HHDT	Aggregated	Aggregated	DSL	7886.0	1228327.7	97823.0	157.4
Riverside (SS)	2025	LDA	Aggregated	Aggregated	DSL	1625.3	55917.0	7781.0	1.0
Riverside (SS)	2025	LDT1	Aggregated	Aggregated	DSL	7.2	181.4	23.6	0.0
Riverside (SS)	2025	LDT2	Aggregated	Aggregated	DSL	461.9	17602.8	2259.9	0.4
Riverside (SS)	2025	LHDT1	Aggregated	Aggregated	DSL	3480.8	128496.5	43784.7	5.7
Riverside (SS)	2025	LHDT2	Aggregated	Aggregated	DSL	1434.9	50967.2	18049.8	2.5
Riverside (SS)	2025	MDV	Aggregated	Aggregated	DSL	1080.9	42951.8	5251.2	1.4
Riverside (SS)	2025	MH	Aggregated	Aggregated	DSL	545.0	4427.0	54.5	0.4
Riverside (SS)	2025	MHDT	Aggregated	Aggregated	DSL	3598.8	226995.3	31479.8	19.1
Riverside (SS)	2025	OBUS	Aggregated	Aggregated	DSL	147.8	11033.2	1366.2	1.1
Riverside (SS)	2025	SBUS	Aggregated	Aggregated	DSL	273.2	8617.3	3152.4	1.1
Riverside (SS)	2025	UBUS	Aggregated	Aggregated	DSL	0	0	0	0

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day	1,498,275	178	1,000 gall per day
		177,819	gallons per day
Diesel Truck Fleet Avg Miles per gallon	8.4		

EMFAC2017 Version 1.0.2

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2022	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.045919
2022	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.019553
2022	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004687
2022	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001279
2022	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.029476
2022	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.015619
2022	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.00453
2022	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001219
2022	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.009421
2022	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.006254
2022	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.7927
2022	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2022	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080071
2022	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2022	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078635
2022	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.013434
2022	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.03221
2022	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072574
2022	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012027
2022	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.130108
2022	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.063798
2022	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2022	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2023	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.042397
2023	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.018348
2023	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004649
2023	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001265
2023	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.009824
2023	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006597
2023	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004492
2023	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001207
2023	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.008583
2023	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.005683
2023	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.792174
2023	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2023	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080067
2023	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2023	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078596
2023	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010925
2023	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032214
2023	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072563
2023	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012031
2023	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.130071
2023	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.054894
2023	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2023	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2024	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.039264
2024	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.017276

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2024	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004633
2024	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001256
2024	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.00978
2024	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006607
2024	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.00448
2024	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001202
2024	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.007902
2024	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.005222
2024	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.791992
2024	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2024	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080062
2024	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2024	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078559
2024	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010807
2024	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032223
2024	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072537
2024	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012036
2024	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.130033
2024	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.047694
2024	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2024	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2025	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.036482
2025	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.016323
2025	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004645
2025	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001258
2025	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.009639
2025	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006547
2025	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004483
2025	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001202
2025	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.007342
2025	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.004844
2025	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.792468
2025	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2025	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080058
2025	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2025	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.07852
2025	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010696
2025	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032246
2025	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072469
2025	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.01204
2025	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129994
2025	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.041772
2025	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2025	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2026	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.033957
2026	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.015455
2026	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004653
2026	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001257
2026	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.009464

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2026	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006457
2026	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004498
2026	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001205
2026	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.006872
2026	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.004524
2026	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.793177
2026	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2026	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080054
2026	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2026	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078482
2026	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010586
2026	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.03226
2026	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.07243
2026	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012045
2026	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129957
2026	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.036771
2026	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2026	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2027	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.031695
2027	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.014672
2027	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004672
2027	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.00126
2027	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.00931
2027	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006375
2027	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004521
2027	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001211
2027	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.006477
2027	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.004251
2027	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.793505
2027	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2027	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080052
2027	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2027	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078447
2027	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010502
2027	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032276
2027	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072383
2027	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012049
2027	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129921
2027	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.032543
2027	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2027	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2028	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.029687
2028	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.013973
2028	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004701
2028	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001266
2028	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.009185
2028	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006309
2028	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.00455
2028	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001218

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2028	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.006159
2028	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.004029
2028	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794226
2028	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2028	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080051
2028	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2028	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078415
2028	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010439
2028	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.03229
2028	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072345
2028	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012053
2028	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129888
2028	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.029107
2028	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2028	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2029	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.027887
2029	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.013342
2029	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004732
2029	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001273
2029	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.009078
2029	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006252
2029	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004582
2029	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001226
2029	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005887
2029	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003842
2029	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794385
2029	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2029	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.08005
2029	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2029	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078385
2029	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010385
2029	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032303
2029	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072306
2029	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012056
2029	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129859
2029	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.026193
2029	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2029	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2030	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.026304
2030	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.012782
2030	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004753
2030	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001276
2030	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008986
2030	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006204
2030	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004616
2030	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001235
2030	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005694
2030	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003709
2030	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794774

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2030	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2030	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080049
2030	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2030	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078358
2030	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.01033
2030	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032317
2030	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072266
2030	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012059
2030	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129833
2030	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.024107
2030	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2030	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2031	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.024884
2031	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.012275
2031	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.00477
2031	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001278
2031	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008903
2031	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.00616
2031	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.00465
2031	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001244
2031	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.00552
2031	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003589
2031	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794188
2031	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2031	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080048
2031	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2031	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078332
2031	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010272
2031	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032313
2031	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072278
2031	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012062
2031	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129811
2031	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.022226
2031	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2031	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2032	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.023684
2032	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.011843
2032	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004793
2032	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001283
2032	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008826
2032	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.00612
2032	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004681
2032	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001253
2032	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005376
2032	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003489
2032	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794715
2032	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2032	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080047
2032	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2032	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078307
2032	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010225
2032	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032309
2032	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072289
2032	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012064
2032	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129793
2032	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.02067
2032	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2032	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2033	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.022605
2033	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.01145
2033	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004803
2033	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001285
2033	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008761
2033	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006086
2033	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.00471
2033	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001261
2033	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005272
2033	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003417
2033	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794903
2033	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2033	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080046
2033	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2033	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078284
2033	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010187
2033	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032305
2033	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072301
2033	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012066
2033	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129777
2033	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.019526
2033	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2033	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2034	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.021625
2034	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.011089
2034	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004783
2034	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.00128
2034	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008701
2034	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006053
2034	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004735
2034	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001267
2034	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005176
2034	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003349
2034	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794304
2034	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2034	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080046
2034	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2034	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078264
2034	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010161
2034	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032301

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2034	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072312
2034	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012067
2034	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129764
2034	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.018478
2034	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2034	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2035	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.020654
2035	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.010729
2035	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004783
2035	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.00128
2035	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008644
2035	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006021
2035	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.00476
2035	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001274
2035	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005105
2035	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003299
2035	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.793208
2035	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2035	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080044
2035	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2035	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078245
2035	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010135
2035	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032298
2035	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072322
2035	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012068
2035	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129754
2035	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.017693
2035	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2035	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2036	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.019955
2036	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.010467
2036	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004799
2036	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001284
2036	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008605
2036	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.006
2036	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004783
2036	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.00128
2036	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005055
2036	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003264
2036	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.793659
2036	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2036	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080043
2036	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2036	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078228
2036	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010119
2036	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032294
2036	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072333
2036	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012069
2036	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129746

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2036	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.017145
2036	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2036	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2037	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.019306
2037	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.010221
2037	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.00481
2037	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001287
2037	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008577
2037	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005986
2037	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004802
2037	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001285
2037	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.005008
2037	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003233
2037	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794058
2037	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2037	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080043
2037	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2037	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078215
2037	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010107
2037	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.03229
2037	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072344
2037	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.01207
2037	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129739
2037	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.01665
2037	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2037	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2038	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.018733
2038	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.010001
2038	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004822
2038	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.00129
2038	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008559
2038	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005978
2038	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004819
2038	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.00129
2038	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004969
2038	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.00321
2038	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794268
2038	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2038	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080042
2038	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2038	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078202
2038	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010096
2038	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032287
2038	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072354
2038	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012071
2038	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129734
2038	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.016259
2038	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2038	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2039	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.018239
2039	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009809
2039	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004827
2039	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001292
2039	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008549
2039	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005974
2039	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004833
2039	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001293
2039	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.00493
2039	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003188
2039	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.794805
2039	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2039	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080042
2039	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2039	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078191
2039	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010088
2039	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032283
2039	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072363
2039	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012071
2039	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.12973
2039	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.015884
2039	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2039	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2040	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.017802
2040	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009638
2040	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004835
2040	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001294
2040	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008546
2040	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005975
2040	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004845
2040	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001296
2040	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.00488
2040	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003156
2040	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.795292
2040	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2040	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080041
2040	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2040	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078182
2040	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010082
2040	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032281
2040	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072371
2040	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012071
2040	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129727
2040	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.015382
2040	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2040	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2041	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.017447
2041	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009497
2041	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004846

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2041	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001297
2041	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008544
2041	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005976
2041	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004855
2041	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001299
2041	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004827
2041	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003122
2041	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.795677
2041	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2041	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080042
2041	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2041	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078175
2041	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010075
2041	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032277
2041	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072383
2041	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2041	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129725
2041	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.01485
2041	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2041	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2042	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.017144
2042	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009375
2042	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004855
2042	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001299
2042	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008546
2042	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.00598
2042	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004864
2042	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001302
2042	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004769
2042	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003083
2042	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.796006
2042	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2042	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080044
2042	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2042	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078169
2042	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010069
2042	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032274
2042	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.07239
2042	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2042	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129724
2042	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.014253
2042	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2042	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2043	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.016914
2043	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009282
2043	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004863
2043	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001301
2043	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008547
2043	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005983

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2043	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004872
2043	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001304
2043	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004712
2043	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.003044
2043	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.79624
2043	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2043	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080047
2043	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2043	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078164
2043	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010064
2043	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032272
2043	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072397
2043	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2043	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129723
2043	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.01365
2043	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2043	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2044	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.016641
2044	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009176
2044	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004867
2044	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001302
2044	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008547
2044	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005985
2044	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004879
2044	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001306
2044	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004664
2044	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.00301
2044	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.796591
2044	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2044	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080044
2044	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2044	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078161
2044	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010059
2044	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032269
2044	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072404
2044	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2044	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129722
2044	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.013129
2044	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2044	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2045	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.016437
2045	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009096
2045	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004869
2045	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001303
2045	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008544
2045	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005987
2045	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004884
2045	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001307
2045	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004622

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_l	process	speed_ti	pollutant	emission_r
2045	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.002981
2045	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.796844
2045	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2045	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080044
2045	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2045	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.07816
2045	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010053
2045	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032267
2045	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.07241
2045	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2045	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129722
2045	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.012686
2045	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2045	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2046	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.016252
2046	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.009025
2046	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.00487
2046	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001303
2046	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008539
2046	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005985
2046	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004889
2046	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001308
2046	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004578
2046	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.002955
2046	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.797091
2046	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2046	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080043
2046	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2046	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078158
2046	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010048
2046	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032245
2046	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072474
2046	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2046	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129721
2046	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.01225
2046	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2046	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2047	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.016092
2047	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.008964
2047	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004872
2047	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001304
2047	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008534
2047	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005983
2047	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004892
2047	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001309
2047	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004531
2047	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.002931
2047	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.797309
2047	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2047	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080042
2047	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2047	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078156
2047	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010044
2047	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032223
2047	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072537
2047	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2047	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129721
2047	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.011834
2047	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2047	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2048	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.015962
2048	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.008914
2048	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004872
2048	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001304
2048	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008531
2048	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005981
2048	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004896
2048	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.00131
2048	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.00451
2048	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.002914
2048	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.797489
2048	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2048	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080042
2048	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2048	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078156
2048	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010041
2048	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032201
2048	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072599
2048	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2048	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129721
2048	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.011578
2048	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2048	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2049	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.015826
2049	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.008863
2049	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004881
2049	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001306
2049	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008529
2049	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005979
2049	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004899
2049	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001311
2049	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004434
2049	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.002854
2049	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.797693
2049	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2049	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080042
2049	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2049	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078156

calendar_	season_r	sub_area	vehicle_cla	fuel	tempe	relative_h	process	speed_ti	pollutant	emission_r
2049	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010038
2049	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032179
2049	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.07266
2049	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2049	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129721
2049	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.010712
2049	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2049	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174
2050	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	10	PM10	0.015671
2050	Annual	Riverside (SS)	Truck1	Dsl	56	30	RUNEX	30	PM10	0.008807
2050	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	10	PM10	0.004887
2050	Annual	Riverside (SS)	Truck1	Gas	56	30	RUNEX	30	PM10	0.001308
2050	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	10	PM10	0.008526
2050	Annual	Riverside (SS)	Truck2	Dsl	56	30	RUNEX	30	PM10	0.005977
2050	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	10	PM10	0.004901
2050	Annual	Riverside (SS)	Truck2	Gas	56	30	RUNEX	30	PM10	0.001312
2050	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	10	PM10	0.004386
2050	Annual	Riverside (SS)	Truck2	NG	56	30	RUNEX	30	PM10	0.002816
2050	Annual	Riverside (SS)	Truck1	Dsl			IDLEX		PM10	0.797945
2050	Annual	Riverside (SS)	Truck1	Dsl			PMTW		PM10	0.012
2050	Annual	Riverside (SS)	Truck1	Dsl			PMBW		PM10	0.080038
2050	Annual	Riverside (SS)	Truck1	Gas			PMTW		PM10	0.008
2050	Annual	Riverside (SS)	Truck1	Gas			PMBW		PM10	0.078155
2050	Annual	Riverside (SS)	Truck2	Dsl			IDLEX		PM10	0.010034
2050	Annual	Riverside (SS)	Truck2	Dsl			PMTW		PM10	0.032158
2050	Annual	Riverside (SS)	Truck2	Dsl			PMBW		PM10	0.072721
2050	Annual	Riverside (SS)	Truck2	Gas			PMTW		PM10	0.012072
2050	Annual	Riverside (SS)	Truck2	Gas			PMBW		PM10	0.129721
2050	Annual	Riverside (SS)	Truck2	NG			IDLEX		PM10	0.010156
2050	Annual	Riverside (SS)	Truck2	NG			PMTW		PM10	0.036
2050	Annual	Riverside (SS)	Truck2	NG			PMBW		PM10	0.06174

APPENDIX C

Gas Station Cancer RiskTool (V1.103) Printouts

GASOLINE DISPENSING SERVICE STATION

(Procedure Version 8.1 & Package N, September 1, 2017) - Risk Tool V1.103

AN:
Facility Name: Airport Business Park
Deem Complete Date:

Storage Tank Type	Underground		MET Station	Desert Hot Springs Airpor	
Annual Throughput	2	million gallons /year	Distance to Resident	49	meter
T-BACT	YES		Distance to Commercial	49	meter

MICR Calculation: MICR = MICR per 1 Million gallons/yr x Annual Throughput (Million gallons/yr)

HIA & HIC Calculation: Negligible compared to Cancer risk and is not calculated.

MICR Result

	Resident	Commercial
MICR	3.287	0.271
MICR ≤ 10	**PASS**	**PASS**

Interpolation for MICR from Nearest Distances

	Residential			**Commercial**		
	near	**actual**	far	near	**actual**	far
Distance (meter)	25	**49**	50	25	**49**	50
MICR (per 1 million gasoline gallon throughput per year)	3.820	**1.6437**	1.553	0.315	**0.135**	0.128

Look up from Table 12 - MICR for Underground Storage Tank

		Downwind Distance (m)							
Station	**Receptor**	**25**	**50**	**75**	**100**	**200**	**300**	**500**	**1000**
Desert Hot Springs Airport	Resident	3.820	1.553	0.848	0.540	0.163	0.082	0.035	0.010
	Commercial	0.315	0.128	0.070	0.045	0.013	0.007	0.003	0.001

APPENDIX D

AERMOD Model Years 2025 – 2027 Operational PM10 Printouts

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** AERMOD Input Produced by:
** AERMOD View Ver. 9.9.0
** Lakes Environmental Software Inc.
** Date: 3/16/2021
** File: C:\Vista Env\2019\19039 Coachella\AERMOD\DPM2025\DPM2025.ADI
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**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
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   TITLETWO PM10
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641 Riverside_Co
   POLLUTID PM_10
   RUNORNOT RUN
   ERRORFIL DPM2025.err
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDONW
** DESCRSRC Onsite Road West
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000221
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 12
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** End of LINE VOLUME Source ID = RDONW
** --------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDONE
** DESCRSRC Onsite Road East
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000226
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 6
** 580060.381, 3722870.248, -38.71, 0.00, 1.70
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** PREFIX
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** Configuration = Adjacent
** Emission Rate = 5.0E-06
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   LOCATION L0000515     VOLUME   579596.373 3722818.489 -36.14
   LOCATION L0000516     VOLUME   579584.181 3722818.460 -36.14
   LOCATION L0000517     VOLUME   579571.989 3722818.431 -36.14
   LOCATION L0000518     VOLUME   579559.797 3722818.402 -36.14
   LOCATION L0000519     VOLUME   579547.605 3722818.374 -36.14
   LOCATION L0000520     VOLUME   579535.413 3722818.345 -36.14
   LOCATION L0000521     VOLUME   579523.222 3722818.316 -36.14
   LOCATION L0000522     VOLUME   579511.030 3722818.287 -36.14
   LOCATION L0000523     VOLUME   579498.838 3722818.259 -36.14
   LOCATION L0000524     VOLUME   579486.646 3722818.230 -36.14
   LOCATION L0000525     VOLUME   579474.454 3722818.201 -36.14
   LOCATION L0000526     VOLUME   579462.262 3722818.172 -36.14
   LOCATION L0000527     VOLUME   579450.070 3722818.144 -36.19
   LOCATION L0000528     VOLUME   579437.887 3722817.853 -36.24
   LOCATION L0000529     VOLUME   579425.721 3722817.051 -36.27
   LOCATION L0000530     VOLUME   579413.556 3722816.249 -36.27
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   LOCATION L0000534     VOLUME   579364.893 3722813.040 -36.27
   LOCATION L0000535     VOLUME   579352.728 3722812.238 -36.27
   LOCATION L0000536     VOLUME   579340.562 3722811.436 -36.27
   LOCATION L0000537     VOLUME   579328.379 3722811.085 -36.25
   LOCATION L0000538     VOLUME   579316.188 3722810.942 -36.23
   LOCATION L0000539     VOLUME   579303.997 3722810.798 -36.22
   LOCATION L0000540     VOLUME   579291.805 3722810.655 -36.22
   LOCATION L0000541     VOLUME   579279.614 3722810.511 -36.21
   LOCATION L0000542     VOLUME   579267.423 3722810.368 -36.11
   LOCATION L0000543     VOLUME   579255.232 3722810.225 -36.01
** End of LINE VOLUME Source ID = RDAIRW
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDAIRE
** DESCRSRC Airport Blvd east of Project Site
** PREFIX
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** Length of Side = 12.19
** Configuration = Adjacent
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** SZINIT = 0.85
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** 580220.964, 3722809.641, -38.34, 0.00, 5.67
** 580570.484, 3722812.421, -37.19, 0.00, 5.67
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   LOCATION L0000547     VOLUME   580129.217 3722810.838 -38.62
   LOCATION L0000548     VOLUME   580141.408 3722810.679 -38.50
   LOCATION L0000549     VOLUME   580153.599 3722810.520 -38.40
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   LOCATION L0000551     VOLUME   580177.981 3722810.202 -38.40
   LOCATION L0000552     VOLUME   580190.172 3722810.043 -38.39
   LOCATION L0000553     VOLUME   580202.363 3722809.884 -38.37
   LOCATION L0000554     VOLUME   580214.554 3722809.725 -38.33
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   LOCATION L0000556     VOLUME   580238.937 3722809.784 -38.11
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   LOCATION L0000562     VOLUME   580312.087 3722810.366 -37.85
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   LOCATION L0000565     VOLUME   580348.662 3722810.657 -37.51
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   LOCATION L0000570     VOLUME   580409.620 3722811.141 -37.26
   LOCATION L0000571     VOLUME   580421.811 3722811.238 -37.12
   LOCATION L0000572     VOLUME   580434.003 3722811.335 -37.02
   LOCATION L0000573     VOLUME   580446.195 3722811.432 -36.92
   LOCATION L0000574     VOLUME   580458.386 3722811.529 -36.88
   LOCATION L0000575     VOLUME   580470.578 3722811.626 -36.88
   LOCATION L0000576     VOLUME   580482.769 3722811.723 -36.88
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   LOCATION L0000578     VOLUME   580507.153 3722811.917 -36.88
   LOCATION L0000579     VOLUME   580519.344 3722812.014 -36.97
   LOCATION L0000580     VOLUME   580531.536 3722812.111 -37.09
   LOCATION L0000581     VOLUME   580543.727 3722812.208 -37.19
   LOCATION L0000582     VOLUME   580555.919 3722812.305 -37.19
   LOCATION L0000583     VOLUME   580568.111 3722812.402 -37.19
** End of LINE VOLUME Source ID = RDAIRE
   LOCATION IDLING1      POINT      579805.150  3723587.850      -35.970
** DESCRSRC Truck Idling at LW-1A
   LOCATION IDLING2      POINT      579874.040  3723475.220      -36.230
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** DESCRSRC Truck Idling at LW-1B
   LOCATION IDLING3      POINT      579883.560  3723455.580      -36.270
** DESCRSRC Truck Idling at LW-2
   LOCATION IDLING4      POINT      579760.060  3723570.450      -35.970
** DESCRSRC Truck Idling at LW-3A
   LOCATION IDLING5      POINT      579788.530  3723421.660      -36.120
** DESCRSRC Truck Idling at LW-3B
   LOCATION IDLING6      POINT      579808.320  3723334.150      -35.850
** DESCRSRC Truck Idling at LW-4
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   SRCPARAM L0000493     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000494     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000495     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000496     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000497     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000498     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000499     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000500     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000501     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000502     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000503     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000504     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000505     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000506     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000507     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000508     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000509     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000510     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000511     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000512     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000513     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000514     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000515     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000516     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000517     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000518     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000519     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000520     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000521     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000522     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000523     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000524     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000525     0.00000007353      0.00       5.67       0.85
```

```
   SRCPARAM L0000526     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000527     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000528     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000529     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000530     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000531     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000532     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000533     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000534     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000535     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000536     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000537     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000538     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000539     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000540     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000541     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000542     0.00000007353      0.00       5.67       0.85
   SRCPARAM L0000543     0.00000007353      0.00       5.67       0.85
** ------------------------------------------------------------------------
** LINE VOLUME Source ID = RDAIRE
   SRCPARAM L0000544     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000545     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000546     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000547     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000548     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000549     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000550     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000551     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000552     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000553     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000554     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000555     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000556     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000557     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000558     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000559     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000560     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000561     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000562     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000563     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000564     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000565     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000566     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000567     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000568     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000569     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000570     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000571     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000572     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000573     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000574     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000575     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000576     0.0000002925      0.00       5.67       0.85
   SRCPARAM L0000577     0.0000002925      0.00       5.67       0.85
```

```
   SRCPARAM L0000578     0.0000002925      0.00      5.67      0.85
   SRCPARAM L0000579     0.0000002925      0.00      5.67      0.85
   SRCPARAM L0000580     0.0000002925      0.00      5.67      0.85
   SRCPARAM L0000581     0.0000002925      0.00      5.67      0.85
   SRCPARAM L0000582     0.0000002925      0.00      5.67      0.85
   SRCPARAM L0000583     0.0000002925      0.00      5.67      0.85
** ------------------------------------------------------------------------
   SRCPARAM IDLING1       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING2       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING3       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING4       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING5       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING6       0.000018     3.840   366.000  50.00000
0.100
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED DPM2025.rou
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE ..\KTRM_V9_ADJU\KTRM_v9.SFC
   PROFFILE ..\KTRM_V9_ADJU\KTRM_v9.PFL
   SURFDATA 3104 2012 KTRM_Airport
   UAIRDATA 3190 2012
   PROFBASE -36.0 METERS
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
```

```
   PLOTFILE 24 ALL 1ST DPM2025.AD\24H1GALL.PLT 31
   PLOTFILE ANNUAL ALL DPM2025.AD\AN00GALL.PLT 32
   SUMMFILE DPM2025.sum
OU FINISHED
**
****************************************
** Project Parameters
****************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     11
** ZONEINX  0
**
```

```
* AERMOD ( 19191): Coachella Airport Business Park - 2025 DPM                                03/16/21
* AERMET ( 16216):                                                                           16:13:17
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF    11 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP       NUM YRS   NET ID
* ____________  ____________  ____________  ______   ______   ______  ______  ________   ________  ________
  580086.00000 3722773.00000       0.00253   -39.01   -39.01     0.00  ANNUAL  ALL        00000005
  580122.00000 3722774.00000       0.00301   -38.71   -38.71     0.00  ANNUAL  ALL        00000005
  580172.00000 3722775.00000       0.00297   -38.50   -38.50     0.00  ANNUAL  ALL        00000005
  580242.00000 3722717.00000       0.00166   -38.40   -38.40     0.00  ANNUAL  ALL        00000005
  580289.00000 3722738.00000       0.00175   -37.99   -37.99     0.00  ANNUAL  ALL        00000005
  580337.00000 3722732.00000       0.00155   -37.80   -37.80     0.00  ANNUAL  ALL        00000005
  579963.00000 3722704.00000       0.00102   -36.08   -36.08     0.00  ANNUAL  ALL        00000005
  579927.00000 3722644.00000       0.00077   -36.33   -36.33     0.00  ANNUAL  ALL        00000005
  579519.00000 3722783.00000       0.00067   -36.27   -36.27     0.00  ANNUAL  ALL        00000005
  579466.00000 3722781.00000       0.00061   -36.27   -36.27     0.00  ANNUAL  ALL        00000005
  579393.00000 3722779.00000       0.00057   -36.27   -36.27     0.00  ANNUAL  ALL        00000005
** CONCUNIT ug/m^3
** DEPUNIT g/m^2
```

```
* AERMOD ( 19191): Coachella Airport Business Park - 2025 DPM                          03/16/21
* AERMET ( 16216): PM10                                                                16:13:17
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
*         PLOT FILE OF  HIGH   1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF    11 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP       RANK     NET ID   DATE(CONC)
* ____________  ____________  ____________  ______  ______  ______  ______  ________  ________  ________  ________
  580086.00000 3722773.00000       0.00466   -39.01   -39.01     0.00   24-HR  ALL         1ST                14120224
  580122.00000 3722774.00000       0.00538   -38.71   -38.71     0.00   24-HR  ALL         1ST                15100624
  580172.00000 3722775.00000       0.00501   -38.50   -38.50     0.00   24-HR  ALL         1ST                16012524
  580242.00000 3722717.00000       0.00305   -38.40   -38.40     0.00   24-HR  ALL         1ST                15120424
  580289.00000 3722738.00000       0.00324   -37.99   -37.99     0.00   24-HR  ALL         1ST                16012524
  580337.00000 3722732.00000       0.00297   -37.80   -37.80     0.00   24-HR  ALL         1ST                16012524
  579963.00000 3722704.00000       0.00214   -36.08   -36.08     0.00   24-HR  ALL         1ST                16100924
  579927.00000 3722644.00000       0.00178   -36.33   -36.33     0.00   24-HR  ALL         1ST                16121924
  579519.00000 3722783.00000       0.00158   -36.27   -36.27     0.00   24-HR  ALL         1ST                16010124
  579466.00000 3722781.00000       0.00134   -36.27   -36.27     0.00   24-HR  ALL         1ST                16010124
  579393.00000 3722779.00000       0.00118   -36.27   -36.27     0.00   24-HR  ALL         1ST                16011024
** CONCUNIT ug/m^3
** DEPUNIT g/m^2
```

APPENDIX E

AERMOD Model Years 2027 – 2041 Operational PM10 Printouts

```
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.9.0
** Lakes Environmental Software Inc.
** Date: 3/16/2021
** File: C:\Vista Env\2019\19039 Coachella\AERMOD\DPM2027\DPM2027.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE Coachella Airport Business Park - 2027-2041 DPM
   TITLETWO PM10
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641 Riverside_Co
   POLLUTID PM_10
   RUNORNOT RUN
   ERRORFIL DPM2027.err
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDONW
** DESCRSRC Onsite Road West
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000181
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 12
** 580081.698, 3722820.821, -38.71, 0.00, 1.70
** 580078.612, 3722831.558, -38.76, 0.00, 1.70
** 580057.187, 3722866.319, -38.71, 0.00, 1.70
** 580045.833, 3722877.181, -38.88, 0.00, 1.70
** 579930.018, 3723057.672, -38.69, 0.00, 1.70
** 579892.856, 3723115.163, -37.71, 0.00, 1.70
** 579849.461, 3723190.506, -36.29, 0.00, 1.70
```

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** 579823.082, 3723246.755, -36.03, 0.00, 1.70
** 579796.274, 3723323.282, -35.97, 0.00, 1.70
** 579782.061, 3723364.922, -35.95, 0.00, 1.70
** 579768.794, 3723424.825, -36.02, 0.00, 1.70
** 579741.158, 3723594.651, -35.95, 0.00, 1.70
** ----------------------------------------------------------------------------
   LOCATION L0000584     VOLUME   580081.193 3722822.578 -38.75
   LOCATION L0000585     VOLUME   580080.183 3722826.094 -38.74
   LOCATION L0000586     VOLUME   580079.172 3722829.609 -38.73
   LOCATION L0000587     VOLUME   580077.757 3722832.945 -38.72
   LOCATION L0000588     VOLUME   580075.838 3722836.059 -38.71
   LOCATION L0000589     VOLUME   580073.919 3722839.173 -38.71
   LOCATION L0000590     VOLUME   580072.000 3722842.286 -38.71
   LOCATION L0000591     VOLUME   580070.081 3722845.400 -38.71
   LOCATION L0000592     VOLUME   580068.162 3722848.514 -38.71
   LOCATION L0000593     VOLUME   580066.243 3722851.627 -38.71
   LOCATION L0000594     VOLUME   580064.324 3722854.741 -38.71
   LOCATION L0000595     VOLUME   580062.404 3722857.855 -38.71
   LOCATION L0000596     VOLUME   580060.485 3722860.969 -38.71
   LOCATION L0000597     VOLUME   580058.566 3722864.082 -38.73
   LOCATION L0000598     VOLUME   580056.443 3722867.031 -38.75
   LOCATION L0000599     VOLUME   580053.800 3722869.559 -38.77
   LOCATION L0000600     VOLUME   580051.157 3722872.088 -38.78
   LOCATION L0000601     VOLUME   580048.514 3722874.616 -38.79
   LOCATION L0000602     VOLUME   580045.871 3722877.144 -38.80
   LOCATION L0000603     VOLUME   580043.886 3722880.214 -38.80
   LOCATION L0000604     VOLUME   580041.911 3722883.293 -38.79
   LOCATION L0000605     VOLUME   580039.935 3722886.371 -38.77
   LOCATION L0000606     VOLUME   580037.960 3722889.449 -38.76
   LOCATION L0000607     VOLUME   580035.985 3722892.528 -38.73
   LOCATION L0000608     VOLUME   580034.010 3722895.606 -38.71
   LOCATION L0000609     VOLUME   580032.034 3722898.685 -38.71
   LOCATION L0000610     VOLUME   580030.059 3722901.763 -38.71
   LOCATION L0000611     VOLUME   580028.084 3722904.841 -38.73
   LOCATION L0000612     VOLUME   580026.108 3722907.920 -38.74
   LOCATION L0000613     VOLUME   580024.133 3722910.998 -38.74
   LOCATION L0000614     VOLUME   580022.158 3722914.076 -38.74
   LOCATION L0000615     VOLUME   580020.183 3722917.155 -38.74
   LOCATION L0000616     VOLUME   580018.207 3722920.233 -38.73
   LOCATION L0000617     VOLUME   580016.232 3722923.312 -38.72
   LOCATION L0000618     VOLUME   580014.257 3722926.390 -38.71
   LOCATION L0000619     VOLUME   580012.282 3722929.468 -38.71
   LOCATION L0000620     VOLUME   580010.306 3722932.547 -38.71
   LOCATION L0000621     VOLUME   580008.331 3722935.625 -38.71
   LOCATION L0000622     VOLUME   580006.356 3722938.703 -38.71
   LOCATION L0000623     VOLUME   580004.380 3722941.782 -38.71
   LOCATION L0000624     VOLUME   580002.405 3722944.860 -38.71
   LOCATION L0000625     VOLUME   580000.430 3722947.938 -38.71
   LOCATION L0000626     VOLUME   579998.455 3722951.017 -38.71
   LOCATION L0000627     VOLUME   579996.479 3722954.095 -38.71
   LOCATION L0000628     VOLUME   579994.504 3722957.174 -38.71
   LOCATION L0000629     VOLUME   579992.529 3722960.252 -38.71
   LOCATION L0000630     VOLUME   579990.554 3722963.330 -38.71
   LOCATION L0000631     VOLUME   579988.578 3722966.409 -38.71
```

LOCATION	L0000632	VOLUME	579986.603	3722969.487	-38.71
LOCATION	L0000633	VOLUME	579984.628	3722972.565	-38.71
LOCATION	L0000634	VOLUME	579982.652	3722975.644	-38.71
LOCATION	L0000635	VOLUME	579980.677	3722978.722	-38.71
LOCATION	L0000636	VOLUME	579978.702	3722981.800	-38.71
LOCATION	L0000637	VOLUME	579976.727	3722984.879	-38.71
LOCATION	L0000638	VOLUME	579974.751	3722987.957	-38.71
LOCATION	L0000639	VOLUME	579972.776	3722991.036	-38.71
LOCATION	L0000640	VOLUME	579970.801	3722994.114	-38.71
LOCATION	L0000641	VOLUME	579968.826	3722997.192	-38.71
LOCATION	L0000642	VOLUME	579966.850	3723000.271	-38.71
LOCATION	L0000643	VOLUME	579964.875	3723003.349	-38.71
LOCATION	L0000644	VOLUME	579962.900	3723006.427	-38.71
LOCATION	L0000645	VOLUME	579960.924	3723009.506	-38.71
LOCATION	L0000646	VOLUME	579958.949	3723012.584	-38.71
LOCATION	L0000647	VOLUME	579956.974	3723015.663	-38.71
LOCATION	L0000648	VOLUME	579954.999	3723018.741	-38.69
LOCATION	L0000649	VOLUME	579953.023	3723021.819	-38.68
LOCATION	L0000650	VOLUME	579951.048	3723024.898	-38.68
LOCATION	L0000651	VOLUME	579949.073	3723027.976	-38.67
LOCATION	L0000652	VOLUME	579947.098	3723031.054	-38.68
LOCATION	L0000653	VOLUME	579945.122	3723034.133	-38.68
LOCATION	L0000654	VOLUME	579943.147	3723037.211	-38.69
LOCATION	L0000655	VOLUME	579941.172	3723040.289	-38.70
LOCATION	L0000656	VOLUME	579939.197	3723043.368	-38.71
LOCATION	L0000657	VOLUME	579937.221	3723046.446	-38.70
LOCATION	L0000658	VOLUME	579935.246	3723049.525	-38.68
LOCATION	L0000659	VOLUME	579933.271	3723052.603	-38.65
LOCATION	L0000660	VOLUME	579931.295	3723055.681	-38.64
LOCATION	L0000661	VOLUME	579929.316	3723058.757	-38.63
LOCATION	L0000662	VOLUME	579927.331	3723061.829	-38.62
LOCATION	L0000663	VOLUME	579925.345	3723064.901	-38.61
LOCATION	L0000664	VOLUME	579923.360	3723067.972	-38.61
LOCATION	L0000665	VOLUME	579921.374	3723071.044	-38.62
LOCATION	L0000666	VOLUME	579919.389	3723074.116	-38.62
LOCATION	L0000667	VOLUME	579917.403	3723077.188	-38.61
LOCATION	L0000668	VOLUME	579915.417	3723080.259	-38.57
LOCATION	L0000669	VOLUME	579913.432	3723083.331	-38.53
LOCATION	L0000670	VOLUME	579911.446	3723086.403	-38.48
LOCATION	L0000671	VOLUME	579909.461	3723089.475	-38.41
LOCATION	L0000672	VOLUME	579907.475	3723092.546	-38.31
LOCATION	L0000673	VOLUME	579905.489	3723095.618	-38.21
LOCATION	L0000674	VOLUME	579903.504	3723098.690	-38.11
LOCATION	L0000675	VOLUME	579901.518	3723101.761	-38.00
LOCATION	L0000676	VOLUME	579899.533	3723104.833	-37.89
LOCATION	L0000677	VOLUME	579897.547	3723107.905	-37.80
LOCATION	L0000678	VOLUME	579895.562	3723110.977	-37.71
LOCATION	L0000679	VOLUME	579893.576	3723114.048	-37.63
LOCATION	L0000680	VOLUME	579891.692	3723117.182	-37.55
LOCATION	L0000681	VOLUME	579889.867	3723120.352	-37.48
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LOCATION L0000957      VOLUME   579962.918 3723272.348 -36.63
LOCATION L0000958      VOLUME   579961.051 3723275.494 -36.58
LOCATION L0000959      VOLUME   579959.184 3723278.639 -36.53
LOCATION L0000960      VOLUME   579957.317 3723281.784 -36.48
LOCATION L0000961      VOLUME   579955.450 3723284.929 -36.43
LOCATION L0000962      VOLUME   579953.583 3723288.074 -36.39
LOCATION L0000963      VOLUME   579951.716 3723291.220 -36.36
LOCATION L0000964      VOLUME   579949.849 3723294.365 -36.34
LOCATION L0000965      VOLUME   579947.982 3723297.510 -36.32
LOCATION L0000966      VOLUME   579946.115 3723300.655 -36.30
LOCATION L0000967      VOLUME   579944.248 3723303.800 -36.29
LOCATION L0000968      VOLUME   579942.381 3723306.946 -36.28
LOCATION L0000969      VOLUME   579940.514 3723310.091 -36.27
LOCATION L0000970      VOLUME   579938.647 3723313.236 -36.27
LOCATION L0000971      VOLUME   579936.780 3723316.381 -36.27
LOCATION L0000972      VOLUME   579934.913 3723319.526 -36.27
LOCATION L0000973      VOLUME   579933.046 3723322.672 -36.27
LOCATION L0000974      VOLUME   579931.179 3723325.817 -36.27
LOCATION L0000975      VOLUME   579929.312 3723328.962 -36.27
LOCATION L0000976      VOLUME   579927.445 3723332.107 -36.27
LOCATION L0000977      VOLUME   579925.578 3723335.253 -36.27
LOCATION L0000978      VOLUME   579923.711 3723338.398 -36.27
LOCATION L0000979      VOLUME   579921.844 3723341.543 -36.27
LOCATION L0000980      VOLUME   579919.977 3723344.688 -36.27
LOCATION L0000981      VOLUME   579918.110 3723347.833 -36.27
LOCATION L0000982      VOLUME   579916.243 3723350.979 -36.27
LOCATION L0000983      VOLUME   579914.376 3723354.124 -36.27
LOCATION L0000984      VOLUME   579912.509 3723357.269 -36.27
LOCATION L0000985      VOLUME   579910.642 3723360.414 -36.27
LOCATION L0000986      VOLUME   579908.778 3723363.561 -36.27
LOCATION L0000987      VOLUME   579906.992 3723366.753 -36.27
LOCATION L0000988      VOLUME   579905.206 3723369.945 -36.27
LOCATION L0000989      VOLUME   579903.421 3723373.137 -36.27
LOCATION L0000990      VOLUME   579901.635 3723376.329 -36.27
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LOCATION	L0000991	VOLUME	579899.849	3723379.521	-36.27
LOCATION	L0000992	VOLUME	579898.063	3723382.713	-36.27
LOCATION	L0000993	VOLUME	579896.278	3723385.905	-36.27
LOCATION	L0000994	VOLUME	579894.492	3723389.097	-36.27
LOCATION	L0000995	VOLUME	579892.706	3723392.289	-36.27
LOCATION	L0000996	VOLUME	579890.920	3723395.481	-36.27
LOCATION	L0000997	VOLUME	579889.134	3723398.673	-36.27
LOCATION	L0000998	VOLUME	579887.349	3723401.865	-36.27
LOCATION	L0000999	VOLUME	579885.563	3723405.057	-36.27
LOCATION	L0001000	VOLUME	579883.777	3723408.249	-36.27
LOCATION	L0001001	VOLUME	579881.991	3723411.441	-36.27
LOCATION	L0001002	VOLUME	579880.205	3723414.633	-36.27
LOCATION	L0001003	VOLUME	579878.420	3723417.826	-36.25
LOCATION	L0001004	VOLUME	579876.634	3723421.018	-36.23
LOCATION	L0001005	VOLUME	579874.848	3723424.210	-36.21
LOCATION	L0001006	VOLUME	579873.062	3723427.402	-36.19
LOCATION	L0001007	VOLUME	579871.277	3723430.594	-36.18
LOCATION	L0001008	VOLUME	579869.491	3723433.786	-36.16
LOCATION	L0001009	VOLUME	579867.705	3723436.978	-36.14
LOCATION	L0001010	VOLUME	579865.919	3723440.170	-36.12
LOCATION	L0001011	VOLUME	579864.133	3723443.362	-36.10
LOCATION	L0001012	VOLUME	579862.348	3723446.554	-36.09
LOCATION	L0001013	VOLUME	579860.562	3723449.746	-36.07
LOCATION	L0001014	VOLUME	579858.776	3723452.938	-36.05
LOCATION	L0001015	VOLUME	579856.990	3723456.130	-36.03
LOCATION	L0001016	VOLUME	579855.204	3723459.322	-36.01
LOCATION	L0001017	VOLUME	579853.419	3723462.514	-36.00
LOCATION	L0001018	VOLUME	579851.633	3723465.706	-35.98
LOCATION	L0001019	VOLUME	579849.847	3723468.898	-36.01
LOCATION	L0001020	VOLUME	579848.061	3723472.090	-36.05
LOCATION	L0001021	VOLUME	579846.276	3723475.282	-36.10
LOCATION	L0001022	VOLUME	579844.490	3723478.474	-36.13
LOCATION	L0001023	VOLUME	579842.704	3723481.666	-36.17
LOCATION	L0001024	VOLUME	579840.918	3723484.858	-36.20
LOCATION	L0001025	VOLUME	579839.132	3723488.050	-36.22
LOCATION	L0001026	VOLUME	579837.347	3723491.242	-36.25
LOCATION	L0001027	VOLUME	579835.561	3723494.434	-36.27
LOCATION	L0001028	VOLUME	579833.775	3723497.626	-36.25
LOCATION	L0001029	VOLUME	579831.989	3723500.818	-36.22
LOCATION	L0001030	VOLUME	579830.203	3723504.010	-36.18
LOCATION	L0001031	VOLUME	579828.418	3723507.202	-36.15
LOCATION	L0001032	VOLUME	579826.632	3723510.394	-36.12
LOCATION	L0001033	VOLUME	579824.846	3723513.586	-36.09
LOCATION	L0001034	VOLUME	579823.060	3723516.778	-36.05
LOCATION	L0001035	VOLUME	579821.275	3723519.970	-36.02
LOCATION	L0001036	VOLUME	579819.489	3723523.162	-35.99
LOCATION	L0001037	VOLUME	579817.703	3723526.354	-35.97
LOCATION	L0001038	VOLUME	579815.917	3723529.546	-35.97
LOCATION	L0001039	VOLUME	579814.131	3723532.738	-35.97
LOCATION	L0001040	VOLUME	579812.346	3723535.930	-35.97
LOCATION	L0001041	VOLUME	579810.560	3723539.122	-35.97
LOCATION	L0001042	VOLUME	579808.774	3723542.314	-35.97
LOCATION	L0001043	VOLUME	579806.988	3723545.506	-35.97
LOCATION	L0001044	VOLUME	579805.202	3723548.698	-35.97

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   LOCATION L0001045     VOLUME   579803.417 3723551.890 -35.97
   LOCATION L0001046     VOLUME   579801.631 3723555.082 -35.97
   LOCATION L0001047     VOLUME   579799.845 3723558.275 -35.97
   LOCATION L0001048     VOLUME   579798.059 3723561.467 -35.97
   LOCATION L0001049     VOLUME   579796.274 3723564.659 -35.97
   LOCATION L0001050     VOLUME   579794.488 3723567.851 -35.97
   LOCATION L0001051     VOLUME   579792.702 3723571.043 -35.97
   LOCATION L0001052     VOLUME   579790.916 3723574.235 -35.97
   LOCATION L0001053     VOLUME   579789.130 3723577.427 -35.97
   LOCATION L0001054     VOLUME   579787.345 3723580.619 -35.97
   LOCATION L0001055     VOLUME   579785.559 3723583.811 -35.97
   LOCATION L0001056     VOLUME   579783.773 3723587.003 -35.97
   LOCATION L0001057     VOLUME   579781.987 3723590.195 -35.97
   LOCATION L0001058     VOLUME   579780.201 3723593.387 -35.97
** End of LINE VOLUME Source ID = RDONE
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDAIRW
** DESCRSRC Airport Blvd west of Project Site
** PREFIX
** Length of Side = 12.19
** Configuration = Adjacent
** Emission Rate = 4.39E-06
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 7
** 580077.815, 3722811.474, -38.84, 0.00, 5.67
** 579930.520, 3722810.498, -38.31, 0.00, 5.67
** 579724.565, 3722817.970, -36.23, 0.00, 5.67
** 579657.572, 3722818.633, -36.01, 0.00, 5.67
** 579442.005, 3722818.125, -36.27, 0.00, 5.67
** 579336.736, 3722811.183, -36.27, 0.00, 5.67
** 579251.350, 3722810.179, -35.97, 0.00, 5.67
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   LOCATION L0001059     VOLUME   580071.719 3722811.433 -38.86
   LOCATION L0001060     VOLUME   580059.528 3722811.353 -38.96
   LOCATION L0001061     VOLUME   580047.336 3722811.272 -38.98
   LOCATION L0001062     VOLUME   580035.144 3722811.191 -39.01
   LOCATION L0001063     VOLUME   580022.952 3722811.110 -39.01
   LOCATION L0001064     VOLUME   580010.761 3722811.030 -39.01
   LOCATION L0001065     VOLUME   579998.569 3722810.949 -38.98
   LOCATION L0001066     VOLUME   579986.377 3722810.868 -38.75
   LOCATION L0001067     VOLUME   579974.185 3722810.787 -38.53
   LOCATION L0001068     VOLUME   579961.994 3722810.707 -38.44
   LOCATION L0001069     VOLUME   579949.802 3722810.626 -38.42
   LOCATION L0001070     VOLUME   579937.610 3722810.545 -38.38
   LOCATION L0001071     VOLUME   579925.422 3722810.683 -38.28
   LOCATION L0001072     VOLUME   579913.238 3722811.125 -38.18
   LOCATION L0001073     VOLUME   579901.054 3722811.567 -38.07
   LOCATION L0001074     VOLUME   579888.870 3722812.009 -37.95
   LOCATION L0001075     VOLUME   579876.686 3722812.451 -37.79
   LOCATION L0001076     VOLUME   579864.502 3722812.893 -37.54
   LOCATION L0001077     VOLUME   579852.318 3722813.335 -37.30
   LOCATION L0001078     VOLUME   579840.134 3722813.777 -37.24
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   LOCATION L0001079     VOLUME   579827.950 3722814.219 -37.21
   LOCATION L0001080     VOLUME   579815.766 3722814.661 -37.15
   LOCATION L0001081     VOLUME   579803.582 3722815.103 -37.07
   LOCATION L0001082     VOLUME   579791.398 3722815.545 -36.99
   LOCATION L0001083     VOLUME   579779.214 3722815.987 -36.83
   LOCATION L0001084     VOLUME   579767.030 3722816.429 -36.67
   LOCATION L0001085     VOLUME   579754.846 3722816.871 -36.52
   LOCATION L0001086     VOLUME   579742.662 3722817.313 -36.39
   LOCATION L0001087     VOLUME   579730.478 3722817.755 -36.27
   LOCATION L0001088     VOLUME   579718.290 3722818.032 -36.20
   LOCATION L0001089     VOLUME   579706.099 3722818.153 -36.13
   LOCATION L0001090     VOLUME   579693.907 3722818.273 -36.07
   LOCATION L0001091     VOLUME   579681.716 3722818.394 -36.02
   LOCATION L0001092     VOLUME   579669.525 3722818.515 -35.97
   LOCATION L0001093     VOLUME   579657.333 3722818.632 -35.97
   LOCATION L0001094     VOLUME   579645.141 3722818.604 -35.97
   LOCATION L0001095     VOLUME   579632.949 3722818.575 -36.01
   LOCATION L0001096     VOLUME   579620.757 3722818.546 -36.08
   LOCATION L0001097     VOLUME   579608.565 3722818.517 -36.14
   LOCATION L0001098     VOLUME   579596.373 3722818.489 -36.14
   LOCATION L0001099     VOLUME   579584.181 3722818.460 -36.14
   LOCATION L0001100     VOLUME   579571.989 3722818.431 -36.14
   LOCATION L0001101     VOLUME   579559.797 3722818.402 -36.14
   LOCATION L0001102     VOLUME   579547.605 3722818.374 -36.14
   LOCATION L0001103     VOLUME   579535.413 3722818.345 -36.14
   LOCATION L0001104     VOLUME   579523.222 3722818.316 -36.14
   LOCATION L0001105     VOLUME   579511.030 3722818.287 -36.14
   LOCATION L0001106     VOLUME   579498.838 3722818.259 -36.14
   LOCATION L0001107     VOLUME   579486.646 3722818.230 -36.14
   LOCATION L0001108     VOLUME   579474.454 3722818.201 -36.14
   LOCATION L0001109     VOLUME   579462.262 3722818.172 -36.14
   LOCATION L0001110     VOLUME   579450.070 3722818.144 -36.19
   LOCATION L0001111     VOLUME   579437.887 3722817.853 -36.24
   LOCATION L0001112     VOLUME   579425.721 3722817.051 -36.27
   LOCATION L0001113     VOLUME   579413.556 3722816.249 -36.27
   LOCATION L0001114     VOLUME   579401.390 3722815.446 -36.27
   LOCATION L0001115     VOLUME   579389.224 3722814.644 -36.27
   LOCATION L0001116     VOLUME   579377.059 3722813.842 -36.27
   LOCATION L0001117     VOLUME   579364.893 3722813.040 -36.27
   LOCATION L0001118     VOLUME   579352.728 3722812.238 -36.27
   LOCATION L0001119     VOLUME   579340.562 3722811.436 -36.27
   LOCATION L0001120     VOLUME   579328.379 3722811.085 -36.25
   LOCATION L0001121     VOLUME   579316.188 3722810.942 -36.23
   LOCATION L0001122     VOLUME   579303.997 3722810.798 -36.22
   LOCATION L0001123     VOLUME   579291.805 3722810.655 -36.22
   LOCATION L0001124     VOLUME   579279.614 3722810.511 -36.21
   LOCATION L0001125     VOLUME   579267.423 3722810.368 -36.11
   LOCATION L0001126     VOLUME   579255.232 3722810.225 -36.01
** End of LINE VOLUME Source ID = RDAIRW
** --------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDAIRE
** DESCRSRC Airport Blvd east of Project Site
** PREFIX
```

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** Length of Side = 12.19
** Configuration = Adjacent
** Emission Rate = 0.0000103
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 3
** 580086.549, 3722811.395, -38.73, 0.00, 5.67
** 580220.964, 3722809.641, -38.34, 0.00, 5.67
** 580570.484, 3722812.421, -37.19, 0.00, 5.67
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   LOCATION L0001127     VOLUME   580092.645 3722811.316 -38.71
   LOCATION L0001128     VOLUME   580104.836 3722811.157 -38.71
   LOCATION L0001129     VOLUME   580117.026 3722810.998 -38.71
   LOCATION L0001130     VOLUME   580129.217 3722810.838 -38.62
   LOCATION L0001131     VOLUME   580141.408 3722810.679 -38.50
   LOCATION L0001132     VOLUME   580153.599 3722810.520 -38.40
   LOCATION L0001133     VOLUME   580165.790 3722810.361 -38.40
   LOCATION L0001134     VOLUME   580177.981 3722810.202 -38.40
   LOCATION L0001135     VOLUME   580190.172 3722810.043 -38.39
   LOCATION L0001136     VOLUME   580202.363 3722809.884 -38.37
   LOCATION L0001137     VOLUME   580214.554 3722809.725 -38.33
   LOCATION L0001138     VOLUME   580226.745 3722809.687 -38.22
   LOCATION L0001139     VOLUME   580238.937 3722809.784 -38.11
   LOCATION L0001140     VOLUME   580251.129 3722809.881 -38.10
   LOCATION L0001141     VOLUME   580263.320 3722809.978 -38.10
   LOCATION L0001142     VOLUME   580275.512 3722810.075 -38.09
   LOCATION L0001143     VOLUME   580287.704 3722810.172 -38.07
   LOCATION L0001144     VOLUME   580299.895 3722810.269 -38.05
   LOCATION L0001145     VOLUME   580312.087 3722810.366 -37.85
   LOCATION L0001146     VOLUME   580324.278 3722810.463 -37.65
   LOCATION L0001147     VOLUME   580336.470 3722810.560 -37.53
   LOCATION L0001148     VOLUME   580348.662 3722810.657 -37.51
   LOCATION L0001149     VOLUME   580360.853 3722810.754 -37.49
   LOCATION L0001150     VOLUME   580373.045 3722810.851 -37.49
   LOCATION L0001151     VOLUME   580385.236 3722810.947 -37.49
   LOCATION L0001152     VOLUME   580397.428 3722811.044 -37.41
   LOCATION L0001153     VOLUME   580409.620 3722811.141 -37.26
   LOCATION L0001154     VOLUME   580421.811 3722811.238 -37.12
   LOCATION L0001155     VOLUME   580434.003 3722811.335 -37.02
   LOCATION L0001156     VOLUME   580446.195 3722811.432 -36.92
   LOCATION L0001157     VOLUME   580458.386 3722811.529 -36.88
   LOCATION L0001158     VOLUME   580470.578 3722811.626 -36.88
   LOCATION L0001159     VOLUME   580482.769 3722811.723 -36.88
   LOCATION L0001160     VOLUME   580494.961 3722811.820 -36.88
   LOCATION L0001161     VOLUME   580507.153 3722811.917 -36.88
   LOCATION L0001162     VOLUME   580519.344 3722812.014 -36.97
   LOCATION L0001163     VOLUME   580531.536 3722812.111 -37.09
   LOCATION L0001164     VOLUME   580543.727 3722812.208 -37.19
   LOCATION L0001165     VOLUME   580555.919 3722812.305 -37.19
   LOCATION L0001166     VOLUME   580568.111 3722812.402 -37.19
** End of LINE VOLUME Source ID = RDAIRE
   LOCATION IDLING1      POINT      579805.150  3723587.850      -35.970
** DESCRSRC Truck Idling at LW-1A
   LOCATION IDLING2      POINT      579874.040  3723475.220      -36.230
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** DESCRSRC Truck Idling at LW-1B
   LOCATION IDLING3      POINT      579883.560  3723455.580      -36.270
** DESCRSRC Truck Idling at LW-2
   LOCATION IDLING4      POINT      579760.060  3723570.450      -35.970
** DESCRSRC Truck Idling at LW-3A
   LOCATION IDLING5      POINT      579788.530  3723421.660      -36.120
** DESCRSRC Truck Idling at LW-3B
   LOCATION IDLING6      POINT      579808.320  3723334.150      -35.850
** DESCRSRC Truck Idling at LW-4
** Source Parameters **
** LINE VOLUME Source ID = RDONW
   SRCPARAM L0000584     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000585     0.00000007702      0.00       1.70       0.85
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   SRCPARAM L0000587     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000588     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000589     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000590     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000591     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000592     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000593     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000594     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000595     0.00000007702      0.00       1.70       0.85
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   SRCPARAM L0000599     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000600     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000601     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000602     0.00000007702      0.00       1.70       0.85
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   SRCPARAM L0000604     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000605     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000606     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000607     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000608     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000609     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000610     0.00000007702      0.00       1.70       0.85
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   SRCPARAM L0000613     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000614     0.00000007702      0.00       1.70       0.85
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   SRCPARAM L0000617     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000618     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000619     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000620     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000621     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000622     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000623     0.00000007702      0.00       1.70       0.85
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   SRCPARAM L0000625     0.00000007702      0.00       1.70       0.85
   SRCPARAM L0000626     0.00000007702      0.00       1.70       0.85
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SRCPARAM	L0000629	0.00000007702	0.00	1.70	0.85
SRCPARAM	L0000630	0.00000007702	0.00	1.70	0.85
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SRCPARAM	L0000632	0.00000007702	0.00	1.70	0.85
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SRCPARAM	L0000634	0.00000007702	0.00	1.70	0.85
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SRCPARAM	L0000924	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000925	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000926	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000927	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000928	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000929	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000930	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000931	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000932	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000933	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000934	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000935	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000936	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000937	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000938	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000939	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000940	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000941	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000942	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000943	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000944	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000945	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000946	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000947	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000948	0.00000007708	0.00	1.70	0.85

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SRCPARAM	L0000950	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000951	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000952	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000953	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000954	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000955	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000956	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000957	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000958	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000959	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0000963	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000964	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000965	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000966	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0000971	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000972	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0000975	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000976	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0000978	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0000981	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000982	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0000984	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000985	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000986	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000987	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000988	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000989	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000990	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000991	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000992	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000993	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000994	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000995	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0000997	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000998	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0000999	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001000	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001001	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001002	0.00000007708	0.00	1.70	0.85

SRCPARAM	L0001003	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001004	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0001007	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0001009	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0001022	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0001028	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001029	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001030	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001031	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001032	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0001037	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0001041	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001042	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001043	0.00000007708	0.00	1.70	0.85
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SRCPARAM	L0001047	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001048	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001049	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001050	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001051	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001052	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001053	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001054	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001055	0.00000007708	0.00	1.70	0.85
SRCPARAM	L0001056	0.00000007708	0.00	1.70	0.85

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   SRCPARAM L0001057     0.00000007708      0.00      1.70      0.85
   SRCPARAM L0001058     0.00000007708      0.00      1.70      0.85
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** LINE VOLUME Source ID = RDAIRW
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   SRCPARAM L0001066     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001067     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001068     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001069     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001070     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001071     0.00000006456      0.00      5.67      0.85
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   SRCPARAM L0001073     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001074     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001075     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001076     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001077     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001078     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001079     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001080     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001081     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001082     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001083     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001084     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001085     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001086     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001087     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001088     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001089     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001090     0.00000006456      0.00      5.67      0.85
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   SRCPARAM L0001095     0.00000006456      0.00      5.67      0.85
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   SRCPARAM L0001100     0.00000006456      0.00      5.67      0.85
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   SRCPARAM L0001102     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001103     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001104     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001105     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001106     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001107     0.00000006456      0.00      5.67      0.85
   SRCPARAM L0001108     0.00000006456      0.00      5.67      0.85
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   SRCPARAM L0001109     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001110     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001111     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001112     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001113     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001114     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001115     0.00000006456      0.00       5.67       0.85
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   SRCPARAM L0001119     0.00000006456      0.00       5.67       0.85
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   SRCPARAM L0001121     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001122     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001123     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001124     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001125     0.00000006456      0.00       5.67       0.85
   SRCPARAM L0001126     0.00000006456      0.00       5.67       0.85
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** LINE VOLUME Source ID = RDAIRE
   SRCPARAM L0001127     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001128     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001129     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001130     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001131     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001132     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001133     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001134     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001135     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001136     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001137     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001138     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001139     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001140     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001141     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001142     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001143     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001144     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001145     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001146     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001147     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001148     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001149     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001150     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001151     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001152     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001153     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001154     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001155     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001156     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001157     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001158     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001159     0.0000002575      0.00       5.67       0.85
   SRCPARAM L0001160     0.0000002575      0.00       5.67       0.85
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   SRCPARAM L0001161     0.0000002575      0.00      5.67      0.85
   SRCPARAM L0001162     0.0000002575      0.00      5.67      0.85
   SRCPARAM L0001163     0.0000002575      0.00      5.67      0.85
   SRCPARAM L0001164     0.0000002575      0.00      5.67      0.85
   SRCPARAM L0001165     0.0000002575      0.00      5.67      0.85
   SRCPARAM L0001166     0.0000002575      0.00      5.67      0.85
** ------------------------------------------------------------------------
   SRCPARAM IDLING1       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING2       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING3       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING4       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING5       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING6       0.000018     3.840   366.000  50.00000
0.100
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED DPM2027.rou
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE ..\KTRM_V9_ADJU\KTRM_v9.SFC
   PROFFILE ..\KTRM_V9_ADJU\KTRM_v9.PFL
   SURFDATA 3104 2012 KTRM_Airport
   UAIRDATA 3190 2012
   PROFBASE -36.0 METERS
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
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   PLOTFILE 24 ALL 1ST DPM2027.AD\24H1GALL.PLT 31
   PLOTFILE ANNUAL ALL DPM2027.AD\AN00GALL.PLT 32
   SUMMFILE DPM2027.sum
OU FINISHED
**
****************************************
** Project Parameters
****************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     11
** ZONEINX  0
**
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* AERMOD ( 19191): Coachella Airport Business Park - 2027-2041 DPM                         03/16/21
* AERMET ( 16216):                                                                          16:30:38
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF    11 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP       NUM YRS   NET ID
* ____________  ____________  ____________  ______  ______  ______  ______  ________  ________  ________
  580086.00000 3722773.00000       0.00222   -39.01   -39.01     0.00  ANNUAL  ALL       00000005
  580122.00000 3722774.00000       0.00265   -38.71   -38.71     0.00  ANNUAL  ALL       00000005
  580172.00000 3722775.00000       0.00263   -38.50   -38.50     0.00  ANNUAL  ALL       00000005
  580242.00000 3722717.00000       0.00149   -38.40   -38.40     0.00  ANNUAL  ALL       00000005
  580289.00000 3722738.00000       0.00157   -37.99   -37.99     0.00  ANNUAL  ALL       00000005
  580337.00000 3722732.00000       0.00140   -37.80   -37.80     0.00  ANNUAL  ALL       00000005
  579963.00000 3722704.00000       0.00094   -36.08   -36.08     0.00  ANNUAL  ALL       00000005
  579927.00000 3722644.00000       0.00071   -36.33   -36.33     0.00  ANNUAL  ALL       00000005
  579519.00000 3722783.00000       0.00061   -36.27   -36.27     0.00  ANNUAL  ALL       00000005
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** CONCUNIT ug/m^3
** DEPUNIT g/m^2
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APPENDIX F

AERMOD Model Years 2041 – 2054 Operational PM10 Printouts

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** AERMOD Input Produced by:
** AERMOD View Ver. 9.9.0
** Lakes Environmental Software Inc.
** Date: 3/16/2021
** File: C:\Vista Env\2019\19039 Coachella\AERMOD\DPM2041\DPM2041.ADI
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**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
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   TITLETWO PM10
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641 Riverside_Co
   POLLUTID PM_10
   RUNORNOT RUN
   ERRORFIL DPM2041.err
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDONW
** DESCRSRC Onsite Road West
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.000016
** Vertical Dimension = 1.83
** SZINIT = 0.85
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** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDONE
** DESCRSRC Onsite Road East
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000164
** Vertical Dimension = 1.83
** SZINIT = 0.85
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** PREFIX
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** Emission Rate = 4.07E-06
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   LOCATION L0001700     VOLUME   579364.893 3722813.040 -36.27
   LOCATION L0001701     VOLUME   579352.728 3722812.238 -36.27
   LOCATION L0001702     VOLUME   579340.562 3722811.436 -36.27
   LOCATION L0001703     VOLUME   579328.379 3722811.085 -36.25
   LOCATION L0001704     VOLUME   579316.188 3722810.942 -36.23
   LOCATION L0001705     VOLUME   579303.997 3722810.798 -36.22
   LOCATION L0001706     VOLUME   579291.805 3722810.655 -36.22
   LOCATION L0001707     VOLUME   579279.614 3722810.511 -36.21
   LOCATION L0001708     VOLUME   579267.423 3722810.368 -36.11
   LOCATION L0001709     VOLUME   579255.232 3722810.225 -36.01
** End of LINE VOLUME Source ID = RDAIRW
** --------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDAIRE
** DESCRSRC Airport Blvd east of Project Site
** PREFIX
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** Length of Side = 12.19
** Configuration = Adjacent
** Emission Rate = 9.54E-06
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 3
** 580086.549, 3722811.395, -38.73, 0.00, 5.67
** 580220.964, 3722809.641, -38.34, 0.00, 5.67
** 580570.484, 3722812.421, -37.19, 0.00, 5.67
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   LOCATION L0001710     VOLUME   580092.645 3722811.316 -38.71
   LOCATION L0001711     VOLUME   580104.836 3722811.157 -38.71
   LOCATION L0001712     VOLUME   580117.026 3722810.998 -38.71
   LOCATION L0001713     VOLUME   580129.217 3722810.838 -38.62
   LOCATION L0001714     VOLUME   580141.408 3722810.679 -38.50
   LOCATION L0001715     VOLUME   580153.599 3722810.520 -38.40
   LOCATION L0001716     VOLUME   580165.790 3722810.361 -38.40
   LOCATION L0001717     VOLUME   580177.981 3722810.202 -38.40
   LOCATION L0001718     VOLUME   580190.172 3722810.043 -38.39
   LOCATION L0001719     VOLUME   580202.363 3722809.884 -38.37
   LOCATION L0001720     VOLUME   580214.554 3722809.725 -38.33
   LOCATION L0001721     VOLUME   580226.745 3722809.687 -38.22
   LOCATION L0001722     VOLUME   580238.937 3722809.784 -38.11
   LOCATION L0001723     VOLUME   580251.129 3722809.881 -38.10
   LOCATION L0001724     VOLUME   580263.320 3722809.978 -38.10
   LOCATION L0001725     VOLUME   580275.512 3722810.075 -38.09
   LOCATION L0001726     VOLUME   580287.704 3722810.172 -38.07
   LOCATION L0001727     VOLUME   580299.895 3722810.269 -38.05
   LOCATION L0001728     VOLUME   580312.087 3722810.366 -37.85
   LOCATION L0001729     VOLUME   580324.278 3722810.463 -37.65
   LOCATION L0001730     VOLUME   580336.470 3722810.560 -37.53
   LOCATION L0001731     VOLUME   580348.662 3722810.657 -37.51
   LOCATION L0001732     VOLUME   580360.853 3722810.754 -37.49
   LOCATION L0001733     VOLUME   580373.045 3722810.851 -37.49
   LOCATION L0001734     VOLUME   580385.236 3722810.947 -37.49
   LOCATION L0001735     VOLUME   580397.428 3722811.044 -37.41
   LOCATION L0001736     VOLUME   580409.620 3722811.141 -37.26
   LOCATION L0001737     VOLUME   580421.811 3722811.238 -37.12
   LOCATION L0001738     VOLUME   580434.003 3722811.335 -37.02
   LOCATION L0001739     VOLUME   580446.195 3722811.432 -36.92
   LOCATION L0001740     VOLUME   580458.386 3722811.529 -36.88
   LOCATION L0001741     VOLUME   580470.578 3722811.626 -36.88
   LOCATION L0001742     VOLUME   580482.769 3722811.723 -36.88
   LOCATION L0001743     VOLUME   580494.961 3722811.820 -36.88
   LOCATION L0001744     VOLUME   580507.153 3722811.917 -36.88
   LOCATION L0001745     VOLUME   580519.344 3722812.014 -36.97
   LOCATION L0001746     VOLUME   580531.536 3722812.111 -37.09
   LOCATION L0001747     VOLUME   580543.727 3722812.208 -37.19
   LOCATION L0001748     VOLUME   580555.919 3722812.305 -37.19
   LOCATION L0001749     VOLUME   580568.111 3722812.402 -37.19
** End of LINE VOLUME Source ID = RDAIRE
   LOCATION IDLING1      POINT      579805.150  3723587.850      -35.970
** DESCRSRC Truck Idling at LW-1A
   LOCATION IDLING2      POINT      579874.040  3723475.220      -36.230
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** DESCRSRC Truck Idling at LW-1B
   LOCATION IDLING3      POINT      579883.560  3723455.580      -36.270
** DESCRSRC Truck Idling at LW-2
   LOCATION IDLING4      POINT      579760.060  3723570.450      -35.970
** DESCRSRC Truck Idling at LW-3A
   LOCATION IDLING5      POINT      579788.530  3723421.660      -36.120
** DESCRSRC Truck Idling at LW-3B
   LOCATION IDLING6      POINT      579808.320  3723334.150      -35.850
** DESCRSRC Truck Idling at LW-4
** Source Parameters **
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   SRCPARAM L0001678     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001679     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001680     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001681     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001682     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001683     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001684     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001685     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001686     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001687     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001688     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001689     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001690     0.00000005985      0.00       5.67       0.85
   SRCPARAM L0001691     0.00000005985      0.00       5.67       0.85
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   SRCPARAM L0001692     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001693     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001694     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001695     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001696     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001697     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001698     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001699     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001700     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001701     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001702     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001703     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001704     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001705     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001706     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001707     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001708     0.00000005985      0.00      5.67      0.85
   SRCPARAM L0001709     0.00000005985      0.00      5.67      0.85
** ------------------------------------------------------------------------
** LINE VOLUME Source ID = RDAIRE
   SRCPARAM L0001710     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001711     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001712     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001713     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001714     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001715     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001716     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001717     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001718     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001719     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001720     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001721     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001722     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001723     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001724     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001725     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001726     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001727     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001728     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001729     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001730     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001731     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001732     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001733     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001734     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001735     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001736     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001737     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001738     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001739     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001740     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001741     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001742     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001743     0.0000002385      0.00      5.67      0.85
```

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   SRCPARAM L0001744     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001745     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001746     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001747     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001748     0.0000002385      0.00      5.67      0.85
   SRCPARAM L0001749     0.0000002385      0.00      5.67      0.85
** ------------------------------------------------------------------------
   SRCPARAM IDLING1       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING2       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING3       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING4       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING5       0.000018     3.840   366.000  50.00000
0.100
   SRCPARAM IDLING6       0.000018     3.840   366.000  50.00000
0.100
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED DPM2041.rou
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE ..\KTRM_V9_ADJU\KTRM_v9.SFC
   PROFFILE ..\KTRM_V9_ADJU\KTRM_v9.PFL
   SURFDATA 3104 2012 KTRM_Airport
   UAIRDATA 3190 2012
   PROFBASE -36.0 METERS
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
```

```
   PLOTFILE 24 ALL 1ST DPM2041.AD\24H1GALL.PLT 31
   PLOTFILE ANNUAL ALL DPM2041.AD\AN00GALL.PLT 32
   SUMMFILE DPM2041.sum
OU FINISHED
**
****************************************
** Project Parameters
****************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     11
** ZONEINX  0
**
```

```
* AERMOD ( 19191): Coachella Airport Business Park - 2041-2054 DPM                    03/16/21
* AERMET ( 16216):                                                                    18:29:32
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF    11 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP       NUM YRS   NET ID
* ____________ ____________ ____________   ______   ______   ______ ______  ________  ________  ________
  580086.00000 3722773.00000       0.00206   -39.01   -39.01     0.00 ANNUAL  ALL       00000005
  580122.00000 3722774.00000       0.00245   -38.71   -38.71     0.00 ANNUAL  ALL       00000005
  580172.00000 3722775.00000       0.00245   -38.50   -38.50     0.00 ANNUAL  ALL       00000005
  580242.00000 3722717.00000       0.00139   -38.40   -38.40     0.00 ANNUAL  ALL       00000005
  580289.00000 3722738.00000       0.00147   -37.99   -37.99     0.00 ANNUAL  ALL       00000005
  580337.00000 3722732.00000       0.00131   -37.80   -37.80     0.00 ANNUAL  ALL       00000005
  579963.00000 3722704.00000       0.00089   -36.08   -36.08     0.00 ANNUAL  ALL       00000005
  579927.00000 3722644.00000       0.00068   -36.33   -36.33     0.00 ANNUAL  ALL       00000005
  579519.00000 3722783.00000       0.00057   -36.27   -36.27     0.00 ANNUAL  ALL       00000005
  579466.00000 3722781.00000       0.00052   -36.27   -36.27     0.00 ANNUAL  ALL       00000005
  579393.00000 3722779.00000       0.00049   -36.27   -36.27     0.00 ANNUAL  ALL       00000005
** CONCUNIT ug/m^3
** DEPUNIT g/m^2
```

APPENDIX G

CalEEMod Model Business-As-Usual Year 2010 Annual Printouts

Coachella Airport Business Park - Year 2010 BAU

Riverside-Salton Sea County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	486.90	1000sqft	23.03	486,900.00	0
Unrefrigerated Warehouse-No Rail	128.60	1000sqft	6.30	128,600.00	0
Parking Lot	686.00	Space	12.73	274,400.00	0
Fast Food Restaurant with Drive Thru	4.65	1000sqft	0.23	4,650.00	0
Convenience Market With Gas Pumps	10.00	Pump	0.06	4,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	15			**Operational Year**	2010
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1181.61	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.011

1.3 User Entered Comments & Non-Default Data

Coachella Airport Business Park - Year 2010 BAU - Riverside-Salton Sea County, Annual

Project Characteristics - IID Intensity Factors obtained from CAP for year 2010

Land Use - Total Project Site: 42.36 acres

Construction Phase - Construction schedule provided by applicant

Trips and VMT - 6 vendor trips per day added to Site Prep and Grading phases to account for water truck emissions

Grading - 21,040 cu yds imported

Architectural Coating - Non Residential interior Architectural Coating VOC set to 100 grams/liter per SCAQMD Rule 1113 minimum requirements

Vehicle Trips - Daily Trip Rates from TIA.

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for SCAQMD Rule 403 minimum requirements

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - 6 CNG Forklifts 8 hours per day

Fleet Mix - Fleet Mix - Trucks analyzed under Industrial Park land use. Trucks removed from all other land uses

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblAreaCoating	Area_Nonresidential_Exterior	312075	314413
tblAreaCoating	Area_Nonresidential_Interior	936225	943238
tblAreaCoating	Area_Parking	16464	16488
tblConstructionPhase	NumDays	55.00	261.00
tblConstructionPhase	NumDays	55.00	261.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.20
tblFleetMix	HHD	0.06	0.00
tblFleetMix	LDA	0.47	0.63

Coachella Airport Business Park - Year 2010 BAU - Riverside-Salton Sea County, Annual

tblFleetMix	LDA	0.47	0.63
tblFleetMix	LDA	0.47	0.42
tblFleetMix	LDA	0.47	0.63
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.03
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.14
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.04
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD2	8.4100e-003	0.00
tblFleetMix	LHD2	8.4100e-003	0.00
tblFleetMix	LHD2	8.4100e-003	0.02
tblFleetMix	LHD2	8.4100e-003	0.00
tblFleetMix	MCY	5.5220e-003	4.0000e-003
tblFleetMix	MCY	5.5220e-003	4.0000e-003
tblFleetMix	MCY	5.5220e-003	3.0000e-003
tblFleetMix	MCY	5.5220e-003	4.0000e-003
tblFleetMix	MDV	0.18	0.12
tblFleetMix	MDV	0.18	0.12
tblFleetMix	MDV	0.18	0.08
tblFleetMix	MDV	0.18	0.12

tblFleetMix	MH	2.3600e-003	0.00
tblFleetMix	MH	2.3600e-003	0.00
tblFleetMix	MH	2.3600e-003	0.00
tblFleetMix	MH	2.3600e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.07
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.2540e-003	0.00
tblFleetMix	OBUS	1.2540e-003	0.00
tblFleetMix	OBUS	1.2540e-003	0.00
tblFleetMix	OBUS	1.2540e-003	0.00
tblFleetMix	SBUS	8.8800e-004	0.00
tblFleetMix	SBUS	8.8800e-004	0.00
tblFleetMix	SBUS	8.8800e-004	0.00
tblFleetMix	SBUS	8.8800e-004	0.00
tblFleetMix	UBUS	1.5420e-003	0.00
tblFleetMix	UBUS	1.5420e-003	0.00
tblFleetMix	UBUS	1.5420e-003	0.00
tblFleetMix	UBUS	1.5420e-003	0.00
tblGrading	MaterialImported	0.00	21,040.00
tblLandUse	LandUseSquareFeet	1,411.75	4,000.00
tblLandUse	LotAcreage	11.18	23.03
tblLandUse	LotAcreage	2.95	6.30
tblLandUse	LotAcreage	6.17	12.73
tblLandUse	LotAcreage	0.11	0.23
tblLandUse	LotAcreage	0.03	0.06

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	6.00
tblProjectCharacteristics	CO2IntensityFactor	1270.9	1181.61
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.011
tblSolidWaste	SolidWasteGenerationRate	120.88	125.28
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	147.00	148.00
tblTripsAndVMT	WorkerTripNumber	377.00	379.00
tblTripsAndVMT	WorkerTripNumber	75.00	76.00
tblVehicleTrips	ST_TR	204.47	231.52
tblVehicleTrips	ST_TR	722.03	470.95
tblVehicleTrips	ST_TR	2.49	3.37
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	166.88	231.52
tblVehicleTrips	SU_TR	542.72	470.95
tblVehicleTrips	SU_TR	0.73	3.37
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	542.60	231.52
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	6.83	3.37
tblVehicleTrips	WD_TR	1.68	1.51
tblWater	IndoorWaterUseRate	29,738,750.00	30,821,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1351	1.5468	0.8787	2.1600e-003	0.4997	0.0649	0.5646	0.2229	0.0597	0.2826	0.0000	193.6104	193.6104	0.0492	0.0000	194.8414
2022	0.4338	4.0837	3.6121	0.0112	0.6699	0.1266	0.7965	0.1990	0.1184	0.3174	0.0000	1,020.6309	1,020.6309	0.1339	0.0000	1,023.9783
2023	0.3845	3.1776	3.4002	0.0109	0.5006	0.0944	0.5950	0.1351	0.0888	0.2239	0.0000	989.5759	989.5759	0.1030	0.0000	992.1510
2024	4.6399	4.4736	5.7033	0.0149	0.6002	0.1531	0.7533	0.1616	0.1432	0.3048	0.0000	1,346.5643	1,346.5643	0.1896	0.0000	1,351.3053
Maximum	**4.6399**	**4.4736**	**5.7033**	**0.0149**	**0.6699**	**0.1531**	**0.7965**	**0.2229**	**0.1432**	**0.3174**	**0.0000**	**1,346.5643**	**1,346.5643**	**0.1896**	**0.0000**	**1,351.3053**

2.1 Overall Construction

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					
2021	0.1351	1.5468	0.8787	2.1600e-003	0.2389	0.0649	0.3038	0.1040	0.0597	0.1637	0.0000	193.6102	193.6102	0.0492	0.0000	194.8412
2022	0.4338	4.0837	3.6121	0.0112	0.5466	0.1266	0.6732	0.1557	0.1184	0.2740	0.0000	1,020.6305	1,020.6305	0.1339	0.0000	1,023.9779
2023	0.3845	3.1776	3.4002	0.0109	0.5006	0.0944	0.5950	0.1351	0.0888	0.2239	0.0000	989.5755	989.5755	0.1030	0.0000	992.1506
2024	4.6399	4.4736	5.7033	0.0149	0.6002	0.1531	0.7533	0.1616	0.1432	0.3048	0.0000	1,346.5636	1,346.5636	0.1896	0.0000	1,351.3046
Maximum	**4.6399**	**4.4736**	**5.7033**	**0.0149**	**0.6002**	**0.1531**	**0.7533**	**0.1616**	**0.1432**	**0.3048**	**0.0000**	**1,346.5636**	**1,346.5636**	**0.1896**	**0.0000**	**1,351.3046**

	ROG	NOx	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**	**16.92**	**0.00**	**14.18**	**22.58**	**0.00**	**14.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-5-2021**	**1-4-2022**	1.7178	1.7178
2	**1-5-2022**	**4-4-2022**	1.3832	1.3832
3	**4-5-2022**	**7-4-2022**	1.0366	1.0366
4	**7-5-2022**	**10-4-2022**	1.0477	1.0477
5	**10-5-2022**	**1-4-2023**	1.0358	1.0358
6	**1-5-2023**	**4-4-2023**	0.8791	0.8791
7	**4-5-2023**	**7-4-2023**	0.8939	0.8939
8	**7-5-2023**	**10-4-2023**	0.9035	0.9035

9	**10-5-2023**	**1-4-2024**	0.9591	0.9591
10	**1-5-2024**	**4-4-2024**	2.2686	2.2686
11	**4-5-2024**	**7-4-2024**	2.2736	2.2736
12	**7-5-2024**	**9-30-2024**	2.1987	2.1987
		Highest	2.2736	2.2736

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	3.1951	1.3000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0235	0.0235	8.0000e-005	0.0000	0.0256
Energy	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	3,016.337 8	3,016.337 8	0.0731	0.0296	3,026.996 9
Mobile	4.6580	24.5035	34.4145	0.0537	2.8414	0.7534	3.5948	0.7648	0.7199	1.4847	0.0000	4,946.387 1	4,946.387 1	0.7298	0.0000	4,964.631 2
Offroad	0.2151	1.8696	1.0059	1.1900e-003		0.1529	0.1529		0.1407	0.1407	0.0000	116.3858	116.3858	0.0339	0.0000	117.2327
Waste						0.0000	0.0000		0.0000	0.0000	158.8607	0.0000	158.8607	9.3884	0.0000	393.5707
Water						0.0000	0.0000		0.0000	0.0000	45.9804	1,012.382 1	1,058.362 5	4.7475	0.1209	1,213.088 4
Total	**8.0856**	**26.5316**	**35.5669**	**0.0559**	**2.8414**	**0.9184**	**3.7598**	**0.7648**	**0.8727**	**1.6375**	**204.8412**	**9,091.516 3**	**9,296.357 5**	**14.9727**	**0.1506**	**9,715.545 6**

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	3.1951	1.3000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0235	0.0235	8.0000e-005	0.0000	0.0256
Energy	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	3,016.3378	3,016.3378	0.0731	0.0296	3,026.9969
Mobile	4.6580	24.5035	34.4145	0.0537	2.8414	0.7534	3.5948	0.7648	0.7199	1.4847	0.0000	4,946.3871	4,946.3871	0.7298	0.0000	4,964.6312
Offroad	0.2151	1.8696	1.0059	1.1900e-003		0.1529	0.1529		0.1407	0.1407	0.0000	116.3858	116.3858	0.0339	0.0000	117.2327
Waste						0.0000	0.0000		0.0000	0.0000	158.8607	0.0000	158.8607	9.3884	0.0000	393.5707
Water						0.0000	0.0000		0.0000	0.0000	45.9804	1,012.3821	1,058.3625	4.7475	0.1209	1,213.0884
Total	**8.0856**	**26.5316**	**35.5669**	**0.0559**	**2.8414**	**0.9184**	**3.7598**	**0.7648**	**0.8727**	**1.6375**	**204.8412**	**9,091.5163**	**9,296.3575**	**14.9727**	**0.1506**	**9,715.5456**

	ROG	NOx	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**

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	10/5/2021	11/15/2021	5	30	
2	Grading	Grading	11/16/2021	2/28/2022	5	75	
3	Building Construction	Building Construction	3/1/2022	12/30/2024	5	740	
4	Paving	Paving	1/1/2024	12/30/2024	5	261	
5	Architectural Coating	Architectural Coating	1/1/2024	12/30/2024	5	261	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 12.73

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 936,225; Non-Residential Outdoor: 312,075; Striped Parking Area: 16,464 (Architectural Coating – sqft)

OffRoad Equipment

Coachella Airport Business Park - Year 2010 BAU - Riverside-Salton Sea County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	2,630.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	379.00	148.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	76.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

Coachella Airport Business Park - Year 2010 BAU - Riverside-Salton Sea County, Annual

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0583	0.6075	0.3173	5.7000e-004		0.0307	0.0307		0.0282	0.0282	0.0000	50.1536	50.1536	0.0162	0.0000	50.5591
Total	**0.0583**	**0.6075**	**0.3173**	**5.7000e-004**	**0.2710**	**0.0307**	**0.3017**	**0.1490**	**0.0282**	**0.1772**	**0.0000**	**50.1536**	**50.1536**	**0.0162**	**0.0000**	**50.5591**

3.2 Site Preparation - 2021

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	2.0000e-004	7.8400e-003	1.5100e-003	2.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	1.8544	1.8544	1.6000e-004	0.0000	1.8585
Worker	9.4000e-004	6.0000e-004	6.6400e-003	2.0000e-005	2.2200e-003	1.0000e-005	2.2400e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8091	1.8091	4.0000e-005	0.0000	1.8101
Total	**1.1400e-003**	**8.4400e-003**	**8.1500e-003**	**4.0000e-005**	**2.6700e-003**	**2.0000e-005**	**2.7000e-003**	**7.2000e-004**	**2.0000e-005**	**7.4000e-004**	**0.0000**	**3.6635**	**3.6635**	**2.0000e-004**	**0.0000**	**3.6686**

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					0.1220	0.0000	0.1220	0.0670	0.0000	0.0670	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0583	0.6075	0.3173	5.7000e-004		0.0307	0.0307		0.0282	0.0282	0.0000	50.1535	50.1535	0.0162	0.0000	50.5590
Total	**0.0583**	**0.6075**	**0.3173**	**5.7000e-004**	**0.1220**	**0.0307**	**0.1526**	**0.0670**	**0.0282**	**0.0952**	**0.0000**	**50.1535**	**50.1535**	**0.0162**	**0.0000**	**50.5590**

3.2 Site Preparation - 2021

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	2.0000e-004	7.8400e-003	1.5100e-003	2.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	1.8544	1.8544	1.6000e-004	0.0000	1.8585
Worker	9.4000e-004	6.0000e-004	6.6400e-003	2.0000e-005	2.2200e-003	1.0000e-005	2.2400e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8091	1.8091	4.0000e-005	0.0000	1.8101
Total	**1.1400e-003**	**8.4400e-003**	**8.1500e-003**	**4.0000e-005**	**2.6700e-003**	**2.0000e-005**	**2.7000e-003**	**7.2000e-004**	**2.0000e-005**	**7.4000e-004**	**0.0000**	**3.6635**	**3.6635**	**2.0000e-004**	**0.0000**	**3.6686**

3.3 Grading - 2021

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					0.2031	0.0000	0.2031	0.0672	0.0000	0.0672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0713	0.7888	0.5249	1.0500e-003		0.0338	0.0338		0.0311	0.0311	0.0000	92.6415	92.6415	0.0300	0.0000	93.3905
Total	**0.0713**	**0.7888**	**0.5249**	**1.0500e-003**	**0.2031**	**0.0338**	**0.2369**	**0.0672**	**0.0311**	**0.0983**	**0.0000**	**92.6415**	**92.6415**	**0.0300**	**0.0000**	**93.3905**

3.3 Grading - 2021

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	2.9700e-003	0.1325	0.0183	4.4000e-004	0.0196	4.0000e-004	0.0200	5.1100e-003	3.8000e-004	5.4900e-003	0.0000	42.7721	42.7721	2.6100e-003	0.0000	42.8374
Vendor	2.2000e-004	8.8900e-003	1.7100e-003	2.0000e-005	5.0000e-004	1.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	2.1017	2.1017	1.8000e-004	0.0000	2.1063
Worker	1.1800e-003	7.6000e-004	8.3700e-003	3.0000e-005	2.8000e-003	2.0000e-005	2.8100e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.2781	2.2781	5.0000e-005	0.0000	2.2794
Total	**4.3700e-003**	**0.1421**	**0.0283**	**4.9000e-004**	**0.0229**	**4.3000e-004**	**0.0233**	**6.0000e-003**	**4.1000e-004**	**6.4100e-003**	**0.0000**	**47.1519**	**47.1519**	**2.8400e-003**	**0.0000**	**47.2231**

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					0.0914	0.0000	0.0914	0.0302	0.0000	0.0302	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0713	0.7888	0.5249	1.0500e-003		0.0338	0.0338		0.0311	0.0311	0.0000	92.6414	92.6414	0.0300	0.0000	93.3904
Total	**0.0713**	**0.7888**	**0.5249**	**1.0500e-003**	**0.0914**	**0.0338**	**0.1252**	**0.0302**	**0.0311**	**0.0613**	**0.0000**	**92.6414**	**92.6414**	**0.0300**	**0.0000**	**93.3904**

3.3 Grading - 2021

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	2.9700e-003	0.1325	0.0183	4.4000e-004	0.0196	4.0000e-004	0.0200	5.1100e-003	3.8000e-004	5.4900e-003	0.0000	42.7721	42.7721	2.6100e-003	0.0000	42.8374
Vendor	2.2000e-004	8.8900e-003	1.7100e-003	2.0000e-005	5.0000e-004	1.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	2.1017	2.1017	1.8000e-004	0.0000	2.1063
Worker	1.1800e-003	7.6000e-004	8.3700e-003	3.0000e-005	2.8000e-003	2.0000e-005	2.8100e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.2781	2.2781	5.0000e-005	0.0000	2.2794
Total	**4.3700e-003**	**0.1421**	**0.0283**	**4.9000e-004**	**0.0229**	**4.3000e-004**	**0.0233**	**6.0000e-003**	**4.1000e-004**	**6.4100e-003**	**0.0000**	**47.1519**	**47.1519**	**2.8400e-003**	**0.0000**	**47.2231**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2242	0.0000	0.2242	0.0788	0.0000	0.0788	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0743	0.7963	0.5954	1.2700e-003		0.0335	0.0335		0.0308	0.0308	0.0000	111.7959	111.7959	0.0362	0.0000	112.6999
Total	**0.0743**	**0.7963**	**0.5954**	**1.2700e-003**	**0.2242**	**0.0335**	**0.2577**	**0.0788**	**0.0308**	**0.1096**	**0.0000**	**111.7959**	**111.7959**	**0.0362**	**0.0000**	**112.6999**

3.3 Grading - 2022

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	3.3600e-003	0.1452	0.0214	5.3000e-004	0.0201	4.0000e-004	0.0205	5.3000e-003	3.8000e-004	5.6800e-003	0.0000	50.9860	50.9860	3.0200e-003	0.0000	51.0616
Vendor	2.5000e-004	0.0102	1.9200e-003	3.0000e-005	6.1000e-004	1.0000e-005	6.2000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.5124	2.5124	2.1000e-004	0.0000	2.5177
Worker	1.3300e-003	8.2000e-004	9.2900e-003	3.0000e-005	3.3700e-003	2.0000e-005	3.3900e-003	9.0000e-004	2.0000e-005	9.1000e-004	0.0000	2.6469	2.6469	6.0000e-005	0.0000	2.6484
Total	**4.9400e-003**	**0.1562**	**0.0326**	**5.9000e-004**	**0.0241**	**4.3000e-004**	**0.0245**	**6.3800e-003**	**4.1000e-004**	**6.7800e-003**	**0.0000**	**56.1454**	**56.1454**	**3.2900e-003**	**0.0000**	**56.2276**

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					0.1009	0.0000	0.1009	0.0355	0.0000	0.0355	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0743	0.7963	0.5954	1.2700e-003		0.0335	0.0335		0.0308	0.0308	0.0000	111.7958	111.7958	0.0362	0.0000	112.6997
Total	**0.0743**	**0.7963**	**0.5954**	**1.2700e-003**	**0.1009**	**0.0335**	**0.1344**	**0.0355**	**0.0308**	**0.0663**	**0.0000**	**111.7958**	**111.7958**	**0.0362**	**0.0000**	**112.6997**

3.3 Grading - 2022

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	3.3600e-003	0.1452	0.0214	5.3000e-004	0.0201	4.0000e-004	0.0205	5.3000e-003	3.8000e-004	5.6800e-003	0.0000	50.9860	50.9860	3.0200e-003	0.0000	51.0616
Vendor	2.5000e-004	0.0102	1.9200e-003	3.0000e-005	6.1000e-004	1.0000e-005	6.2000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.5124	2.5124	2.1000e-004	0.0000	2.5177
Worker	1.3300e-003	8.2000e-004	9.2900e-003	3.0000e-005	3.3700e-003	2.0000e-005	3.3900e-003	9.0000e-004	2.0000e-005	9.1000e-004	0.0000	2.6469	2.6469	6.0000e-005	0.0000	2.6484
Total	**4.9400e-003**	**0.1562**	**0.0326**	**5.9000e-004**	**0.0241**	**4.3000e-004**	**0.0245**	**6.3800e-003**	**4.1000e-004**	**6.7800e-003**	**0.0000**	**56.1454**	**56.1454**	**3.2900e-003**	**0.0000**	**56.2276**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1868	1.7099	1.7918	2.9500e-003		0.0886	0.0886		0.0834	0.0834	0.0000	253.7391	253.7391	0.0608	0.0000	255.2589
Total	**0.1868**	**1.7099**	**1.7918**	**2.9500e-003**		**0.0886**	**0.0886**		**0.0834**	**0.0834**	**0.0000**	**253.7391**	**253.7391**	**0.0608**	**0.0000**	**255.2589**

3.4 Building Construction - 2022

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	0.0331	1.3380	0.2523	3.4600e-003	0.0802	1.9600e-003	0.0822	0.0232	1.8700e-003	0.0250	0.0000	331.0284	331.0284	0.0277	0.0000	331.7210
Worker	0.1346	0.0834	0.9401	2.9600e-003	0.3414	2.0600e-003	0.3435	0.0907	1.8900e-003	0.0926	0.0000	267.9221	267.9221	5.9600e-003	0.0000	268.0711
Total	**0.1677**	**1.4213**	**1.1924**	**6.4200e-003**	**0.4216**	**4.0200e-003**	**0.4256**	**0.1138**	**3.7600e-003**	**0.1176**	**0.0000**	**598.9505**	**598.9505**	**0.0337**	**0.0000**	**599.7920**

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	0.1868	1.7099	1.7918	2.9500e-003		0.0886	0.0886		0.0834	0.0834	0.0000	253.7388	253.7388	0.0608	0.0000	255.2586
Total	**0.1868**	**1.7099**	**1.7918**	**2.9500e-003**		**0.0886**	**0.0886**		**0.0834**	**0.0834**	**0.0000**	**253.7388**	**253.7388**	**0.0608**	**0.0000**	**255.2586**

3.4 Building Construction - 2022

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	0.0331	1.3380	0.2523	3.4600e-003	0.0802	1.9600e-003	0.0822	0.0232	1.8700e-003	0.0250	0.0000	331.0284	331.0284	0.0277	0.0000	331.7210
Worker	0.1346	0.0834	0.9401	2.9600e-003	0.3414	2.0600e-003	0.3435	0.0907	1.8900e-003	0.0926	0.0000	267.9221	267.9221	5.9600e-003	0.0000	268.0711
Total	**0.1677**	**1.4213**	**1.1924**	**6.4200e-003**	**0.4216**	**4.0200e-003**	**0.4256**	**0.1138**	**3.7600e-003**	**0.1176**	**0.0000**	**598.9505**	**598.9505**	**0.0337**	**0.0000**	**599.7920**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

3.4 Building Construction - 2023

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	0.0301	1.2184	0.2605	3.9900e-003	0.0952	1.0400e-003	0.0962	0.0275	9.9000e-004	0.0285	0.0000	382.2148	382.2148	0.0250	0.0000	382.8390
Worker	0.1499	0.0892	1.0280	3.3800e-003	0.4054	2.3800e-003	0.4077	0.1077	2.1900e-003	0.1099	0.0000	306.0149	306.0149	6.3500e-003	0.0000	306.1737
Total	**0.1800**	**1.3075**	**1.2884**	**7.3700e-003**	**0.5006**	**3.4200e-003**	**0.5040**	**0.1351**	**3.1800e-003**	**0.1383**	**0.0000**	**688.2297**	**688.2297**	**0.0313**	**0.0000**	**689.0127**

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

3.4 Building Construction - 2023

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	0.0301	1.2184	0.2605	3.9900e-003	0.0952	1.0400e-003	0.0962	0.0275	9.9000e-004	0.0285	0.0000	382.2148	382.2148	0.0250	0.0000	382.8390
Worker	0.1499	0.0892	1.0280	3.3800e-003	0.4054	2.3800e-003	0.4077	0.1077	2.1900e-003	0.1099	0.0000	306.0149	306.0149	6.3500e-003	0.0000	306.1737
Total	**0.1800**	**1.3075**	**1.2884**	**7.3700e-003**	**0.5006**	**3.4200e-003**	**0.5040**	**0.1351**	**3.1800e-003**	**0.1383**	**0.0000**	**688.2297**	**688.2297**	**0.0313**	**0.0000**	**689.0127**

3.4 Building Construction - 2024

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	0.1920	1.7544	2.1098	3.5200e-003		0.0800	0.0800		0.0753	0.0753	0.0000	302.5631	302.5631	0.0716	0.0000	304.3518
Total	**0.1920**	**1.7544**	**2.1098**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0753**	**0.0753**	**0.0000**	**302.5631**	**302.5631**	**0.0716**	**0.0000**	**304.3518**

3.4 Building Construction - 2024

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	0.0296	1.2166	0.2520	3.9900e-003	0.0956	1.0400e-003	0.0966	0.0276	9.9000e-004	0.0286	0.0000	381.9907	381.9907	0.0245	0.0000	382.6029
Worker	0.1418	0.0811	0.9650	3.2700e-003	0.4069	2.3700e-003	0.4093	0.1081	2.1800e-003	0.1103	0.0000	296.2202	296.2202	5.8100e-003	0.0000	296.3655
Total	**0.1714**	**1.2977**	**1.2170**	**7.2600e-003**	**0.5025**	**3.4100e-003**	**0.5059**	**0.1357**	**3.1700e-003**	**0.1388**	**0.0000**	**678.2109**	**678.2109**	**0.0303**	**0.0000**	**678.9683**

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	0.1920	1.7544	2.1098	3.5200e-003		0.0800	0.0800		0.0753	0.0753	0.0000	302.5627	302.5627	0.0716	0.0000	304.3514
Total	**0.1920**	**1.7544**	**2.1098**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0753**	**0.0753**	**0.0000**	**302.5627**	**302.5627**	**0.0716**	**0.0000**	**304.3514**

3.4 Building Construction - 2024

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	0.0296	1.2166	0.2520	3.9900e-003	0.0956	1.0400e-003	0.0966	0.0276	9.9000e-004	0.0286	0.0000	381.9907	381.9907	0.0245	0.0000	382.6029
Worker	0.1418	0.0811	0.9650	3.2700e-003	0.4069	2.3700e-003	0.4093	0.1081	2.1800e-003	0.1103	0.0000	296.2202	296.2202	5.8100e-003	0.0000	296.3655
Total	**0.1714**	**1.2977**	**1.2170**	**7.2600e-003**	**0.5025**	**3.4100e-003**	**0.5059**	**0.1357**	**3.1700e-003**	**0.1388**	**0.0000**	**678.2109**	**678.2109**	**0.0303**	**0.0000**	**678.9683**

3.5 Paving - 2024

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	0.1290	1.2430	1.9087	2.9800e-003		0.0611	0.0611		0.0563	0.0563	0.0000	261.3462	261.3462	0.0845	0.0000	263.4594
Paving	0.0167					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1456**	**1.2430**	**1.9087**	**2.9800e-003**		**0.0611**	**0.0611**		**0.0563**	**0.0563**	**0.0000**	**261.3462**	**261.3462**	**0.0845**	**0.0000**	**263.4594**

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6100e-003	3.2100e-003	0.0382	1.3000e-004	0.0161	9.0000e-005	0.0162	4.2800e-003	9.0000e-005	4.3600e-003	0.0000	11.7238	11.7238	2.3000e-004	0.0000	11.7295
Total	**5.6100e-003**	**3.2100e-003**	**0.0382**	**1.3000e-004**	**0.0161**	**9.0000e-005**	**0.0162**	**4.2800e-003**	**9.0000e-005**	**4.3600e-003**	**0.0000**	**11.7238**	**11.7238**	**2.3000e-004**	**0.0000**	**11.7295**

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	0.1290	1.2430	1.9087	2.9800e-003		0.0611	0.0611		0.0563	0.0563	0.0000	261.3459	261.3459	0.0845	0.0000	263.4590
Paving	0.0167					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1456**	**1.2430**	**1.9087**	**2.9800e-003**		**0.0611**	**0.0611**		**0.0563**	**0.0563**	**0.0000**	**261.3459**	**261.3459**	**0.0845**	**0.0000**	**263.4590**

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6100e-003	3.2100e-003	0.0382	1.3000e-004	0.0161	9.0000e-005	0.0162	4.2800e-003	9.0000e-005	4.3600e-003	0.0000	11.7238	11.7238	2.3000e-004	0.0000	11.7295
Total	**5.6100e-003**	**3.2100e-003**	**0.0382**	**1.3000e-004**	**0.0161**	**9.0000e-005**	**0.0162**	**4.2800e-003**	**9.0000e-005**	**4.3600e-003**	**0.0000**	**11.7238**	**11.7238**	**2.3000e-004**	**0.0000**	**11.7295**

3.6 Architectural Coating - 2024

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	4.0732					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0236	0.1591	0.2362	3.9000e-004		7.9500e-003	7.9500e-003		7.9500e-003	7.9500e-003	0.0000	33.3200	33.3200	1.8800e-003	0.0000	33.3669
Total	**4.0968**	**0.1591**	**0.2362**	**3.9000e-004**		**7.9500e-003**	**7.9500e-003**		**7.9500e-003**	**7.9500e-003**	**0.0000**	**33.3200**	**33.3200**	**1.8800e-003**	**0.0000**	**33.3669**

3.6 Architectural Coating - 2024

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	0.0284	0.0163	0.1935	6.6000e-004	0.0816	4.7000e-004	0.0821	0.0217	4.4000e-004	0.0221	0.0000	59.4004	59.4004	1.1700e-003	0.0000	59.4295
Total	**0.0284**	**0.0163**	**0.1935**	**6.6000e-004**	**0.0816**	**4.7000e-004**	**0.0821**	**0.0217**	**4.4000e-004**	**0.0221**	**0.0000**	**59.4004**	**59.4004**	**1.1700e-003**	**0.0000**	**59.4295**

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	4.0732					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0236	0.1591	0.2362	3.9000e-004		7.9500e-003	7.9500e-003		7.9500e-003	7.9500e-003	0.0000	33.3199	33.3199	1.8800e-003	0.0000	33.3668
Total	**4.0968**	**0.1591**	**0.2362**	**3.9000e-004**		**7.9500e-003**	**7.9500e-003**		**7.9500e-003**	**7.9500e-003**	**0.0000**	**33.3199**	**33.3199**	**1.8800e-003**	**0.0000**	**33.3668**

3.6 Architectural Coating - 2024

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	0.0284	0.0163	0.1935	6.6000e-004	0.0816	4.7000e-004	0.0821	0.0217	4.4000e-004	0.0221	0.0000	59.4004	59.4004	1.1700e-003	0.0000	59.4295
Total	**0.0284**	**0.0163**	**0.1935**	**6.6000e-004**	**0.0816**	**4.7000e-004**	**0.0821**	**0.0217**	**4.4000e-004**	**0.0221**	**0.0000**	**59.4004**	**59.4004**	**1.1700e-003**	**0.0000**	**59.4295**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6580	24.5035	34.4145	0.0537	2.8414	0.7534	3.5948	0.7648	0.7199	1.4847	0.0000	4,946.387 1	4,946.387 1	0.7298	0.0000	4,964.631 2
Unmitigated	4.6580	24.5035	34.4145	0.0537	2.8414	0.7534	3.5948	0.7648	0.7199	1.4847	0.0000	4,946.387 1	4,946.387 1	0.7298	0.0000	4,964.631 2

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,315.20	2,315.20	2315.20	783,886	783,886
Fast Food Restaurant with Drive Thru	2,189.92	2,189.92	2189.92	1,298,629	1,298,629
Industrial Park	1,640.85	1,640.85	1640.85	4,629,675	4,629,675
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	194.19	194.19	194.19	632,248	632,248
Total	6,340.16	6,340.16	6,340.16	7,344,438	7,344,438

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
Convenience Market With Gas	12.50	4.20	5.40	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	12.50	4.20	5.40	2.20	78.80	19.00	29	21	50
Industrial Park	12.50	4.20	5.40	59.00	28.00	13.00	79	19	2
Parking Lot	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	12.50	4.20	5.40	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Industrial Park	0.423000	0.027000	0.143000	0.082000	0.039000	0.015000	0.067000	0.201000	0.000000	0.000000	0.003000	0.000000	0.000000
Parking Lot	0.466931	0.060112	0.168008	0.175941	0.037203	0.008410	0.015268	0.056562	0.001254	0.001542	0.005522	0.000888	0.002360
Unrefrigerated Warehouse-No Rail	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000

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	2,843.9205	2,843.9205	0.0698	0.0265	2,853.5550
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,843.9205	2,843.9205	0.0698	0.0265	2,853.5550
NaturalGas Mitigated	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.4172	172.4172	3.3000e-003	3.1600e-003	173.4418
NaturalGas Unmitigated	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.4172	172.4172	3.3000e-003	3.1600e-003	173.4418

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					
Convenience Market With Gas Pumps	8880	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4739	0.4739	1.0000e-005	1.0000e-005	0.4767
Fast Food Restaurant with Drive Thru	1.2715e+006	6.8600e-003	0.0623	0.0524	3.7000e-004		4.7400e-003	4.7400e-003		4.7400e-003	4.7400e-003	0.0000	67.8519	67.8519	1.3000e-003	1.2400e-003	68.2551
Industrial Park	1.68954e+006	9.1100e-003	0.0828	0.0696	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1605	90.1605	1.7300e-003	1.6500e-003	90.6962
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
Unrefrigerated Warehouse-No Rail	261058	1.4100e-003	0.0128	0.0108	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.9311	13.9311	2.7000e-004	2.6000e-004	14.0138
Total		**0.0174**	**0.1584**	**0.1331**	**9.5000e-004**		**0.0120**	**0.0120**		**0.0120**	**0.0120**	**0.0000**	**172.4172**	**172.4172**	**3.3100e-003**	**3.1600e-003**	**173.4418**

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					
Convenience Market With Gas Pumps	8880	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4739	0.4739	1.0000e-005	1.0000e-005	0.4767
Fast Food Restaurant with Drive Thru	1.2715e+006	6.8600e-003	0.0623	0.0524	3.7000e-004		4.7400e-003	4.7400e-003		4.7400e-003	4.7400e-003	0.0000	67.8519	67.8519	1.3000e-003	1.2400e-003	68.2551
Industrial Park	1.68954e+006	9.1100e-003	0.0828	0.0696	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1605	90.1605	1.7300e-003	1.6500e-003	90.6962
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
Unrefrigerated Warehouse-No Rail	261058	1.4100e-003	0.0128	0.0108	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.9311	13.9311	2.7000e-004	2.6000e-004	14.0138
Total		**0.0174**	**0.1584**	**0.1331**	**9.5000e-004**		**0.0120**	**0.0120**		**0.0120**	**0.0120**	**0.0000**	**172.4172**	**172.4172**	**3.3100e-003**	**3.1600e-003**	**173.4418**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	50520	27.0772	6.6000e-004	2.5000e-004	27.1689
Fast Food Restaurant with Drive Thru	220782	118.3324	2.9000e-003	1.1000e-003	118.7333
Industrial Park	4.63529e+006	2,484.3720	0.0610	0.0231	2,492.7884
Parking Lot	96040	51.4745	1.2600e-003	4.8000e-004	51.6489
Unrefrigerated Warehouse-No Rail	303496	162.6645	3.9900e-003	1.5100e-003	163.2156
Total		**2,843.9205**	**0.0698**	**0.0265**	**2,853.5550**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	50520	27.0772	6.6000e-004	2.5000e-004	27.1689
Fast Food Restaurant with Drive Thru	220782	118.3324	2.9000e-003	1.1000e-003	118.7333
Industrial Park	4.63529e+006	2,484.3720	0.0610	0.0231	2,492.7884
Parking Lot	96040	51.4745	1.2600e-003	4.8000e-004	51.6489
Unrefrigerated Warehouse-No Rail	303496	162.6645	3.9900e-003	1.5100e-003	163.2156
Total		**2,843.9205**	**0.0698**	**0.0265**	**2,853.5550**

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	3.1951	1.3000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0235	0.0235	8.0000e-005	0.0000	0.0256
Unmitigated	3.1951	1.3000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0235	0.0235	8.0000e-005	0.0000	0.0256

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	0.7382					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4554					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5000e-003	1.3000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0235	0.0235	8.0000e-005	0.0000	0.0256
Total	**3.1951**	**1.3000e-004**	**0.0135**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0235**	**0.0235**	**8.0000e-005**	**0.0000**	**0.0256**

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	0.7382					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4554					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5000e-003	1.3000e-004	0.0135	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0235	0.0235	8.0000e-005	0.0000	0.0256
Total	**3.1951**	**1.3000e-004**	**0.0135**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0235**	**0.0235**	**8.0000e-005**	**0.0000**	**0.0256**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,058.362 5	4.7475	0.1209	1,213.088 4
Unmitigated	1,058.362 5	4.7475	0.1209	1,213.088 4

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.104572 / 0.0640924	1.1446	3.4300e-003	9.0000e-005	1.2575
Fast Food Restaurant with Drive Thru	1.41143 / 0.0900914	10.8344	0.0463	1.1800e-003	12.3430
Industrial Park	112.596 / 0	821.5101	3.6882	0.0940	941.7115
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	30.821 / 0	224.8734	1.0096	0.0257	257.7764
Total		**1,058.3625**	**4.7475**	**0.1209**	**1,213.0884**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.104572 / 0.0640924	1.1446	3.4300e-003	9.0000e-005	1.2575
Fast Food Restaurant with Drive Thru	1.41143 / 0.0900914	10.8344	0.0463	1.1800e-003	12.3430
Industrial Park	112.596 / 0	821.5101	3.6882	0.0940	941.7115
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	30.821 / 0	224.8734	1.0096	0.0257	257.7764
Total		**1,058.3625**	**4.7475**	**0.1209**	**1,213.0884**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	158.8607	9.3884	0.0000	393.5707
Unmitigated	158.8607	9.3884	0.0000	393.5707

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	53.56	10.8722	0.6425	0.0000	26.9354
Industrial Park	603.76	122.5578	7.2430	0.0000	303.6318
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	125.28	25.4307	1.5029	0.0000	63.0035
Total		**158.8607**	**9.3884**	**0.0000**	**393.5707**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	53.56	10.8722	0.6425	0.0000	26.9354
Industrial Park	603.76	122.5578	7.2430	0.0000	303.6318
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	125.28	25.4307	1.5029	0.0000	63.0035
Total		**158.8607**	**9.3884**	**0.0000**	**393.5707**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	6	8.00	260	89	0.20	CNG

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Forklifts	0.2151	1.8696	1.0059	1.1900e-003		0.1529	0.1529		0.1407	0.1407	0.0000	116.3858	116.3858	0.0339	0.0000	117.2327
Total	**0.2151**	**1.8696**	**1.0059**	**1.1900e-003**		**0.1529**	**0.1529**		**0.1407**	**0.1407**	**0.0000**	**116.3858**	**116.3858**	**0.0339**	**0.0000**	**117.2327**

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 H

CalEEMod Model Opening Year 2025 Annual Printouts

Coachella Airport Business Park

Riverside-Salton Sea County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	486.90	1000sqft	23.03	486,900.00	0
Unrefrigerated Warehouse-No Rail	128.60	1000sqft	6.30	128,600.00	0
Parking Lot	686.00	Space	12.73	274,400.00	0
Fast Food Restaurant with Drive Thru	4.65	1000sqft	0.23	4,650.00	0
Convenience Market With Gas Pumps	10.00	Pump	0.06	4,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	15			**Operational Year**	2025
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	809.89	**CH4 Intensity (lb/MWhr)**	0.02	**N2O Intensity (lb/MWhr)**	0.008

1.3 User Entered Comments & Non-Default Data

Coachella Airport Business Park - Riverside-Salton Sea County, Annual

Project Characteristics - IID Intensity Factors obtained from CPA and SB 100

Land Use - Total Project Site: 42.36 acres

Construction Phase - Construction schedule provided by applicant

Trips and VMT - 6 vendor trips per day added to Site Prep and Grading phases to account for water truck emissions

Grading - 21,040 cu yds imported

Architectural Coating - Non Residential interior Architectural Coating VOC set to 100 grams/liter per SCAQMD Rule 1113 minimum requirements

Vehicle Trips - Daily Trip Rates from TIA.

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for SCAQMD Rule 403 minimum requirements

Mobile Land Use Mitigation - Improve Ped Network on Project Site. Distance to Transit Station 0.01 mile (Sunline Bus Stop adjacent to project site)

Energy Mitigation - 30% lighting energy reduction selected to account for the 2019 Title 24 standards,

Water Mitigation - Low flow fixtures and water-efficient irrigation were selected to account for 2019 Title 24 part 11 requirements

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Operational Off-Road Equipment - 6 CNG Forklifts 8 hours per day

Fleet Mix - Fleet Mix - Trucks analyzed under Industrial Park land use. Trucks removed from all other land uses

Off-road Equipment - 2 Scrapers added to Grading (4 total)

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblAreaCoating	Area_Nonresidential_Exterior	312075	314413
tblAreaCoating	Area_Nonresidential_Interior	936225	943238
tblAreaCoating	Area_Parking	16464	16488
tblConstructionPhase	NumDays	55.00	261.00
tblConstructionPhase	NumDays	55.00	261.00
tblFleetMix	HHD	0.07	0.00
tblFleetMix	HHD	0.07	0.00
tblFleetMix	HHD	0.07	0.20
tblFleetMix	HHD	0.07	0.00

tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDA	0.55	0.63
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.14
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD1	0.01	0.04
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	LHD2	4.5300e-003	0.02
tblFleetMix	LHD2	4.5300e-003	0.00
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MCY	4.4460e-003	3.0000e-003
tblFleetMix	MCY	4.4460e-003	4.0000e-003
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.08

tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MH	7.8900e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.07
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	OBUS	1.4150e-003	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	SBUS	8.9200e-004	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblFleetMix	UBUS	1.1230e-003	0.00
tblGrading	MaterialImported	0.00	21,040.00
tblLandUse	LandUseSquareFeet	1,411.75	4,000.00
tblLandUse	LotAcreage	11.18	23.03
tblLandUse	LotAcreage	2.95	6.30
tblLandUse	LotAcreage	6.17	12.73
tblLandUse	LotAcreage	0.11	0.23

Coachella Airport Business Park - Riverside-Salton Sea County, Annual

tblLandUse	LotAcreage	0.03	0.06
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	6.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.02
tblProjectCharacteristics	CO2IntensityFactor	1270.9	809.89
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.008
tblSolidWaste	SolidWasteGenerationRate	120.88	125.28
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	147.00	148.00
tblTripsAndVMT	WorkerTripNumber	377.00	379.00
tblTripsAndVMT	WorkerTripNumber	75.00	76.00
tblVehicleTrips	ST_TR	204.47	231.52
tblVehicleTrips	ST_TR	722.03	470.95
tblVehicleTrips	ST_TR	2.49	3.37
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	166.88	231.52
tblVehicleTrips	SU_TR	542.72	470.95
tblVehicleTrips	SU_TR	0.73	3.37
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	542.60	231.52
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	6.83	3.37
tblVehicleTrips	WD_TR	1.68	1.51
tblWater	IndoorWaterUseRate	29,738,750.00	30,821,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1667	1.9107	1.1169	2.6700e-003	0.4997	0.0790	0.5787	0.2229	0.0727	0.2956	0.0000	238.8871	238.8871	0.0639	0.0000	240.4841
2022	0.4674	4.4504	3.8735	0.0119	0.6699	0.1409	0.8108	0.1990	0.1315	0.3305	0.0000	1,075.3179	1,075.3179	0.1516	0.0000	1,079.1075
2023	0.3845	3.1776	3.4002	0.0109	0.5006	0.0944	0.5950	0.1351	0.0888	0.2239	0.0000	989.5759	989.5759	0.1030	0.0000	992.1510
2024	4.6399	4.4736	5.7033	0.0149	0.6002	0.1531	0.7533	0.1616	0.1432	0.3048	0.0000	1,346.5643	1,346.5643	0.1896	0.0000	1,351.3053
Maximum	**4.6399**	**4.4736**	**5.7033**	**0.0149**	**0.6699**	**0.1531**	**0.8108**	**0.2229**	**0.1432**	**0.3305**	**0.0000**	**1,346.5643**	**1,346.5643**	**0.1896**	**0.0000**	**1,351.3053**

2.1 Overall Construction

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					
2021	0.1667	1.9107	1.1169	2.6700e-003	0.2389	0.0790	0.3180	0.1040	0.0727	0.1767	0.0000	238.8868	238.8868	0.0639	0.0000	240.4839
2022	0.4674	4.4504	3.8735	0.0119	0.5466	0.1409	0.6875	0.1557	0.1315	0.2872	0.0000	1,075.3174	1,075.3174	0.1516	0.0000	1,079.1070
2023	0.3845	3.1776	3.4002	0.0109	0.5006	0.0944	0.5950	0.1351	0.0888	0.2239	0.0000	989.5755	989.5755	0.1030	0.0000	992.1506
2024	4.6399	4.4736	5.7033	0.0149	0.6002	0.1531	0.7533	0.1616	0.1432	0.3048	0.0000	1,346.5636	1,346.5636	0.1896	0.0000	1,351.3046
Maximum	**4.6399**	**4.4736**	**5.7033**	**0.0149**	**0.6002**	**0.1531**	**0.7533**	**0.1616**	**0.1432**	**0.3048**	**0.0000**	**1,346.5636**	**1,346.5636**	**0.1896**	**0.0000**	**1,351.3046**

	ROG	NOx	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**	**16.92**	**0.00**	**14.03**	**22.58**	**0.00**	**14.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-5-2021**	**1-4-2022**	2.1279	2.1279
2	**1-5-2022**	**4-4-2022**	1.7667	1.7667
3	**4-5-2022**	**7-4-2022**	1.0366	1.0366
4	**7-5-2022**	**10-4-2022**	1.0477	1.0477
5	**10-5-2022**	**1-4-2023**	1.0358	1.0358
6	**1-5-2023**	**4-4-2023**	0.8791	0.8791
7	**4-5-2023**	**7-4-2023**	0.8939	0.8939
8	**7-5-2023**	**10-4-2023**	0.9035	0.9035

9	**10-5-2023**	**1-4-2024**	0.9591	0.9591
10	**1-5-2024**	**4-4-2024**	2.2686	2.2686
11	**4-5-2024**	**7-4-2024**	2.2736	2.2736
12	**7-5-2024**	**9-30-2024**	2.1987	2.1987
		Highest	2.2736	2.2736

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	3.1947	1.1000e-004	0.0121	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0235	0.0235	6.0000e-005	0.0000	0.0251
Energy	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	2,121.6753	2,121.6753	0.0514	0.0224	2,129.6411
Mobile	1.0929	7.4753	8.1908	0.0444	2.8413	0.0255	2.8668	0.7648	0.0239	0.7886	0.0000	4,160.4353	4,160.4353	0.1987	0.0000	4,165.4023
Offroad	0.0678	0.6385	0.8843	1.1900e-003		0.0342	0.0342		0.0314	0.0314	0.0000	104.7472	104.7472	0.0339	0.0000	105.5942
Waste						0.0000	0.0000		0.0000	0.0000	158.8607	0.0000	158.8607	9.3884	0.0000	393.5707
Water						0.0000	0.0000		0.0000	0.0000	45.9804	693.8991	739.8795	4.7398	0.1184	893.6467
Total	**4.3727**	**8.2722**	**9.2203**	**0.0466**	**2.8413**	**0.0718**	**2.9131**	**0.7648**	**0.0674**	**0.8321**	**204.8412**	**7,080.7804**	**7,285.6216**	**14.4122**	**0.1408**	**7,687.8801**

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	3.1947	1.1000e-004	0.0121	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0235	0.0235	6.0000e-005	0.0000	0.0251
Energy	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	1,892.2466	1,892.2466	0.0458	0.0202	1,899.3955
Mobile	1.0456	7.0185	6.9813	0.0356	2.1306	0.0207	2.1513	0.5735	0.0193	0.5928	0.0000	3,333.8410	3,333.8410	0.1821	0.0000	3,338.3941
Offroad	0.0678	0.6385	0.8843	1.1900e-003		0.0342	0.0342		0.0314	0.0314	0.0000	104.7472	104.7472	0.0339	0.0000	105.5942
Waste						0.0000	0.0000		0.0000	0.0000	79.4304	0.0000	79.4304	4.6942	0.0000	196.7854
Water						0.0000	0.0000		0.0000	0.0000	38.8075	585.7106	624.5181	4.0004	0.0999	754.2978
Total	**4.3255**	**7.8154**	**8.0107**	**0.0377**	**2.1306**	**0.0669**	**2.1976**	**0.5735**	**0.0628**	**0.6363**	**118.2379**	**5,916.5689**	**6,034.8068**	**8.9564**	**0.1201**	**6,294.4920**

	ROG	NOx	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	**1.08**	**5.52**	**13.12**	**19.02**	**25.01**	**6.78**	**24.56**	**25.01**	**6.78**	**23.53**	**42.28**	**16.44**	**17.17**	**37.86**	**14.73**	**18.12**

3.0 Construction Detail

Construction Phase

Coachella Airport Business Park - Riverside-Salton Sea County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/5/2021	11/15/2021	5	30	
2	Grading	Grading	11/16/2021	2/28/2022	5	75	
3	Building Construction	Building Construction	3/1/2022	12/30/2024	5	740	
4	Paving	Paving	1/1/2024	12/30/2024	5	261	
5	Architectural Coating	Architectural Coating	1/1/2024	12/30/2024	5	261	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 12.73

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 936,225; Non-Residential Outdoor: 312,075; Striped Parking Area: 16,464 (Architectural Coating – sqft)

OffRoad Equipment

Coachella Airport Business Park - Riverside-Salton Sea County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	2,630.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	379.00	148.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	76.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0583	0.6075	0.3173	5.7000e-004		0.0307	0.0307		0.0282	0.0282	0.0000	50.1536	50.1536	0.0162	0.0000	50.5591
Total	**0.0583**	**0.6075**	**0.3173**	**5.7000e-004**	**0.2710**	**0.0307**	**0.3017**	**0.1490**	**0.0282**	**0.1772**	**0.0000**	**50.1536**	**50.1536**	**0.0162**	**0.0000**	**50.5591**

3.2 Site Preparation - 2021

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	2.0000e-004	7.8400e-003	1.5100e-003	2.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	1.8544	1.8544	1.6000e-004	0.0000	1.8585
Worker	9.4000e-004	6.0000e-004	6.6400e-003	2.0000e-005	2.2200e-003	1.0000e-005	2.2400e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8091	1.8091	4.0000e-005	0.0000	1.8101
Total	**1.1400e-003**	**8.4400e-003**	**8.1500e-003**	**4.0000e-005**	**2.6700e-003**	**2.0000e-005**	**2.7000e-003**	**7.2000e-004**	**2.0000e-005**	**7.4000e-004**	**0.0000**	**3.6635**	**3.6635**	**2.0000e-004**	**0.0000**	**3.6686**

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					0.1220	0.0000	0.1220	0.0670	0.0000	0.0670	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0583	0.6075	0.3173	5.7000e-004		0.0307	0.0307		0.0282	0.0282	0.0000	50.1535	50.1535	0.0162	0.0000	50.5590
Total	**0.0583**	**0.6075**	**0.3173**	**5.7000e-004**	**0.1220**	**0.0307**	**0.1526**	**0.0670**	**0.0282**	**0.0952**	**0.0000**	**50.1535**	**50.1535**	**0.0162**	**0.0000**	**50.5590**

3.2 Site Preparation - 2021

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	2.0000e-004	7.8400e-003	1.5100e-003	2.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	1.8544	1.8544	1.6000e-004	0.0000	1.8585
Worker	9.4000e-004	6.0000e-004	6.6400e-003	2.0000e-005	2.2200e-003	1.0000e-005	2.2400e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8091	1.8091	4.0000e-005	0.0000	1.8101
Total	**1.1400e-003**	**8.4400e-003**	**8.1500e-003**	**4.0000e-005**	**2.6700e-003**	**2.0000e-005**	**2.7000e-003**	**7.2000e-004**	**2.0000e-005**	**7.4000e-004**	**0.0000**	**3.6635**	**3.6635**	**2.0000e-004**	**0.0000**	**3.6686**

3.3 Grading - 2021

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					0.2031	0.0000	0.2031	0.0672	0.0000	0.0672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1029	1.1527	0.7631	1.5700e-003		0.0479	0.0479		0.0441	0.0441	0.0000	137.9181	137.9181	0.0446	0.0000	139.0333
Total	**0.1029**	**1.1527**	**0.7631**	**1.5700e-003**	**0.2031**	**0.0479**	**0.2510**	**0.0672**	**0.0441**	**0.1113**	**0.0000**	**137.9181**	**137.9181**	**0.0446**	**0.0000**	**139.0333**

3.3 Grading - 2021

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	2.9700e-003	0.1325	0.0183	4.4000e-004	0.0196	4.0000e-004	0.0200	5.1100e-003	3.8000e-004	5.4900e-003	0.0000	42.7721	42.7721	2.6100e-003	0.0000	42.8374
Vendor	2.2000e-004	8.8900e-003	1.7100e-003	2.0000e-005	5.0000e-004	1.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	2.1017	2.1017	1.8000e-004	0.0000	2.1063
Worker	1.1800e-003	7.6000e-004	8.3700e-003	3.0000e-005	2.8000e-003	2.0000e-005	2.8100e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.2781	2.2781	5.0000e-005	0.0000	2.2794
Total	**4.3700e-003**	**0.1421**	**0.0283**	**4.9000e-004**	**0.0229**	**4.3000e-004**	**0.0233**	**6.0000e-003**	**4.1000e-004**	**6.4100e-003**	**0.0000**	**47.1519**	**47.1519**	**2.8400e-003**	**0.0000**	**47.2231**

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					0.0914	0.0000	0.0914	0.0302	0.0000	0.0302	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1029	1.1527	0.7631	1.5700e-003		0.0479	0.0479		0.0441	0.0441	0.0000	137.9180	137.9180	0.0446	0.0000	139.0331
Total	**0.1029**	**1.1527**	**0.7631**	**1.5700e-003**	**0.0914**	**0.0479**	**0.1393**	**0.0302**	**0.0441**	**0.0743**	**0.0000**	**137.9180**	**137.9180**	**0.0446**	**0.0000**	**139.0331**

3.3 Grading - 2021

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	2.9700e-003	0.1325	0.0183	4.4000e-004	0.0196	4.0000e-004	0.0200	5.1100e-003	3.8000e-004	5.4900e-003	0.0000	42.7721	42.7721	2.6100e-003	0.0000	42.8374
Vendor	2.2000e-004	8.8900e-003	1.7100e-003	2.0000e-005	5.0000e-004	1.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	2.1017	2.1017	1.8000e-004	0.0000	2.1063
Worker	1.1800e-003	7.6000e-004	8.3700e-003	3.0000e-005	2.8000e-003	2.0000e-005	2.8100e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.2781	2.2781	5.0000e-005	0.0000	2.2794
Total	**4.3700e-003**	**0.1421**	**0.0283**	**4.9000e-004**	**0.0229**	**4.3000e-004**	**0.0233**	**6.0000e-003**	**4.1000e-004**	**6.4100e-003**	**0.0000**	**47.1519**	**47.1519**	**2.8400e-003**	**0.0000**	**47.2231**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2242	0.0000	0.2242	0.0788	0.0000	0.0788	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1079	1.1630	0.8568	1.9000e-003		0.0478	0.0478		0.0440	0.0440	0.0000	166.4829	166.4829	0.0538	0.0000	167.8290
Total	**0.1079**	**1.1630**	**0.8568**	**1.9000e-003**	**0.2242**	**0.0478**	**0.2720**	**0.0788**	**0.0440**	**0.1228**	**0.0000**	**166.4829**	**166.4829**	**0.0538**	**0.0000**	**167.8290**

3.3 Grading - 2022

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	3.3600e-003	0.1452	0.0214	5.3000e-004	0.0201	4.0000e-004	0.0205	5.3000e-003	3.8000e-004	5.6800e-003	0.0000	50.9860	50.9860	3.0200e-003	0.0000	51.0616
Vendor	2.5000e-004	0.0102	1.9200e-003	3.0000e-005	6.1000e-004	1.0000e-005	6.2000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.5124	2.5124	2.1000e-004	0.0000	2.5177
Worker	1.3300e-003	8.2000e-004	9.2900e-003	3.0000e-005	3.3700e-003	2.0000e-005	3.3900e-003	9.0000e-004	2.0000e-005	9.1000e-004	0.0000	2.6469	2.6469	6.0000e-005	0.0000	2.6484
Total	**4.9400e-003**	**0.1562**	**0.0326**	**5.9000e-004**	**0.0241**	**4.3000e-004**	**0.0245**	**6.3800e-003**	**4.1000e-004**	**6.7800e-003**	**0.0000**	**56.1454**	**56.1454**	**3.2900e-003**	**0.0000**	**56.2276**

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					0.1009	0.0000	0.1009	0.0355	0.0000	0.0355	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1079	1.1630	0.8568	1.9000e-003		0.0478	0.0478		0.0440	0.0440	0.0000	166.4827	166.4827	0.0538	0.0000	167.8288
Total	**0.1079**	**1.1630**	**0.8568**	**1.9000e-003**	**0.1009**	**0.0478**	**0.1487**	**0.0355**	**0.0440**	**0.0795**	**0.0000**	**166.4827**	**166.4827**	**0.0538**	**0.0000**	**167.8288**

3.3 Grading - 2022

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	3.3600e-003	0.1452	0.0214	5.3000e-004	0.0201	4.0000e-004	0.0205	5.3000e-003	3.8000e-004	5.6800e-003	0.0000	50.9860	50.9860	3.0200e-003	0.0000	51.0616
Vendor	2.5000e-004	0.0102	1.9200e-003	3.0000e-005	6.1000e-004	1.0000e-005	6.2000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	2.5124	2.5124	2.1000e-004	0.0000	2.5177
Worker	1.3300e-003	8.2000e-004	9.2900e-003	3.0000e-005	3.3700e-003	2.0000e-005	3.3900e-003	9.0000e-004	2.0000e-005	9.1000e-004	0.0000	2.6469	2.6469	6.0000e-005	0.0000	2.6484
Total	**4.9400e-003**	**0.1562**	**0.0326**	**5.9000e-004**	**0.0241**	**4.3000e-004**	**0.0245**	**6.3800e-003**	**4.1000e-004**	**6.7800e-003**	**0.0000**	**56.1454**	**56.1454**	**3.2900e-003**	**0.0000**	**56.2276**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1868	1.7099	1.7918	2.9500e-003		0.0886	0.0886		0.0834	0.0834	0.0000	253.7391	253.7391	0.0608	0.0000	255.2589
Total	**0.1868**	**1.7099**	**1.7918**	**2.9500e-003**		**0.0886**	**0.0886**		**0.0834**	**0.0834**	**0.0000**	**253.7391**	**253.7391**	**0.0608**	**0.0000**	**255.2589**

3.4 Building Construction - 2022

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	0.0331	1.3380	0.2523	3.4600e-003	0.0802	1.9600e-003	0.0822	0.0232	1.8700e-003	0.0250	0.0000	331.0284	331.0284	0.0277	0.0000	331.7210
Worker	0.1346	0.0834	0.9401	2.9600e-003	0.3414	2.0600e-003	0.3435	0.0907	1.8900e-003	0.0926	0.0000	267.9221	267.9221	5.9600e-003	0.0000	268.0711
Total	**0.1677**	**1.4213**	**1.1924**	**6.4200e-003**	**0.4216**	**4.0200e-003**	**0.4256**	**0.1138**	**3.7600e-003**	**0.1176**	**0.0000**	**598.9505**	**598.9505**	**0.0337**	**0.0000**	**599.7920**

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	0.1868	1.7099	1.7918	2.9500e-003		0.0886	0.0886		0.0834	0.0834	0.0000	253.7388	253.7388	0.0608	0.0000	255.2586
Total	**0.1868**	**1.7099**	**1.7918**	**2.9500e-003**		**0.0886**	**0.0886**		**0.0834**	**0.0834**	**0.0000**	**253.7388**	**253.7388**	**0.0608**	**0.0000**	**255.2586**

3.4 Building Construction - 2022

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	0.0331	1.3380	0.2523	3.4600e-003	0.0802	1.9600e-003	0.0822	0.0232	1.8700e-003	0.0250	0.0000	331.0284	331.0284	0.0277	0.0000	331.7210
Worker	0.1346	0.0834	0.9401	2.9600e-003	0.3414	2.0600e-003	0.3435	0.0907	1.8900e-003	0.0926	0.0000	267.9221	267.9221	5.9600e-003	0.0000	268.0711
Total	**0.1677**	**1.4213**	**1.1924**	**6.4200e-003**	**0.4216**	**4.0200e-003**	**0.4256**	**0.1138**	**3.7600e-003**	**0.1176**	**0.0000**	**598.9505**	**598.9505**	**0.0337**	**0.0000**	**599.7920**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

3.4 Building Construction - 2023

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	0.0301	1.2184	0.2605	3.9900e-003	0.0952	1.0400e-003	0.0962	0.0275	9.9000e-004	0.0285	0.0000	382.2148	382.2148	0.0250	0.0000	382.8390
Worker	0.1499	0.0892	1.0280	3.3800e-003	0.4054	2.3800e-003	0.4077	0.1077	2.1900e-003	0.1099	0.0000	306.0149	306.0149	6.3500e-003	0.0000	306.1737
Total	**0.1800**	**1.3075**	**1.2884**	**7.3700e-003**	**0.5006**	**3.4200e-003**	**0.5040**	**0.1351**	**3.1800e-003**	**0.1383**	**0.0000**	**688.2297**	**688.2297**	**0.0313**	**0.0000**	**689.0127**

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

3.4 Building Construction - 2023

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	0.0301	1.2184	0.2605	3.9900e-003	0.0952	1.0400e-003	0.0962	0.0275	9.9000e-004	0.0285	0.0000	382.2148	382.2148	0.0250	0.0000	382.8390
Worker	0.1499	0.0892	1.0280	3.3800e-003	0.4054	2.3800e-003	0.4077	0.1077	2.1900e-003	0.1099	0.0000	306.0149	306.0149	6.3500e-003	0.0000	306.1737
Total	**0.1800**	**1.3075**	**1.2884**	**7.3700e-003**	**0.5006**	**3.4200e-003**	**0.5040**	**0.1351**	**3.1800e-003**	**0.1383**	**0.0000**	**688.2297**	**688.2297**	**0.0313**	**0.0000**	**689.0127**

3.4 Building Construction - 2024

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	0.1920	1.7544	2.1098	3.5200e-003		0.0800	0.0800		0.0753	0.0753	0.0000	302.5631	302.5631	0.0716	0.0000	304.3518
Total	**0.1920**	**1.7544**	**2.1098**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0753**	**0.0753**	**0.0000**	**302.5631**	**302.5631**	**0.0716**	**0.0000**	**304.3518**

3.4 Building Construction - 2024

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	0.0296	1.2166	0.2520	3.9900e-003	0.0956	1.0400e-003	0.0966	0.0276	9.9000e-004	0.0286	0.0000	381.9907	381.9907	0.0245	0.0000	382.6029
Worker	0.1418	0.0811	0.9650	3.2700e-003	0.4069	2.3700e-003	0.4093	0.1081	2.1800e-003	0.1103	0.0000	296.2202	296.2202	5.8100e-003	0.0000	296.3655
Total	**0.1714**	**1.2977**	**1.2170**	**7.2600e-003**	**0.5025**	**3.4100e-003**	**0.5059**	**0.1357**	**3.1700e-003**	**0.1388**	**0.0000**	**678.2109**	**678.2109**	**0.0303**	**0.0000**	**678.9683**

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	0.1920	1.7544	2.1098	3.5200e-003		0.0800	0.0800		0.0753	0.0753	0.0000	302.5627	302.5627	0.0716	0.0000	304.3514
Total	**0.1920**	**1.7544**	**2.1098**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0753**	**0.0753**	**0.0000**	**302.5627**	**302.5627**	**0.0716**	**0.0000**	**304.3514**

3.4 Building Construction - 2024

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	0.0296	1.2166	0.2520	3.9900e-003	0.0956	1.0400e-003	0.0966	0.0276	9.9000e-004	0.0286	0.0000	381.9907	381.9907	0.0245	0.0000	382.6029
Worker	0.1418	0.0811	0.9650	3.2700e-003	0.4069	2.3700e-003	0.4093	0.1081	2.1800e-003	0.1103	0.0000	296.2202	296.2202	5.8100e-003	0.0000	296.3655
Total	**0.1714**	**1.2977**	**1.2170**	**7.2600e-003**	**0.5025**	**3.4100e-003**	**0.5059**	**0.1357**	**3.1700e-003**	**0.1388**	**0.0000**	**678.2109**	**678.2109**	**0.0303**	**0.0000**	**678.9683**

3.5 Paving - 2024

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	0.1290	1.2430	1.9087	2.9800e-003		0.0611	0.0611		0.0563	0.0563	0.0000	261.3462	261.3462	0.0845	0.0000	263.4594
Paving	0.0167					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1456**	**1.2430**	**1.9087**	**2.9800e-003**		**0.0611**	**0.0611**		**0.0563**	**0.0563**	**0.0000**	**261.3462**	**261.3462**	**0.0845**	**0.0000**	**263.4594**

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6100e-003	3.2100e-003	0.0382	1.3000e-004	0.0161	9.0000e-005	0.0162	4.2800e-003	9.0000e-005	4.3600e-003	0.0000	11.7238	11.7238	2.3000e-004	0.0000	11.7295
Total	**5.6100e-003**	**3.2100e-003**	**0.0382**	**1.3000e-004**	**0.0161**	**9.0000e-005**	**0.0162**	**4.2800e-003**	**9.0000e-005**	**4.3600e-003**	**0.0000**	**11.7238**	**11.7238**	**2.3000e-004**	**0.0000**	**11.7295**

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	0.1290	1.2430	1.9087	2.9800e-003		0.0611	0.0611		0.0563	0.0563	0.0000	261.3459	261.3459	0.0845	0.0000	263.4590
Paving	0.0167					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1456**	**1.2430**	**1.9087**	**2.9800e-003**		**0.0611**	**0.0611**		**0.0563**	**0.0563**	**0.0000**	**261.3459**	**261.3459**	**0.0845**	**0.0000**	**263.4590**

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6100e-003	3.2100e-003	0.0382	1.3000e-004	0.0161	9.0000e-005	0.0162	4.2800e-003	9.0000e-005	4.3600e-003	0.0000	11.7238	11.7238	2.3000e-004	0.0000	11.7295
Total	**5.6100e-003**	**3.2100e-003**	**0.0382**	**1.3000e-004**	**0.0161**	**9.0000e-005**	**0.0162**	**4.2800e-003**	**9.0000e-005**	**4.3600e-003**	**0.0000**	**11.7238**	**11.7238**	**2.3000e-004**	**0.0000**	**11.7295**

3.6 Architectural Coating - 2024

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	4.0732					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0236	0.1591	0.2362	3.9000e-004		7.9500e-003	7.9500e-003		7.9500e-003	7.9500e-003	0.0000	33.3200	33.3200	1.8800e-003	0.0000	33.3669
Total	**4.0968**	**0.1591**	**0.2362**	**3.9000e-004**		**7.9500e-003**	**7.9500e-003**		**7.9500e-003**	**7.9500e-003**	**0.0000**	**33.3200**	**33.3200**	**1.8800e-003**	**0.0000**	**33.3669**

3.6 Architectural Coating - 2024

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	0.0284	0.0163	0.1935	6.6000e-004	0.0816	4.7000e-004	0.0821	0.0217	4.4000e-004	0.0221	0.0000	59.4004	59.4004	1.1700e-003	0.0000	59.4295
Total	**0.0284**	**0.0163**	**0.1935**	**6.6000e-004**	**0.0816**	**4.7000e-004**	**0.0821**	**0.0217**	**4.4000e-004**	**0.0221**	**0.0000**	**59.4004**	**59.4004**	**1.1700e-003**	**0.0000**	**59.4295**

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	4.0732					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0236	0.1591	0.2362	3.9000e-004		7.9500e-003	7.9500e-003		7.9500e-003	7.9500e-003	0.0000	33.3199	33.3199	1.8800e-003	0.0000	33.3668
Total	**4.0968**	**0.1591**	**0.2362**	**3.9000e-004**		**7.9500e-003**	**7.9500e-003**		**7.9500e-003**	**7.9500e-003**	**0.0000**	**33.3199**	**33.3199**	**1.8800e-003**	**0.0000**	**33.3668**

3.6 Architectural Coating - 2024

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	0.0284	0.0163	0.1935	6.6000e-004	0.0816	4.7000e-004	0.0821	0.0217	4.4000e-004	0.0221	0.0000	59.4004	59.4004	1.1700e-003	0.0000	59.4295
Total	**0.0284**	**0.0163**	**0.1935**	**6.6000e-004**	**0.0816**	**4.7000e-004**	**0.0821**	**0.0217**	**4.4000e-004**	**0.0221**	**0.0000**	**59.4004**	**59.4004**	**1.1700e-003**	**0.0000**	**59.4295**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

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	1.0456	7.0185	6.9813	0.0356	2.1306	0.0207	2.1513	0.5735	0.0193	0.5928	0.0000	3,333.841 0	3,333.841 0	0.1821	0.0000	3,338.394 1
Unmitigated	1.0929	7.4753	8.1908	0.0444	2.8413	0.0255	2.8668	0.7648	0.0239	0.7886	0.0000	4,160.435 3	4,160.435 3	0.1987	0.0000	4,165.402 3

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,315.20	2,315.20	2315.20	783,886	587,825
Fast Food Restaurant with Drive Thru	2,189.92	2,189.92	2189.92	1,298,629	973,823
Industrial Park	1,640.85	1,640.85	1640.85	4,629,675	3,471,726
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	194.19	194.19	194.19	632,248	474,113
Total	6,340.16	6,340.16	6,340.16	7,344,438	5,507,487

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
Convenience Market With Gas	12.50	4.20	5.40	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	12.50	4.20	5.40	2.20	78.80	19.00	29	21	50
Industrial Park	12.50	4.20	5.40	59.00	28.00	13.00	79	19	2
Parking Lot	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	12.50	4.20	5.40	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000
Industrial Park	0.423000	0.027000	0.143000	0.082000	0.039000	0.015000	0.067000	0.201000	0.000000	0.000000	0.003000	0.000000	0.000000
Parking Lot	0.554334	0.035376	0.188722	0.108173	0.012711	0.004530	0.017449	0.070039	0.001415	0.001123	0.004446	0.000892	0.000789
Unrefrigerated Warehouse-No Rail	0.625000	0.039000	0.211000	0.121000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	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	1,719.829 4	1,719.829 4	0.0425	0.0170	1,725.953 7
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,949.258 1	1,949.258 1	0.0481	0.0193	1,956.199 3
NaturalGas Mitigated	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.4172	172.4172	3.3000e-003	3.1600e-003	173.4418
NaturalGas Unmitigated	0.0174	0.1584	0.1330	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.4172	172.4172	3.3000e-003	3.1600e-003	173.4418

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					
Convenience Market With Gas Pumps	8880	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4739	0.4739	1.0000e-005	1.0000e-005	0.4767
Fast Food Restaurant with Drive Thru	1.2715e+006	6.8600e-003	0.0623	0.0524	3.7000e-004		4.7400e-003	4.7400e-003		4.7400e-003	4.7400e-003	0.0000	67.8519	67.8519	1.3000e-003	1.2400e-003	68.2551
Industrial Park	1.68954e+006	9.1100e-003	0.0828	0.0696	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1605	90.1605	1.7300e-003	1.6500e-003	90.6962
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
Unrefrigerated Warehouse-No Rail	261058	1.4100e-003	0.0128	0.0108	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.9311	13.9311	2.7000e-004	2.6000e-004	14.0138
Total		**0.0174**	**0.1584**	**0.1331**	**9.5000e-004**		**0.0120**	**0.0120**		**0.0120**	**0.0120**	**0.0000**	**172.4172**	**172.4172**	**3.3100e-003**	**3.1600e-003**	**173.4418**

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					
Convenience Market With Gas Pumps	8880	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4739	0.4739	1.0000e-005	1.0000e-005	0.4767
Fast Food Restaurant with Drive Thru	1.2715e+006	6.8600e-003	0.0623	0.0524	3.7000e-004		4.7400e-003	4.7400e-003		4.7400e-003	4.7400e-003	0.0000	67.8519	67.8519	1.3000e-003	1.2400e-003	68.2551
Industrial Park	1.68954e+006	9.1100e-003	0.0828	0.0696	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1605	90.1605	1.7300e-003	1.6500e-003	90.6962
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
Unrefrigerated Warehouse-No Rail	261058	1.4100e-003	0.0128	0.0108	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.9311	13.9311	2.7000e-004	2.6000e-004	14.0138
Total		**0.0174**	**0.1584**	**0.1331**	**9.5000e-004**		**0.0120**	**0.0120**		**0.0120**	**0.0120**	**0.0000**	**172.4172**	**172.4172**	**3.3100e-003**	**3.1600e-003**	**173.4418**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	50520	18.5590	4.6000e-004	1.8000e-004	18.6251
Fast Food Restaurant with Drive Thru	220782	81.1065	2.0000e-003	8.0000e-004	81.3953
Industrial Park	4.63529e+006	1,702.8191	0.0421	0.0168	1,708.8828
Parking Lot	96040	35.2813	8.7000e-004	3.5000e-004	35.4069
Unrefrigerated Warehouse-No Rail	303496	111.4923	2.7500e-003	1.1000e-003	111.8893
Total		**1,949.2581**	**0.0481**	**0.0193**	**1,956.1993**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	43788	16.0860	4.0000e-004	1.6000e-004	16.1432
Fast Food Restaurant with Drive Thru	211547	77.7139	1.9200e-003	7.7000e-004	77.9907
Industrial Park	4.10067e+006	1,506.4225	0.0372	0.0149	1,511.7868
Parking Lot	67228	24.6969	6.1000e-004	2.4000e-004	24.7848
Unrefrigerated Warehouse-No Rail	258357	94.9102	2.3400e-003	9.4000e-004	95.2481
Total		**1,719.8294**	**0.0425**	**0.0170**	**1,725.9537**

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	3.1947	1.1000e-004	0.0121	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0235	0.0235	6.0000e-005	0.0000	0.0251
Unmitigated	3.1947	1.1000e-004	0.0121	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0235	0.0235	6.0000e-005	0.0000	0.0251

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	0.7382					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4554					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1100e-003	1.1000e-004	0.0121	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0235	0.0235	6.0000e-005	0.0000	0.0251
Total	**3.1947**	**1.1000e-004**	**0.0121**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0235**	**0.0235**	**6.0000e-005**	**0.0000**	**0.0251**

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	0.7382					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4554					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1100e-003	1.1000e-004	0.0121	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0235	0.0235	6.0000e-005	0.0000	0.0251
Total	**3.1947**	**1.1000e-004**	**0.0121**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0235**	**0.0235**	**6.0000e-005**	**0.0000**	**0.0251**

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

Coachella Airport Business Park - Riverside-Salton Sea County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	624.5181	4.0004	0.0999	754.2978
Unmitigated	739.8795	4.7398	0.1184	893.6467

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.104572 / 0.0640924	0.7950	3.4300e-003	9.0000e-005	0.9068
Fast Food Restaurant with Drive Thru	1.41143 / 0.0900914	7.5669	0.0462	1.1600e-003	9.0657
Industrial Park	112.596 / 0	574.3106	3.6822	0.0920	693.7679
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	30.821 / 0	157.2071	1.0079	0.0252	189.9063
Total		**739.8795**	**4.7398**	**0.1184**	**893.6467**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0882586 / 0.0601828	0.6958	2.8900e-003	7.0000e-005	0.7903
Fast Food Restaurant with Drive Thru	1.19125 / 0.0845958	6.4214	0.0390	9.8000e-004	7.6865
Industrial Park	95.0307 / 0	484.7181	3.1078	0.0776	585.5401
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	26.0129 / 0	132.6828	0.8507	0.0212	160.2809
Total		**624.5181**	**4.0004**	**0.0999**	**754.2978**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	79.4304	4.6942	0.0000	196.7854
Unmitigated	158.8607	9.3884	0.0000	393.5707

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	53.56	10.8722	0.6425	0.0000	26.9354
Industrial Park	603.76	122.5578	7.2430	0.0000	303.6318
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	125.28	25.4307	1.5029	0.0000	63.0035
Total		**158.8607**	**9.3884**	**0.0000**	**393.5707**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	26.78	5.4361	0.3213	0.0000	13.4677
Industrial Park	301.88	61.2789	3.6215	0.0000	151.8159
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	62.64	12.7154	0.7515	0.0000	31.5018
Total		**79.4304**	**4.6942**	**0.0000**	**196.7854**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	6	8.00	260	89	0.20	CNG

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Forklifts	0.0678	0.6385	0.8843	1.1900e-003		0.0342	0.0342		0.0314	0.0314	0.0000	104.7472	104.7472	0.0339	0.0000	105.5942
Total	**0.0678**	**0.6385**	**0.8843**	**1.1900e-003**		**0.0342**	**0.0342**		**0.0314**	**0.0314**	**0.0000**	**104.7472**	**104.7472**	**0.0339**	**0.0000**	**105.5942**

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

Biological Resources Assessment Memorandum and Coachella Valley Multiple Species Habitat Conservation Plan Analysis

Rincon Consultants, Inc.

1980 Orange Tree Lane
Suite 105
Redlands, California 92374

909 253 0705 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

March 12, 2021
Project No: 21-10929

Larry G. Larson, Project Manager
Haagen Company
Indio Grand Marketplace
82227 US Highway 111, Suite A-2
Indio, California 92201
Via email: llarson@haagenco.com

Subject: Biological Resources Assessment Memorandum and Coachella Valley Multiple Species Habitat Conservation Plan Analysis for the Airport Business Park Project, Coachella, California

Dear Mr. Larson,

Rincon Consultants, Inc. (Rincon) is pleased to submit this Biological Resources Assessment Memorandum and Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) Consistency Analysis to support Haagen Company's Airport Business Park Project (project). The assessment was completed to document existing site conditions and determine potential impacts to special-status biological resources as required under the California Environmental Quality Act (CEQA) and the CVMSHCP.

Project Description and Location

The project is located on the northwest corner of State Highway 86 and Airport Boulevard and east of the Whitewater River/Coachella Valley Stormwater Channel in the city of Coachella, California. Haagen Company plans to develop 42.36 acres on three parcels: Assessor Parcel Numbers 763-330-013, 763-330-018, and 763-330-029, which are depicted on Township 6 South, Range 8 East, Section 15 of the *Indio*, California 7.5-minute topographic quadrangle, San Bernardino Baseline and Meridian. Refer to Figure 1 and Figure 2 for regional and project location, respectively. The project is within the boundaries of the CVMSHCP, but outside of the CVMSHCP Mecca Hills/Orocopia Mountains Conservation Area (Figure 3) and not within any Conservation Areas.

The project site is vacant with a history of disturbance. Shrubs dominate in densely vegetated areas, while annual grasses dominate in open areas. Elevation on site ranges from approximately 120 to 115 feet (37 to 35 meters) below sea level. Surrounding land uses include the Whitewater River/Coachella Valley Stormwater Channel to the west, State Highway 86 and agriculture to the east, Airport Boulevard and low density residential to the south, and dense saltbush scrub to the north. The project site is separated from the property to the north by a barbed wire fence.

Figure 1 Regional Location

Basemap provided by Esri and its licensors © 2021.

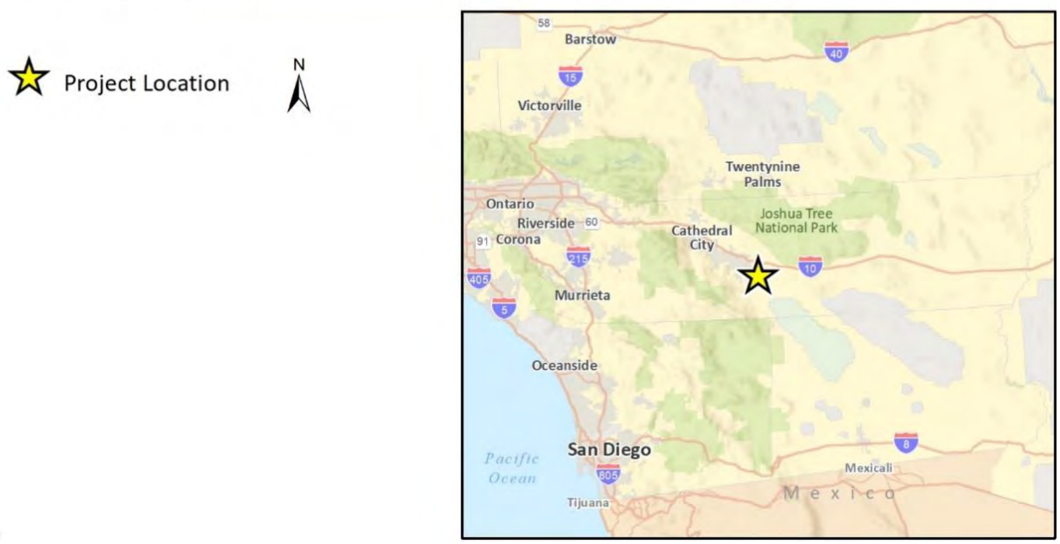
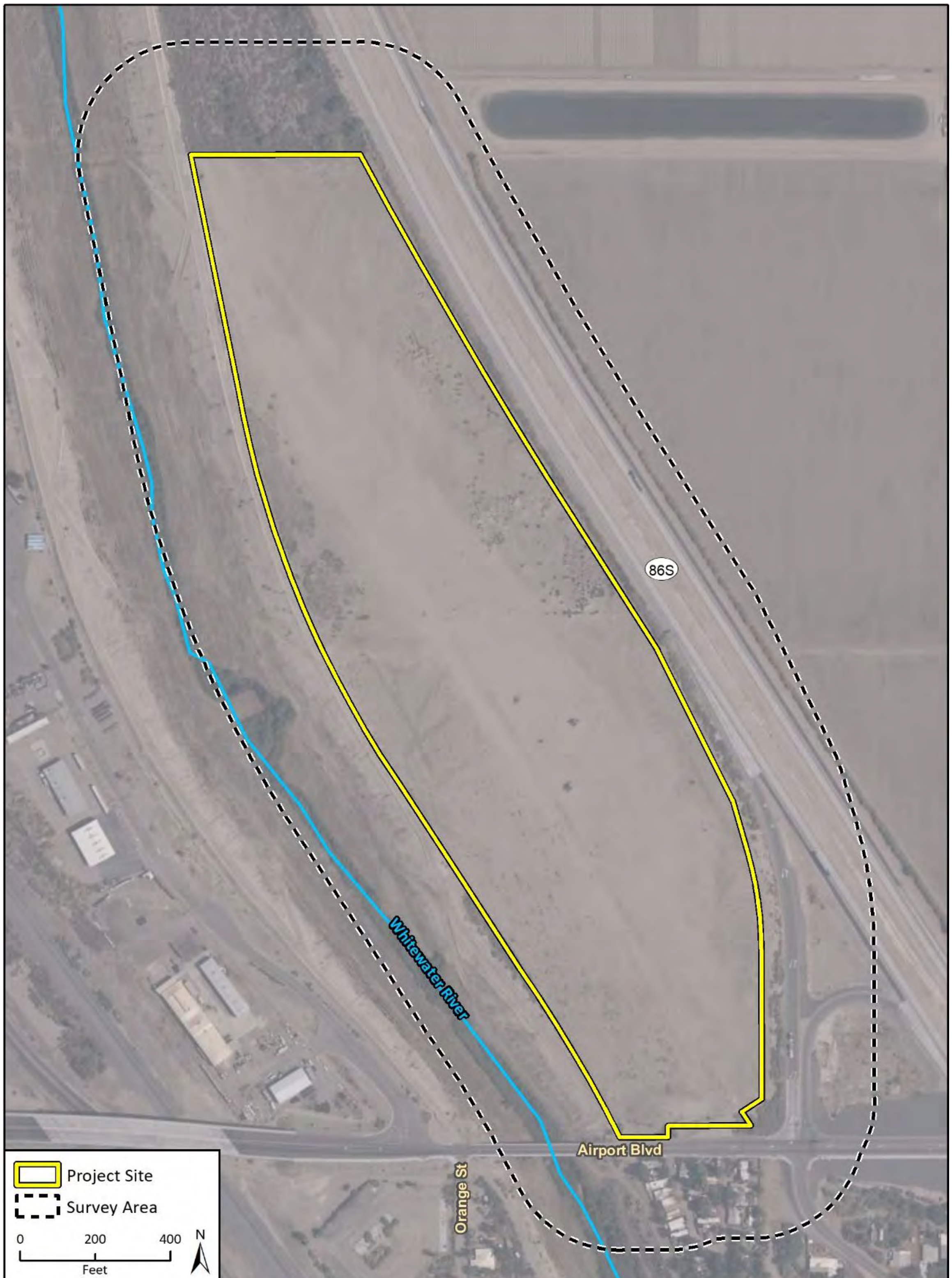
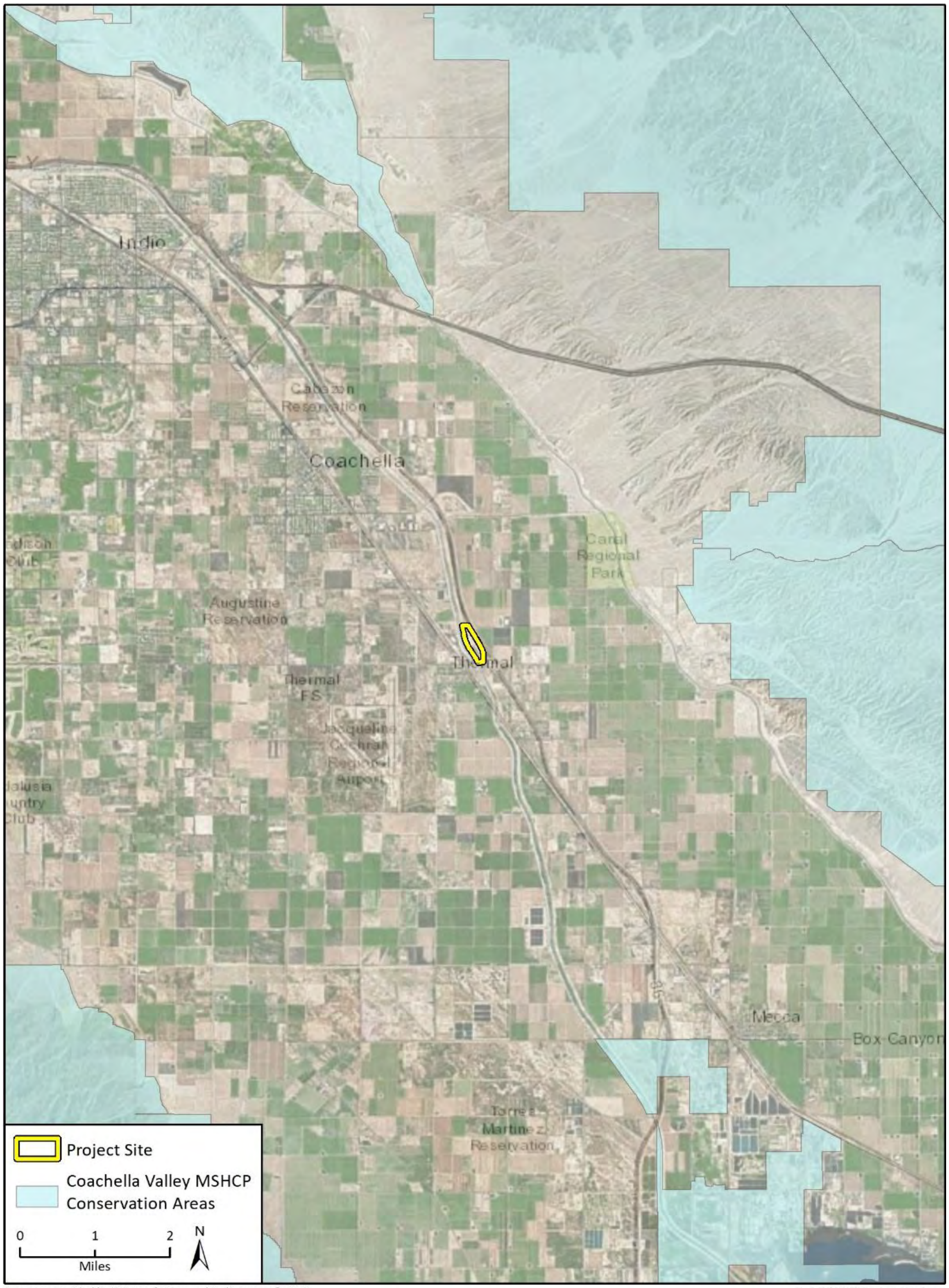


Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2021.
Additional data provided by National Hydrology Dataset, 2020.

Figure 3 Project Vicinity To CVMSHCP Conservation Areas



Imagery provided by Microsoft Bing and its licensors © 2021.
Additional data provied by CVMSHCP, 2021.

Methodology

Regulatory Overview

Regulated or special-status resources studied and analyzed herein include special-status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

Federal

- Federal Endangered Species Act (ESA)
- Federal Clean Water Act (CWA)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act

State

- California Environmental Quality Act (CEQA)
- California Endangered Species Act (CESA)
- California Fish and Game Code (CFGC)
- Porter-Cologne Water Quality Control Act

Local

- City of Coachella Ordinance No. 12.24 & 12.28 Regulating the Removal/Maintenance of Trees
- CVMSHCP

Literature Review

Prior to conducting the biological field survey, Rincon reviewed the parcels (provided by the client), aerial photographs and previous historical land use of the project site. Queries of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (2021a, 2021b) and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (2021) were conducted to obtain comprehensive information regarding state and federally listed species as well as other special-status species considered to have potential to occur within a 5-mile radius of the project site. For CNPS query purposes, a 9-quadrangle search area centered on the project site was used; species with elevation ranges exceeding that of the project site were excluded, and plant species with a California Rare Plant Rank (CRPR) of 3 and 4 were excluded.

In addition, information regarding regionally occurring special-status biological resources and geology related to the site was reviewed using from the following sources:

- United States (U.S.) Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS 2021a)
- USFWS Information for Planning and Consultation (USFWS 2021b)
- USFWS National Wetland Inventory (NWI) Mapper (USFWS 2021c)

- United States Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2021)

Field Survey

A field reconnaissance survey was conducted by Rincon Biologist Christian Nordal on February 8, 2021 from 0700 to 0900 to document the existing site conditions and evaluate the potential for presence of sensitive biological resources including special-status plant and wildlife species, sensitive plant communities, potential jurisdictional waters, wildlife corridors and nursery sites, and locally protected resources. Weather conditions during the survey included temperatures of 55 to 66 degrees Fahrenheit, no wind, and sunny and clear skies. The biologist surveyed the entire project site and a 300-foot buffer (hereinafter referred to as survey area) on foot where accessible (Figure 2). Inaccessible areas were reviewed using binoculars.

The habitat requirements for each regionally occurring special-status species were assessed and compared to the type and quality of the habitats observed within the survey area during the site visit. Vegetation communities observed on site were mapped on a site-specific aerial photograph. All accessible portions of the study area were covered on foot. Vegetation was generally classified using the systems provided in the *Preliminary Descriptions of the Terrestrial Communities of California* (Holland 1986), and modified using *A Manual of California Vegetation, Second Edition* (MCV) (Sawyer et al. 2009) as necessary to reflect the existing site conditions. The survey was conducted to make an initial determination regarding the presence or absence of terrestrial biological resources including plants, birds, and other wildlife.

Based on the results of the site visit, literature review, and species known to occur regionally, Rincon assessed the potential for the proposed project to impact special-status species within the survey area. The potential presence of special-status species is based on the site visit and literature review and is intended to assess habitat suitability within the survey area only. Definitive surveys to confirm the presence or absence of special-status species were not performed and are not included in this analysis. The findings and opinions conveyed in this report are based exclusively on the methodology described above.

Existing Conditions

Soils

Soils on the northwestern portion of the parcel have retained their original characteristics, whereas soils in the southeastern portion have been graded and compacted by previous disturbance activities. Remnant fluvents are what remains of hydric soils on site and do not constitute the majority of soil characteristics, as the site has been graded and heavily disturbed in the past few years. The four soil types on the project site, as mapped by the NRCS (Figure 4):

Coachella Fine Sand, Wet, 0 to 2 Percent Slopes (CrA)

Coachella soils are well-drained, moderately rapidly permeable soils in lacustrine basins that are characterized by layers of fine sand and silt lenses derived from igneous rocks. They are found near the old streambed of the Whitewater River. Stratifications are usually present, but usually thin and deep (NRCS 2021).

Fluvents (Fe)

Fluvents are alluvial soils created by repeated deposition of sediment in periodic floods. Fluvents are considered hydric soils (NRCS 2021).

Gilman Fine Sandy Loam, Wet, 0 to 2 Percent Slopes (GcA)

Gilman soils are characterized by layers of fine sandy loam, silt loam and loamy sand that are formed in stratified stream alluvium. They are found on flood plains and alluvial fans. This soil dominates (>50%) in Coachella (NRCS 2021).

Indio Fine Sandy Loam, Wet (Ir)

The Indio series consists of very deep, well or moderately well drained soils formed in alluvium derived from mixed rock sources. Indio soils are on alluvial fans, lacustrine basins and flood plains (NRCS 2021).

Vegetation and Land Cover

The entire project site is a moderately disturbed property that was historically part of the Whitewater River floodplain. A berm along the western boundary of the site separates it from receiving flow from the river. Soils are sandy and loose in the northwest portion of the project site, characteristic of when the property received flow from the river, and compact and loamy in the southeast portion of the project site (Figure 4). Several vehicle and mechanical tracks are visible throughout the site, indicating relatively recent disturbance. Historic aerial imagery on Google Earth (2021) confirmed disturbance on this parcel between April 2017 and February 2018 with the entire project site being cleared of vegetation. The vegetation has grown back to an extent since, resulting in fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance) throughout the eastern portion of the project site and barren ground with scattered saltbush and Arabian schismus (*Schismus arabicus*) in the western portion. The Whitewater River channel to the west of the site is primarily barren, with remnant riparian vegetation occurring within the narrow active flow in the channel. No sensitive plant communities are present on the project site. Refer to Attachment A for representative site photographs and Figure 5 for vegetation communities/landcover types.

Plant species observed include shadscale (*Atriplex confertifolia*), fourwing saltbush, big saltbush (*Atriplex lentiformis*), arrow weed (*Pluchea sericea*), tamarisk (*Tamarix parviflora*), burro weed (*Ambrosia dumosa*), and Arabian schismus.

General Wildlife

The project site provides saltbush scrub habitat for several wildlife species, particularly for common nesting birds protected under the CFGC Section 3503 and the MBTA. Bird species observed on site during the survey included white-crowned sparrow (*Zonotrichia leucophrys*), Brewer's sparrow (*Spizella breweri*), black-tailed gnatcatcher (*Polioptila melanura*), Gambel's quail (*Callipepla gambelii*), lark sparrow (*Chondestes grammacus*), savanna sparrow (*Passerculus sandwichensis*), northern harrier (*Circus hudsonius*), western meadowlark (*Sturnella neglecta*), and verdin (*Auriparus flaviceps*). Bird species observed in the 300-foot buffer to the west, where the Whitewater River occurs, included killdeer (*Charadrius vociferus*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*). The only reptile species observed on site was side-blotched lizard (*Uta* species). Mammal species were not

Figure 4 Soils (NRCS 2021)

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Additional data provided by SSURGO, 2021.

Figure 5 Vegetation Communities and Landcover

Imagery provided by Microsoft Bing and its licensors © 2021.

observed directly, but coyote (*Canis latrans*) and black-tailed jackrabbit (*Lepus californicus*) scat were observed on site.

Impact Analysis

Special-Status Species

Special-status species are those plants and wildlife listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS under the Federal ESA; those considered “Species of Concern” by the USFWS; those listed or candidates for listing as Rare, Threatened, or Endangered by the CDFW under the CESA; wildlife designated as “Fully Protected” by the CFGC; wildlife listed as “Species of Special Concern” (SSC) by the CDFW; and CDFW Special Plants, specifically those with CRPR of 1B, 2, and 3 in the CNPS Inventory of Rare and Endangered Vascular Plants of California.

Furthermore, biological resources are ranked globally (G) and State-wide (S) 1 through 5 (more critical to less critical with those ranked as G or S 1 through 3 being considered as sensitive).

Local, state, and federal agencies regulate special-status species and may require an assessment of their presence or potential presence to be conducted on site prior to the approval of proposed development on a property. A list of special-status plant and wildlife species with potential to occur on site was developed based on a review of a 5-mile search of the CNDDB (CDFW 2021b) and a 9-quad search of the CNPS’ online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2021) and can be found in Attachment B.

Pursuant to Appendix G of the CEQA Guidelines, the proposed project would have a significant effect on biological resources if it would:

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 CDFW or USFWS.

The CNDDB/CNPS query results include 33 special-status plant species within five miles (for CNDDB) and 9-quadrangle search area (for CNPS) of the project site. Special-status plant species typically have specialized habitat requirements, including plant community types, soils, and elevational ranges. Of the 33 species, 32 are not expected to occur on site based on the project site’s location and clear lack of suitable habitat (e.g., mountains, desert, elevational ranges). The remaining plant, gravel milk-vetch (*Astragalus sabulonum*; CNPR 2B.2) has low potential to occur based on the lack of local occurrences, the age of the nearest occurrences (over four decades since last seen), and lack of gravelly or course sandy soils that the species relies on (Attachment B). This species will not be analyzed further in this document. No special-status plant species were observed during the site reconnaissance survey. No special-status plant species have moderate or high potential to occur on site given the high disturbance, lack of suitable habitat, and low elevation on the project site. Impacts to special status plant species are not expected to occur as a result of project implementation.

The CNDDB query results include 13 special-status wildlife species within five miles of the project site. The potential for special-status wildlife species to occur on the site was assessed based on known distribution, habitat requirements, and existing site conditions. Of the 13 special-status wildlife species, one was observed on site and one was determined to have a moderate potential to occur on site (Attachment B):

- Two black-tailed gnatcatchers (CDFW Watch List) were detected on site and confirmed present. Black-tailed gnatcatchers are common residents below 300 meters in desert wash habitats and less common in desert scrub (such as saltbush scrub) habitat where they clean insects and siders from shrub foliage. They primarily nest in wooded desert wash habitat and occasional in desert scrub habitat. The project site provides suitable nesting habitat for black-tailed gnatcatcher.
- Crissal thrasher (*Toxostoma crissale*, CDFW SSC) was determined to have a moderate potential to occur on site. Crissal thrashers are fairly common in the Colorado River Valley, but uncommon in the rest of their range. They occupy dense thickets of shrubs in desert riparian and wash habitats, primarily utilizing mesquite (*Prosopis* species), ironwood (*Olneya tesota*), catclaw acacia (*Senegalia greggii*), and arrow weed. Arrow weed is present on site and may provide suitable habitat for resident thrashers in the Coachella Valley, but other plant species that crissal thrashers are associated with are not on site. The vegetation within the Whitewater River is sparse and likely actively maintained as part of the flood control channel and does not provide suitable nesting habitat for this species.

The project proposes the removal of vegetation that provides habitat for black-tailed gnatcatcher and may provide habitat for crissal thrasher. As such, the project may result in loss of such habitat, as well as potential injury or death to individuals. Direct impacts (e.g., injury or mortality) or indirect impacts (e.g., noise, dust) to these species may occur as a result of project activities. Implementation of a pre-construction clearance survey for these species is recommended to avoid and minimize potential impacts to a less-than-significant level. Suitable habitat for black-tailed gnatcatcher and crissal thrasher occurs north of the site as well, which would not be impacted by project activities and thus could continue to serve as suitable habitat for these species. Due to available suitable habitat north of the project, regionally available habitat for both species, and the implementation of preconstruction surveys for nesting birds (discussed below in Recommended Actions), the project would have a less than significant effect on black-tailed gnatcatcher and crissal thrasher and both species will not be affected by range or distribution.

As noted above, vegetation on the project site could also provide suitable nesting habitat for common avian species that were observed during the reconnaissance survey. Bird nests and eggs are protected under the CFGC Section 3503 and the MBTA. Common species such as mourning dove (*Zenaida macroura*) and house finch (*Haemorhous mexicanus*) as well as sensitive species such as black-tailed gnatcatcher have the potential to nest in shrubs, even in highly disturbed settings. Direct impacts (e.g., injury or mortality) to nesting birds or indirect impacts (e.g., noise, dust) that disrupt nesting behavior and reproductive success would be significant. Implementation of recommended pre-construction nesting bird surveys (discussed below in Recommended Actions) would reduce impacts to nesting birds to a less-than-significant level.

Sensitive Plant Communities

Pursuant to Appendix G of the CEQA Guidelines, the proposed project would have a significant effect on biological resources if it would:

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 CDFW or USFWS.*

The entire project site is comprised of saltbush scrub or open habitat (*Schismus* groundcover with scattered saltbush) that is frequently subject to human activity including disking. No sensitive plant communities are present on the project site. The Whitewater River flood control channel is actively maintained for vegetation and riparian habitat is limited to active flow areas, which are approximately 300 feet west of the berm that separates the project site from the active floodplain. The active flow is far enough where direct and indirect impacts are not anticipated for riparian habitat. Therefore, the project would not have a substantial adverse effect on any sensitive natural communities.

Jurisdictional Wetlands and Waterways

Pursuant to Appendix G of the CEQA Guidelines, the proposed project would have a significant effect on biological resources if it would:

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The entire project site is a disturbed site that has frequently been subject to human activity including disking. No potentially jurisdictional drainage features are present on the project site. The Whitewater River is located adjacent to and west of the project site and is separated from the project site by a berm. While a formal jurisdictional delineation was not performed, the Whitewater River is classified as riverine by the NWI (USFWS 2021c), and may potentially be under the jurisdiction of various regulatory agencies, including the CDFW, U.S. Army Corps of Engineers, and the Colorado River Regional Water Quality Control Board, as a federal and state water. The project does not propose any construction or operational activities that would directly impact the channel. Indirect impacts from potential storm water runoff, dust, or spills of hazardous materials during or after construction, would be less than significant as a result of the project's required compliance with a National Pollutant Discharge Elimination System (NPDES) Construction General Permit, and preparation and implementation of a Storm Water Pollution Prevent Plan (SWPPP) and best management practices. As a result, impacts would be less than significant.

Wildlife Movement

Pursuant to Appendix G of the CEQA Guidelines, the proposed project would have a significant effect on biological resources if it would:

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 wildlife nursery sites.

The project site is located adjacent to and east of the Whitewater River, north of Airport Boulevard, west of State Highway 86, and south of undeveloped habitat. The project site contains natural habitat that is separated from the habitat in the parcels to the north by a barbed wire fence. The western half of the parcel is currently mapped by the California Essential Habitat Connectivity (CEHC) Project as a potential riparian connection, but vegetation within the active channel is regularly maintained and does not provide substantial habitat for riparian species and would not act as an essential riparian corridor. The project site is also separated from the Whitewater River by a berm and the project would avoid direct impacts to the connectivity the river provides for species able to utilize limited riparian habitat (as described under item c, above). Impacts to connectivity along the Whitewater River would be limited to indirect impacts from noise or dust during construction or site use (once the project is implemented). The site is located near active roads and development and additional noise from site use would not result in greater amounts of ambient noise and dust compared to the current status quo. For these reasons, impacts to wildlife movement would be considered less than significant.

Local Policies and Ordinances

Pursuant to Appendix G of the CEQA Guidelines, the proposed project would have a significant effect on biological resources if it would:

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Local tree ordinances for the City of Coachella are limited to street trees and palm trees (Code of Ordinances 12.24 & 12.28). These ordinances require regular trimming and maintenance and/or removal and no preservation is specified within the code. Removal of any trees on site (which are limited to tamarisk) would thereby not be in conflict with local ordinances, and no impact is expected.

Adopted or Approved Plans

Pursuant to Appendix G of the CEQA Guidelines, the proposed project would have a significant effect on biological resources if it would:

f) Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Conservation Community Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

The project is located within the CVMSHCP but is not located within a Conservation Area. As a result, proposed activities at the project side would avoid direct impacts to the CVMSHCP Conservation Areas and would not conflict with the CVMSHCP Conservation Objectives. Species that are protected by the CVMSHCP include arroyo toad (*Anaxyrus californicus*), burrowing owl (*Athene cunicularia hypugea*), California black rail (*Laterallus jamaicensis coturniculus*), Coachella Valley fringe-toed lizard (*Uma inornata*), Coachella Valley Jerusalem cricket (*Stenopelmatus cahuilaensis*), Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*), crissal thrasher, desert pupfish (*Cyprinodon macularius*), desert tortoise (*Gopherus agassiizii*), flat-tailed horned lizard (*Phrynosoma mcallii*), gray vireo (*Vireo vicinior*), least Bell's vireo (*Vireo bellii pusillus*), LeConte's thrasher (*Toxostoma lecontei*), little San Bernardino Mountains linanthus (*Linanthus maculatus*), mecca aster (*Xylorhiza cognata*), orocopia sage (*Salvia greatae*), Palm Springs pocket mouse (*Perognathus longimembris bangsi*), Palm Springs round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*), peninsular bighorn sheep distinct population segment (DPS) (*Ovis canadensis nelsoni* pop. 2), southwestern willow flycatcher (*Empidonax traillii extimus*), summer tanager (*Piranga rubra*), triple-ribbed milk-vetch (*Atragalus tricarinatus*), western yellow bat (*Lasiurus xanthinus*), yellow breasted chat (*Icteria virens*), yellow warbler (*Dendroica petechia brewsteri*), and Yuma clapper rail (*Rallus longirostris yumanensis*). Of these species, only the crissal thrasher has moderate potential to occur on site and Palm Springs round-tailed ground squirrel has low potential to occur on site.

The project would not result in significant impacts to crissal thrasher or black-tailed gnatcatcher due to loss of habitat. While crissal thrasher were not detected during the reconnaissance survey, pre-construction nesting bird surveys (see BIO-1 below) would detect them should they move in on site and are recommended for compliance with MBTA and CFGC.

Recommended Actions

BIO-1 Nesting Bird Surveys

The following mitigation measure, and compliance with MBTA and CFGC requirements, would be required to reduce impacts to nesting birds to a less than significant level.

To avoid disturbance of nesting and special-status birds, including raptorial species protected by the MBTA and CFGC, activities related to the project, including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 1 through August 30). If construction must begin within the breeding season, then a pre-construction nesting bird survey shall be conducted no more than 3 days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted within the project site, plus a 300-foot buffer (500-foot for raptors), on foot, and within inaccessible areas (i.e., private lands) afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California desert communities. If nests are found, an avoidance buffer (which is dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

Thank you for the opportunity to support this important project. Please contact the undersigned if you have any questions.

Sincerely,
Rincon Consultants, Inc.

Christian Nordal	Sherri Miller
Associate Biologist	Principal Biologist

Attachments

Attachment A Site Photographs

Attachment B CNDDB/CNPS Query Results and Special-Status Species Occurrence Potentials

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Attachment A

Site Photographs

Photograph 1. Facing north from the access gate, showing historic disturbance.

Photograph 2. Facing north showing access road that runs on the east side of the site.

Photograph 3. Facing west, showing saltbush scrub on site.

Photograph 4. Showing historic mechanical disturbance.

Photograph 5. Showing saltbush scrub on site.

Photograph 6. Facing north, showing the access road on the east. Saltbush scrub on the east borders Highway 86.

Photograph 7. Facing north, showing the end of the access road on the east.

Photograph 8. Facing north, showing the start of the berm on the west side of the site that separates the site from the Whitewater River/ Coachella Valley Stormwater Channel

Photograph 9. Facing east from the berm, showing scrub habitat in the southeastern portion of the project site.

Photograph 10. Facing northwest, showing the berm separating the project site from the Whitewater River.

Photograph 11. Facing east, showing the *Schismus* in the northeastern portion of the site.

Photograph 12. Facing north, showing sandy soils that were historically part of the Whitewater River floodplain.

Photograph 13. Facing east, showing the barbed wire fence that separates the project site from the northern adjacent property.

Photograph 14. Facing north at the barbed wire fence, showing dense scrub habitat that occurs in the property north of the project site.

Attachment B

CNDDB/CNPS Query Results and Special-Status Species Occurrence Potentials

CNDDB/CNPS Query Results and Special-Status Species Occurrence Potentials

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Plants and Lichens				
Abronia villosa var. *aurita* chaparral sand-verbena	None/None G5T2?/S2 1B.1	Annual herb. Blooms Jan-Sept. Occurs in chaparral, coastal scrub. Sandy areas of the South Coast and Sonoran Desert Floristic Provinces. 80-1600m (260-5250ft).	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Ambrosia monogyra singlewhorl burrobrush	None/None G5/S2 2B.2	Chaparral, Sonoran desert scrub. sandy. 10 - 500 m. perennial shrub. Blooms Aug-Nov	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Astragalus bernardinus San Bernardino milk-vetch	None/None G3/S3 1B.2	Joshua tree (*Yucca brevifolia*) woodland, Pinyon and juniper woodland. Often granitic or carbonate. 900 - 2000 m. perennial herb. Blooms Apr-Jun	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Astragalus lentiginosus var. *coachellae* Coachella Valley milk-vetch	FE/None G5T1/S1 1B.2	Desert dunes, Sonoran desert scrub (sandy). 40 - 655 m. annual / perennial herb. Blooms Feb-May	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Astragalus preussii var. *laxiflorus* Lancaster milk-vetch	None/None G4T2/S1 1B.1	Chenopod scrub. 700 - 700 m. perennial herb. Blooms Mar-May	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Astragalus sabulonum gravel milk-vetch	None/None G4G5/S2 2B.2	Desert dunes, Mojavean desert scrub, Sonoran desert scrub. Usually sandy, sometimes gravelly. Flats, washes, and roadsides, found in gravelly/course sandy soils. -60 - 930 m. annual / perennial herb. Blooms Feb-Jun	Potential to occur is low.	Suitable habitat occurs on site, but suitable soils (gravelly) do not. Soils on site are loamy/sandy loam. The species was not observed on site and has not been documented within a 5-mile radius. All occurrences in the CNDDB within 20 years occur in Inyo County, and all occurrences south of Inyo County are over 40 years old. The closest occurrences to the project site are over a century old.
Astragalus tricarinatus triple-ribbed milk-vetch	FE/None G2/S2 1B.2	Joshua tree woodland, Sonoran desert scrub. sandy or gravelly. 450 - 1190 m. perennial herb. Blooms Feb-May	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Ayenia compacta California ayenia	None/None G4/S3 2B.3	Mojavean desert scrub, Sonoran desert scrub. rocky. 150 - 1095 m.	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
		perennial herb. Blooms Mar-Apr		
Bursera microphylla little-leaf elephant tree	None/None G4/S2 2B.3	Sonoran desert scrub (rocky). 200 - 700 m. perennial deciduous tree. Blooms Jun-Jul	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Ditaxis claryana glandular ditaxis	None/None G3G4/S2 2B.2	Mojavean desert scrub, Sonoran desert scrub. sandy. 0 - 465 m. perennial herb. Blooms Oct, Dec, Jan, Feb, Mar	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Ditaxis serrata var. *californica* California ditaxis	None/None G5T3T4/S2? 3.2	Sonoran desert scrub. 30 - 1000 m. perennial herb. Blooms Mar-Dec	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Eremothera boothii ssp. *boothii* Booth's evening-primrose	None/None G5T4/S3 2B.3	Joshua tree woodland, Pinyon and juniper woodland. 815 - 2400 m. annual herb. Blooms Apr-Sep	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Eriastrum harwoodii Harwood's eriastrum	None/None G2/S2 1B.2	Desert dunes. 125 - 915 m. annual herb. Blooms Mar-Jun	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Euphorbia abramsiana Abrams' spurge	None/None G4/S2 2B.2	Mojavean desert scrub, Sonoran desert scrub. sandy. -5 - 1310 m. annual herb. Blooms (Aug)Sep-Nov	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Funastrum crispum wavyleaf twinevine	None/None G4/S1 2B.2	Chaparral, Pinyon and juniper woodland. 1165 - 1840 m. perennial herb. Blooms May-Aug	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Hecastocleis shockleyi prickle-leaf	None/None G4/S4 3	Chenopod scrub, Mojavean desert scrub. rocky slopes, washes; often carbonate or slate. 1200 - 2200 m. perennial evergreen shrub. Blooms May-Jul	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Heuchera hirsutissima shaggy-haired alumroot	None/None G3/S3 1B.3	Subalpine coniferous forest, Upper montane coniferous forest. rocky, granitic. 1520 - 3500 m. perennial rhizomatous herb. Blooms (May)Jun-Jul	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Jaffueliobryum raui Rau's jaffueliobryum moss	None/None G4?/S2? 2B.3	Alpine dwarf scrub, Chaparral, Mojavean desert scrub, Sonoran desert scrub. Dry openings, rock crevices, carbonate. 490 - 2100 m. moss.	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Leptosiphon floribundus ssp. *hallii* Santa Rosa Mountains leptosiphon	None/None G4T1T2/S1S2 1B.3	Pinyon and juniper woodland, Sonoran desert scrub. 1000 - 2000 m. perennial herb. Blooms May-Jul(Nov)	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Marina orcuttii var. *orcuttii* California marina	None/None G2G3T1T2/S2? 1B.3	Chaparral, Pinyon and juniper woodland, Sonoran desert scrub. rocky. 1050 - 1160 m. perennial herb. Blooms May-Oct	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Mentzelia tridentata creamy blazing star	None/None G3/S3 1B.3	Mojavean desert scrub. rocky, gravelly, sandy. 700 - 1175 m. annual herb. Blooms Mar-May	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Nemacaulis denudata var. *gracilis* slender cottonheads	None/None G3G4T3?/S2 2B.2	Coastal dunes, Desert dunes, Sonoran desert scrub. -50 - 400 m. annual herb. Blooms (Mar)Apr-May	Species is not expected to occur on site.	The dune habitat this species requires does not occur on site and this species was not observed on site
Petalonyx linearis narrow-leaf sandpaper-plant	None/None G4/S3? 2B.3	Mojavean desert scrub, Sonoran desert scrub. Sandy or rocky canyons. -25 - 1115 m. perennial shrub. Blooms (Jan-Feb)Mar-May(Jun-Dec)	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Phaseolus filiformis slender-stem bean	None/None G5/S1 2B.1	Sonoran desert scrub. 125 - 125 m. annual herb. Blooms Apr	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Pseudorontium cyathiferum Deep Canyon snapdragon	None/None G4G5/S1 2B.3	Sonoran desert scrub (rocky). 0 - 800 m. annual herb. Blooms Feb-Apr	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Saltugilia latimeri Latimer's woodland-gilia	None/None G3/S3 1B.2	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland. rocky or sandy, often granitic, sometimes washes. 400 - 1900 m. annual herb. Blooms Mar-Jun	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Selaginella eremophila desert spike-moss	None/None G4/S2S3 2B.2	Chaparral, Sonoran desert scrub (gravelly or rocky). 200 - 1295 m. perennial rhizomatous herb. Blooms (May)Jun(Jul)	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Senna covesii Coves' cassia	None/None G5/S3 2B.2	Sonoran desert scrub. Dry, sandy desert washes and slopes. 225 - 1295 m. perennial herb. Blooms Mar-Jun(Aug)	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Stemodia durantifolia purple stemodia	None/None G5/S2 2B.1	Sonoran desert scrub (often mesic, sandy). 180 - 300 m. perennial herb. Blooms (Jan) Apr, Jun, Aug, Sep, Oct, Dec	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Thelypteris puberula var. *sonorensis* Sonoran maiden fern	None/None G5T3/S2 2B.2	Meadows and seeps (seeps and streams). 50 - 610 m. perennial rhizomatous herb. Blooms Jan-Sep	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Wislizenia refracta ssp. *palmeri* Palmer's jackass clover	None/None G5T3T5/S1 2B.2	Chenopod scrub, Desert dunes, Sonoran desert scrub, Sonoran thorn woodland. 0 - 300 m. perennial deciduous shrub. Blooms Jan-Dec	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Wislizenia refracta ssp. *refracta* jackass-clover	None/None G5T5?/S1 2B.2	Desert dunes, Mojavean desert scrub, Playas, Sonoran desert scrub. 600 - 800 m. annual herb. Blooms Apr-Nov	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Xylorhiza cognata Mecca-aster	None/None G2/S2 1B.2	Sonoran desert scrub. 20 - 400 m. perennial herb. Blooms Jan-Jun	Species is not expected to occur on site.	The site's elevation range occurs outside of the elevation range where this species is found.
Invertebrates				
Euparagia unidentata Algodones euparagia	None/None G1G2/S1S2	Endemic to the Algodones Dunes in Imperial County.	Species is not expected to occur on site.	Dune habitat does not occur on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Fish				
Xyrauchen texanus razorback sucker	FE/SE G1/S1S2 FP	Found in the Colorado River bordering California. Adapted for swimming in swift currents but also need quiet waters. Spawn in areas of sand/gravel/rocks in shallow water.	Species is not expected to occur on site.	Aquatic habitat does not occur on site.
Reptiles				
Gopherus agassizii desert tortoise	FT/ST G3/S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush (*Larrea tridentata*) habitat with large annual wildflower blooms preferred.	Potential to occur is low.	Saltbush scrub on site provides suitable vegetation. However, soils on site are not suitable for burrows and the site is surrounded by barriers on all sides that would prevent movement onto the site. Burrows were not observed on site during the field survey.
Uma inornata Coachella Valley fringe-toed lizard	FT/SE G1Q/S1	Limited to sandy areas in the Coachella Valley, Riverside County. Requires fine, loose, windblown sand (for burrowing), interspersed with hardpan and widely-spaced desert shrubs.	Species is not expected to occur on site.	Sands on site are not windblown/loose and shrubs on site are thick. The microhabitat conditions this species requires are not on site.
Birds				
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Potential to occur is low.	The species was documented in 1929 within a mile of the project site. Open habitat is on the western portion of the project site, but suitable burrows were not observed on site.
Falco mexicanus prairie falcon	None/None G5/S4 WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Potential to occur is low.	Suitable foraging habitat occurs on site, but nesting habitat does not occur on site. The species was last documented approximately 3 miles southeast of the project site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Polioptila melanura black-tailed gnatcatcher	None/None G5/S3S4 WL	Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter. Nests in desert washes containing mesquite (*Prosopis* species), palo verde (*Parkinsonia florida*), ironwood (*Olneya tesota*), acacia (*Acacia* species); absent from areas where salt cedar (*Tamarix ramosissima*) introduced.	Species occurs on site.	Suitable habitat is on site and the species was detected during the field survey
Pyrocephalus rubinus vermilion flycatcher	None/None G5/S2S3 SSC	During nesting, inhabits desert riparian adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas. Nest in cottonwood (*Populus* species), willow (*Salix* species), mesquite, and other large desert riparian trees.	Species is not expected to occur on site.	Suitable nesting trees for this species do not occur on site. Desert riparian habitat does not occur on site.
Toxostoma crissale Crissal thrasher	None/None G5/S3 SSC	Resident of southeastern deserts in desert riparian and desert wash habitats. Nests in dense vegetation along streams/washes; mesquite, screwbean mesquite (*Prosopis pubescens*), ironwood, catclaw (*Senegalia greggii*), acacia, arrow weed, willow.	Potential to occur is moderate.	Suitable habitat for this species occurs on site and the species was documented within a mile of the project site (1922). The species was not detected during the field survey.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Mammals				
Eumops perotis californicus western mastiff bat	None/None G5T4/S3S4 SSC	Occurs in open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces and caves, and buildings. Roosts typically occur high above ground.	Potential to occur is low.	Suitable foraging habitat occurs on site and in adjacent areas, but suitable roosting habitat does not occur on site.
Lasiurus xanthinus western yellow bat	None/None G5/S3 SSC	Occurs in arid regions of the southwestern United States. Typically found in riparian woodlands, oak or pinyon-juniper woodland, desert wash, palm oasis habitats, and urban or suburban areas. Roosts in trees, often between palm fronds.	Potential to occur is low.	Suitable foraging habitat occurs on site and in adjacent areas, but suitable roosting habitat does not occur on site.
Perognathus longimembris bangsi Palm Springs pocket mouse	None/None G5T2/S2 SSC	Desert riparian, desert scrub, desert wash and sagebrush habitats. Most common in creosote-dominated desert scrub. Rarely found on rocky sites or in saltbush communities. Occurs in all canopy coverage classes.	Potential to occur is low.	Habitat on site is primarily saltbush, which is generally not suitable for this species. Small mammal burrows were not detected during the field survey.
Xerospermophilus tereticaudus chlorus Palm Springs round-tailed ground squirrel	None/None G5T2Q/S2 SSC	Restricted to the Coachella Valley. Prefers desert succulent scrub, desert wash, desert scrub, alkali scrub, and levees. Prefers open, flat, grassy areas in fine-textured, sandy soil. Density correlated with winter rainfall.	Potential to occur is low.	Suitable saltbush scrub habitat occurs on site, but small mammal burrows were not detected during the field survey and the site has been disturbed heavily in the past 5 years.

Appendix C

Cultural Resource Investigation

PALEO WEST archaeology

Cultural Resource Investigation in Support of the Coachella Airport Business Park Project, Riverside County, California

Submitted to:

The Altum Group
73-710 Fred Waring Drive, Ste. 219
Palm Desert, CA 92260

Technical Report 20-247

May 1, 2020

626.408.8006 | paleowest.com | 517 S. Ivy Avenue | Monrovia, CA 91016

CULTURAL RESOURCE INVESTIGATION IN SUPPORT OF THE COACHELLA AIRPORT BUSINESS PARK PROJECT, RIVERSIDE COUNTY, CALIFORNIA

Prepared by:
Roberta Thomas, M.A., RPA

Prepared for:
The Altum Group

Technical Report No. 20-247

PaleoWest Archaeology
517 S. Ivy Avenue
Monrovia, California 91016
(626) 408-8006

May 1, 2020

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CONTENTS

MANAGEMENT SUMMARY IV

1.0 INTRODUCTION 1
- 1.1 PROJECT LOCATION AND DESCRIPTION 1
- 1.2 REPORT ORGANIZATION 1

2.0 REGULATORY CONTEXT 4
- 2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT 4
- 2.2 CALIFORNIA ASSEMBLY BILL 52 4
- 2.3 CITY OF COACHELLA GENERAL PLAN (2035) 5

3.0 SETTING 6
- 3.1 ENVIRONMENTAL SETTING 6
  - 3.1.1 Lake Cahuilla 6
- 3.2 PREHISTORIC SETTING 7
  - 3.2.1 Late Prehistoric Period 7
- 3.3 ETHNOGRAHIC SETTING 8
- 3.4 HISTORICAL SETTING 9
  - 3.4.1 Water Infrastructure 9
  - 3.4.2 Coachella 10

4.0 CULTURAL RESOURCES INVENTORY 11
- 4.1 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS 11
- 4.2 CULTURAL RESOURCES REPORTED WITHIN THE STUDY AREA 12
  - 4.2.1 33-017259 13
- 4.3 ADDITIONAL SOURCES 13
- 4.4 NATIVE AMERICAN COORDINATION 14

5.0 FIELD INVESTIGATION 15
- 5.1 FIELD METHODS 15
- 5.2 FIELD RESULTS 15

6.0 MANAGEMENT RECOMMENDATIONS 18

7.0 REFERENCES 19

APPENDICES

Appendix A. Native American Coordination 23
Appendix B. DPR Form Update 36

FIGURES

Figure 1-1 Project Vicinity Map 2
Figure 1-2 Project Location Map 3
Figure 5-1 Overview from southern edge of survey area, view to the north/northwest 16
Figure 5-2 Overview from northwestern edge of survey area, view to the southeast 16
Figure 5-3 Dense vegetation on the eastern side of the survey area, view to the north 17

Figure 5-4 Overview of the stormwater channel from the survey area, view to the northwest....17

TABLES

Table 4-1 Previous Cultural Studies within the Study Area..11
Table 4-2 Cultural Resources Recorded within 1-Mile of the Project Area.................................12

MANAGEMENT SUMMARY

The proposed Coachella Airport Business Park Project (Project) would include construction of a mixed-use business park with a primary focus on warehouse/commercial cannabis, small business-, and service station-related land uses in the city of Coachella in Riverside County, California. The proposed Project would include a large warehouse sector, small warehouse sector, small business sector, brick yard, self-storage, and retail businesses comprised of a service station/mini mart and drive-thru coffee shop. PaleoWest Archaeology (PaleoWest) was contracted by The Altum Group to conduct a Phase I cultural resource assessment of the Project area in compliance with the California Environmental Quality Act (CEQA). The City of Coachella (City) is the Lead Agency for the purposes of the CEQA.

This report summarizes the methods and results of the cultural resource investigation of the Project area. This investigation included background research, communication with the Native American Heritage Commission (NAHC) and interested Native American tribal groups, and an intensive pedestrian survey of the Project area. The purpose of the investigation was to determine the potential for the Project to impact historic resources under CEQA.

As a result of the current closure of the Eastern Information Center due to the COVID-19 situation, PaleoWest conducted an internal literature review as well as a review of previously acquired resource data. This internal data review included the Project area and a one mile buffer. The internal data review indicated that no fewer than 15 previous studies have been conducted within one mile of the Project area. The data review indicated that at least 22 cultural resources have been previously documented within one mile of the Project area. One historic-period built-environment resource, the Whitewater Stormwater Channel (33-017259), is located immediately adjacent to the Project area; however, none of these resources were identified within the Project area.

As part of the cultural resource assessment of the Project area, PaleoWest also requested a search of the Sacred Lands File (SLF) from the NAHC. Results of the SLF search indicate that there are no known Native American cultural resources within the immediate Project area but suggested contacting 19 individuals representing 12 Native American tribal groups to find out if they have additional information about the Project area. The 12 recommended tribal groups were contacted. The Quechan Tribe of the Fort Yuma Reservation and Santa Rosa Band of Cahuilla Indians stated the tribes do not have any comments for the Project. The Agua Caliente Band of Cahuilla Indians stated that the Project area is within their Traditional Use Area and made some request for information as well as monitoring during ground disturbance. The Torres-Martinez Desert Cahuilla Indians indicated that the area is sensitive for cultural resources and, as such, they will provide information regarding the sensitivity of the area during the official Assembly Bill (AB) 52 consultation process. The Soboba Band of Luiseno Indians deferred to the Torres-Martinez Desert Cahuilla Indians. To date, five responses were received.

PaleoWest conducted a pedestrian cultural resource survey of the proposed Project area on March 30, 2020. No prehistoric or historic-period archaeological resources were identified as a result of the Phase I survey. In addition, no built-environment resources were identified within the survey area; however, a built-environment resource is located immediately adjacent to the Project area. The Whitewater Stormwater Channel (33-017259) is not eligible for listing on the California Register of Historical Resources (CRHR). The Project area does not appear to be sensitive for cultural resources. As such, PaleoWest does not recommend any additional cultural resource management for the proposed Project.

In the unlikely event that cultural resources are encountered during construction activities associated with the Project, a qualified archaeologist shall be obtained to assess the significance of the find in accordance with the criteria set forth in the CRHR. In addition, Health and Safety Code 7050.5, CEQA 15064.5(e), and Public Resources Code 5097.98 mandate the process to be followed in the unlikely event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

1.0 INTRODUCTION

The proposed Coachella Airport Business Park Project (Project) would include construction of a mixed-use business park with a primary focus on warehouse/commercial cannabis, small business-, and service station-related land uses in the city of Coachella in Riverside County, California. The proposed Project would include a large warehouse sector, small warehouse sector, small business sector, brick yard, self-storage, and retail businesses comprised of a service station/mini mart and drive-thru coffee shop. PaleoWest Archaeology (PaleoWest) was contracted by The Altum Group to conduct a Phase I cultural resource assessment of the Project area in compliance with the California Environmental Quality Act (CEQA). The City of Coachella (City) is the Lead Agency for the purposes of the CEQA.

1.1 PROJECT LOCATION AND DESCRIPTION

The proposed Project is located at the northwest corner of State Route (SR) 86 and Airport Boulevard and is comprised of three parcels totaling approximately 43 acres in size. The Assessor's Parcel Numbers (APNs) of the Project area are 763-330-013, 763-330-017, and 763-330-018. The Project area is bordered to the north by a vacant, undeveloped property; to the west, the Project area is bordered by the Whitewater River Storm Channel; to the east, bordered by State Route 86; and to the south, by Airport Boulevard (Figure 1-1). The Project area is situated within Section 15, Township 6 South, Range 18 East, San Bernardino Baseline and Meridian (SBBM), as depicted on the Indio, CA 7.5' U.S. Geological Survey (USGS) topographic quadrangle (Figure 1-2). The elevation of the Project area ranges between 110 and 120 feet below mean sea level (bmsl).

The service station/mini mart and drive-thru coffee shop are proposed to be developed at the southern end of the Project area near the Project's two primary access points along Airport Boulevard within close proximity to the SR 86 off ramp. North of these two retail buildings will be the small business sector that will be comprised of 18 leasable buildings for office and/or warehouse uses. Beyond the small business sector to the north will be the brick yard sector of the business park that will contain a total of four hangar type buildings with a centralized courtyard-type green space. The brick yard sector will be designed for storage of automobile models and motorsport vehicles. The self-storage sector will be located within the western portion of the center of the Project area and be comprised of 16 buildings ranging in size. The small warehouse sector will be located within the eastern portion of the center of the Project area and will consist of four warehouse buildings. The large warehouse sector will be located within the northern portion of the Project area and will consist of four to six warehouses. Both the large and small warehouse sectors will be built to accommodate both logistical/distribution-related uses (i.e., fulfillment centers) and for cannabis-related uses (i.e., cultivation, manufacturing, and distribution).

1.2 REPORT ORGANIZATION

This report documents the results of a cultural resource investigation conducted for the proposed Project. Chapter 1 has introduced the project location and description. Chapter 2 states the regulatory context that should be considered for the Project. Chapter 3 synthesizes the natural and cultural setting of the Project area and surrounding region. The results of the existing cultural resource data literature and resource record review and the Sacred Lands File (SLF) search, and a summary of the Native American communications is presented in Chapter 4. The field methods employed during this investigation and findings are outlined in Chapter 5 with management recommendation provided in Chapter 6. This is followed by bibliographic references and appendices.

Figure 1-1 Project Vicinity Map

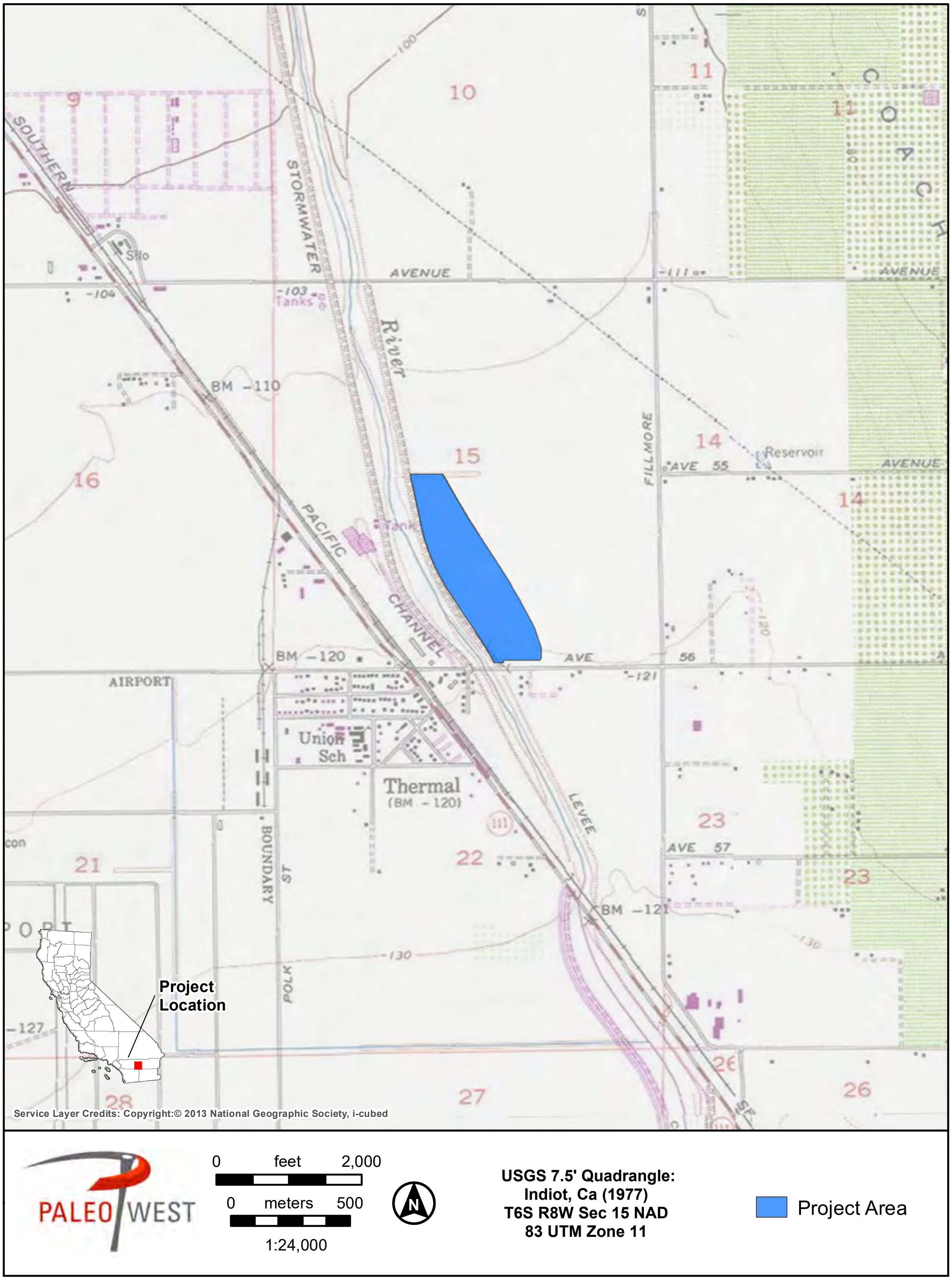

Figure 1-2 Project Location Map

2.0 REGULATORY CONTEXT

2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The proposed Project is subject to compliance with CEQA, as amended. Compliance with CEQA statutes and guidelines requires both public and private projects with financing or approval from a public agency to assess the project's impact on cultural resources (Public Resources Code Section 21082, 21083.2 and 21084 and California Code of Regulations 10564.5). The first step in the process is to identify cultural resources that may be impacted by the project and then determine whether the resources are "historically significant" resources.

CEQA defines historically significant resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (Public Resources Code Section 5024.1). A cultural resource may be considered historically significant if the resource is 45 years old or older, possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and meets any of the following criteria for listing on the CRHR:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. Has yielded, or may be likely to yield, information important in prehistory or history (Public Resources Code Section 5024.1).

Cultural resources are buildings, sites, humanly modified landscapes, traditional cultural properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. CEQA states that if a project will have a significant impact on important cultural resources, deemed "historically significant," then project alternatives and mitigation measures must be considered.

2.2 CALIFORNIA ASSEMBLY BILL 52

Signed into law in September 2014, California Assembly Bill 52 (AB 52) created a new class of resources – tribal cultural resources (TCRs) – for consideration under CEQA. TCRs may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe that are listed or determined to be eligible for listing in the CRHR, included in a local register of historical resources, or a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant and eligible for listing on the CRHR. AB 52 requires that the lead CEQA agency consult with California Native American tribes that have requested consultation for projects that may affect tribal cultural resources. The lead CEQA agency shall begin consultation with participating Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Under AB 52, a project that has potential to cause a substantial adverse change to a tribal cultural resource constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

2.3 CITY OF COACHELLA GENERAL PLAN (2035)

The City of Coachella General Plan (2035) covers seven elements, one of which includes Sustainability and the Natural Environment. This element includes one goal and several associated policies related to cultural resources. These include:

Goal 12. Cultural Resources and Sites. Preserved and protected cultural resources that provide the community with significant cultural, scientific, or educational value.

> **Policy 12.1 Disturbance of human remains.** In areas where there is a high chance that human remains may be present (areas along the Whitewater Rivers/CVSC, on Tribal lands, on areas with previously undisturbed soil, in the washes and canyons found in the eastern areas of the Planning Area, and areas of historic settlement), require proposed projects to conduct survey to establish occurrence of human remains, if any. If human remains are discovered on proposed project sites, the project must implement mitigation measures to prevent impacts to human remains in order to receive permit approval.
>
> **Policy 12.2 Tribal coordination.** Require notification of California Native American tribes and organizations of proposed projects that have the potential to adversely impact cultural resources.
>
> **Policy 12.3 Protected sites.** Require sites with significant cultural resources to be protected.
>
> **Policy 12.4 Preservation of historic resources.** Where practical, encourage the preservation of historic resources.
>
> **Policy 12.5 Document historic resources.** When it is not practical to preserve a historic resource, require the architectural details and design elements of historic structures to be preserved during renovations and remodels.
>
> **Policy 12.6 Discovery of human remains.** Require that any human remains discovered during implementation of public and private projects within the City be treated with respect and dignity and fully comply with the California Native American Graves Protection and Repatriation Act and other appropriate laws.
>
> **Policy 12.7 Paleontological resources.** Require any paleontological artifacts found within the City or Sphere of Influence be reported to the City and temporarily loaned to local museums like the Western Science Center for Archaeology and Paleontology, in Hemet, CA.
>
> **Policy 12.8 Disturbance of human remains.** In areas where there is a high chance that human remains may be present (areas along the Whitewater Rivers/CVSC, on Tribal lands, on areas with previously undisturbed soil, in the washes and canyons found in the eastern areas of the Planning Area, and areas of historic settlement), require proposed projects to conduct survey to establish occurrence of human remains, if any. If human remains are discovered on proposed project sites, the project must implement mitigation measures to prevent impacts to human remains in order to receive permit approval.

3.0 SETTING

This section of the report summarizes information regarding the physical and cultural setting of the Project area, including the prehistoric, ethnographic, and historic contexts of the general area. Several factors, including topography, available water sources, and biological resources, affect the nature and distribution of prehistoric, ethnographic, and historic-period human activities in an area. This background provides a context for understanding the nature of the cultural resources that may be identified within the region.

3.1 ENVIRONMENTAL SETTING

The Project area is situated east of the Peninsular Ranges in the southern extent of the Coachella Valley at the western edge of the Colorado Desert. The Coachella Valley is bordered by the San Jacinto and Santa Rosa mountains (part of the Peninsular Ranges) to the southwest and by the low, rolling Indio and Mecca hills to the northeast. From the steep slopes of the San Jacinto Mountains, the desert floor descends suddenly at less than 3 kilometers (2 miles) eastward to sea level at the city of Indio, some 10.5 kilometers (6.5 miles) northeast of where the Project area is located.

South of the Project area, elevations gradually drop to 90 meters (300 feet) bmsl at the Salton Sea Basin. This basin has filled periodically throughout the Pleistocene and Holocene when the Colorado River shifted its course near its mouth at the Gulf of California, flowing north into the basin, and forming a large freshwater lake commonly known as Lake Cahuilla. A major water source flowing through the central valley is the Whitewater River. The river drained the southern slope of the San Bernardino Mountains for thousands of years (Laflin 2001), prior to the development of the Coachella Valley, flowing in a generally south-southeast direction 80.5 kilometers (50 miles) toward the Salton Sea. The Whitewater River was likely the largest perennial stream that entered the Salton Basin during prehistoric times, replenishing the underground aquifer during nonlacustrine intervals. The Whitewater River Storm Channel runs along the western boundary of the Project area.

Prior to the mid-1900s, the climate of the Project region was characterized by low relative humidity, very low rainfall, high summer temperatures of up to 52° C (125° F), and mild winters. Since the 1950s, the relative humidity in the area has risen gradually as more and more golf courses have been built and maintained in the Coachella Valley. High winds are common and are accompanied by blowing sand and dust during the spring and late fall. Within the desert areas surrounding the Project area, the average annual rainfall is as sparse as 6 centimeters (2.5 inches) per year and occurs primarily during the winter months. The Project area is situated within an area identified by Bean and Saubel (1972) as a Lower Sonoran life zone. The Lower Sonoran life zone is characterized by low rainfall, fine-textured alluvial to sandy soils, and xerophytic plant communities.

3.1.1 Lake Cahuilla

Arguably the most important environmental change in the Colorado Desert in the past 2,000 years was the formation of Lake Cahuilla. In response to the western diversion of the Colorado River in the Salton Trough, Lake Cahuilla filled and shrank numerous times throughout the Pleistocene and Holocene. The lake would fill until the water reached an altitude of 12 m (40 feet), the minimum crest of the delta at Cerro Prieto, where overflow would spill into the Gulf of California (Waters 1983:374). Wilke (1976) calculated that it would take roughly 12 to 20 years of receiving the entire flow of the Colorado River to fill Lake Cahuilla to an altitude of 12 m (40 feet). Alternatively, Wilke (1976) also determined that approximately 60 years would be required to completely dry out the lake without input from the Colorado River.

Utilizing radiocarbon assays, historical accounts and evidence, and cross dating of artifacts found along the former Lake Cahuilla shoreline, researchers have posited five lacustrine intervals in the Salton Basin representing an unknown number of stands of Lake Cahuilla during the past 2,000 years (Wilke 1976, Waters 1983, Cleland 1998, Laylander 1994, and Schaefer 1986). The first and earliest of these events has been dated to A.D. 700–890, followed by a gradual, but complete, drought of the lake at about A.D. 950. The second interval began shortly after A.D. 950, peaking at approximately A.D. 965–1150; followed by another gradual, but complete, desiccation of the lake at A.D. 1210. The third interval began shortly after A.D. 1210, peaking between A.D. 1225 and 1360. The third interval was followed by a gradual, but not complete desiccation of the lake by A.D. 1450; the lake remained approximately 50 m (165 feet) deep at this time. The fourth interval lasted between A.D. 1450–1520, desiccating again by A.D. 1580. The fifth, more recent lacustrine interval of Lake Cahuilla occurred during the Spanish explorations of the region between 1540 and 1775 (Cleland 1998:13).

Recent paleoclimatic research indicates that a Medieval Warm climatic anomaly was registered throughout Far West North American between circa 1,060 and 575 cal B.P. (Graumlich 1993; Spaulding 2001; Stine 1994). Researchers believe the Medieval Warm would have restricted prehistoric occupation in the Southern California deserts to a few suitable water sources such as the Colorado River and Lake Cahuilla. High stands of Lake Cahuilla, whose source is not directly affected by climatic conditions, are in fact registered during the Medieval Warm, suggesting that the area was likely highly favorable for prehistoric occupation.

3.2 PREHISTORIC SETTING

Native American occupation of the Colorado Desert is typically divided into five cultural periods: San Dieguito (ca. 12,000–7,000 years B.P.; Pinto (ca. 7,000–4,000 B.P.); Amargosa (ca. 4,000–1,200 B.P.); and, the Late Prehistoric Period (ca. 1,200–200 B.P.). These cultural periods exclude the controversial “Early Man” pre-projectile point materials from Calico. The prehistoric cultural setting discussed below begins at the Late Prehistoric period based on the archival research conducted for the study area.

3.2.1 Late Prehistoric Period

The Late Prehistoric period in the Colorado Desert is marked by the introduction of new artifact types and technological innovations of the previous Amargosa Period of the Late Archaic and defined as the Patayan Pattern (Cleland 1998; CSRI 1986; Schaefer 1994, 1995). This period is characterized by the introduction of ceramics, including Tizon Brown Ware from the Peninsular Ranges, Colorado Buff Wares from the Colorado River region, and the Salton Buff Ware from the Lake Cahuilla shoreline (Schaefer 1995; Waters 1982). New projectile point types, including Desert Side-notched and Cottonwood Triangular points, signify the introduction of the bow and arrow hunting technology, marking a pre-ceramic phase of the expansion of the earlier Amargosa assemblages perhaps as early as 1,500 B.P. Techniques of floodplain horticulture were also introduced to the inhabitants along the Colorado River at the same time as ceramics. Additionally, burial practices changed from extended inhumations to cremated remains, sometimes buried in ceramic vessels. Typical of the Hohokam culture from southern Arizona, these traits were introduced to the Colorado River inhabitants and gradually spread west to the Peninsular Ranges and Coastal Plains of Southern California.

The Patayan Pattern is typified by several differing settlement and subsistence systems (Schaefer 1995). Dispersed seasonal settlements, known as rancherias, were found along the Colorado River. These settlements were composed of *jacal* (i.e., adobe style) structures, semi-subterranean pit houses, *ramadas*, or brush huts, depending on the season and types of settlement. Larger rancherias would disperse to upper terraces of the Colorado River and to special collection areas during the summer months, coinciding with the flood phase of the river, returning to the lower terraces for plant harvesting. At the eastern base of the Peninsular Ranges, the settlement pattern was typified by dispersed rancherias or villages situated at the mouths of canyons supporting perennial streams, at the base of alluvial fans near springs, or down on the valley floor where a shallow water table allowed wells to be dug (e.g., at Indian Wells). In addition to these sites, specialized sites were located in all of the micro-environmental zones that were exploited seasonally. Archaeologically, these specialized sites can range in characteristics from bedrock milling features and pot-drops along trails; to chipping stations and quarries; to temporary camps containing bone, shell, ceramics, flaked and ground stone tools; and ornamental items such as beads and pendants, as well as other occupational debris.

3.3 ETHNOGRAHIC SETTING

The Cahuilla have been studied extensively by Dr. Lowell Bean and much of the following discussion is derived from Bean's description of the Cahuilla in Volume 8 of the *Handbook of North American Indians* (Bean 1978:575–587).

The Cahuilla belong to nonpolitical, nonterritorial patrimoieties that governed marriage patterns as well as patrilineal clans and lineages. Each clan, "political-ritual-corporate units" composed of 3 to 10 lineages, owned a large territory in which each lineage owned a village site with specific resource areas. Clan lineages cooperated in defense, in large communal subsistence activities, and in performing rituals. Clans were apt to own land in the valley, foothill, and mountain areas, providing them with the resources of many different ecological niches.

In prehistoric times Cahuilla shelters are believed to have been dome shaped; after contact they tended to be rectangular in shape. Cahuilla shelters were often made of brush, palm fronds, or arrowweed. Most of the Cahuilla domestic activities were performed outside the shelters within the shade of large, expansive *ramadas*.

The Cahuilla were, for the most part, hunting, collecting, harvesting, and protoagricultural peoples. As in most of California, acorns were a major staple, but the roots, leaves, seeds, and fruit of many other plants also were used. Fish, birds, insects, and large and small mammals were also available.

To gather and prepare these food resources, the Cahuilla had an extensive inventory of equipment including bows and arrows, traps, nets, disguises, blinds, spears, hooks and lines, poles for shaking down pine nuts and acorns, cactus pickers, seed beaters, digging sticks and weights, and pry bars. In addition, the Cahuilla also had an extensive inventory of food processing equipment including hammers and anvils, mortars and pestles, manos and metates, winnowing shells and baskets, strainers, leaching baskets and bowls, knives (made of stone, bone, wood, and carrizo cane), bone saws, and drying racks made of wooden poles to dry fish.

Mountain tops, unusual rock formations, springs, and streams are held sacred to the Cahuilla as are rock art sites and burial and cremation sites. In addition, various birds are revered as sacred beings of great power and sometimes were killed ritually and mourned in mortuary ceremonies similar to those for important individuals. As such, bird cremation sites are considered sacred by the Cahuilla.

3.4 HISTORICAL SETTING

The history of the California desert region has been reviewed in detail by von Till Warren and others (1981:85–105). A very brief summary of historic events in the Coachella Valley is provided below.

Prior to 1820, very little is known about historic developments in the Coachella Valley. In the early 1850s, the Maricopa-Bradshaw route was established to serve the mining camps developing near La Paz, Arizona (von Till Warren et al. 1981:85). The Maricopa-Bradshaw route paralleled the old Cocomaricopa Trail, an Indian trail that began east of Blythe and roughly followed the present route of Interstate 10 across the Chuckwalla Valley, traversing the Mecca-Indio area and Coachella Valley to the San Gorgonio Pass. During this time, the U.S. Government was strongly promoting the establishment of a railroad route to connect the east and west coasts; however, it was not until 1877 that the Southern Pacific Railroad transected the western Colorado Desert. This railroad route connected the San Gorgonio Pass to the town of Yuma, Arizona via the eastern shore of the Salton Sea.

Additionally, in the 19850s, the U.S. Government sent Indian Commissioners into the deserts of Southern California. Although not authorized, the Commissioners illegally set aside large tracts of land for reservations (von Till Warren et al. 1981:94). Despite this effort, most of these areas were never fully developed as reservations; however, the Torres Martinez and Agua Caliente (Palm Springs) reservations were eventually set aside from the larger reserves delineated by the Indian Commission. After the Indian population was restricted to the reservations, the remaining land was made available for mining, ranching, and other uses.

3.4.1 Water Infrastructure

The following section draws heavily from the Phase I Cultural Resources Assessment for the Coachella Valley Water District's Stormwater Channel Project Report prepared by Applied EarthWorks, Inc. (George and Mirro 2009).

The Coachella Valley Stormwater District was initially organized in 1915 by settlers of the Coachella Valley with the objective of controlling floodwater flows and constructing flood channels and levees (Coachella Valley County Water District 1978:18–19). An objective of the District was to replace individual ad hoc levee-building by individuals, which often worked at cross-purposes, with one property owner doing damage to another in times of flood. Destructive flooding overwhelmed Indio, Coachella, Thermal, and Mecca, in 1916 stressing the importance of flood control for local farmers. The Stormwater District's first major effort to control flood flows was carried out in the vicinity of Indio (Coachella Valley County Water District 1978:19). A plan had existed before the 1916 flood to channelize the river around to the east and southeast of Indio, and a mile of levees had been built before the flood struck. A former protective ditch system installed at Indio had been removed by 1919, and a new channel was improved by that date (Coachella Valley County Water District 1978:55). Efforts to channelize the Whitewater River below Indio were made, with an emphasis on levee construction and remodeling. Another major flood occurred in 1927, and the Whitewater Channel, as it was called at the time, was downcut in places by several feet. The Whitewater Channel improvements had included a system of levees which were affected by the storm in the vicinity of Indio, Thermal, and Mecca (Coachella Valley County Water District 1978:20, 99).

In November of 1936, preliminary discussions were held about the merging of the Coachella Valley Stormwater District and the Coachella Valley County Water District and, by the fall of 1937, the districts were subsequently merged (Coachella Valley County Water District 1978:11, 81). Another major storm in 1938 caused downcutting to the channel and levee damage which resulted in rebuilding and improvements to the channel. Some changes in stormwater channel easements were made to accommodate the improvements to the channel. And in the late 1960s and early 1970s, the channel was again rebuilt with some of the funds coming from the U.S. Army Corps of Engineers (Coachella Valley County Water District 1978:101).

Because of the scarcity of water in many areas of the Colorado Desert agricultural development only succeeded when water could be imported in significant quantities which discouraged farming in large part. However, the agricultural industry began to develop in the Coachella Valley prior to the importation of water because the relatively high-water table in the valley allowed for the drilling of artesian wells. Beginning early in the twentieth century, farmers planted extensive date, fig, and grape acreage and, as a result of the agricultural growth towns including Thermal, Mecca, Indio, and Coachella began to develop. However, due to the extensive farming efforts, the water table in the Coachella Valley was seriously depleted which brought about the formation of the Coachella Valley Water District (CVWD) to promote conservation and replenish the groundwater basin. With the passage of the Boulder Canyon Project Act of 1928, the waters of the Colorado River were utilized for the development of agriculture in Imperial and Coachella Valleys. The CVWD cooperated with the Imperial Irrigation District to develop the All-American Canal and the Coachella Valley extension. Branching off from the All-American Canal, the Old Coachella Canal extends 199 kilometers (123.5 miles) north to the northern Coachella Valley, bringing the first imported irrigation water to the valley in 1949 (Norland 1978).

3.4.2 Coachella

The history of Coachella dates back to 1877 with the construction of the Southern Pacific Railroad across the "Coahuila" Valley, as it was then known, from Los Angeles to Yuma (Nordland 1978:112). By 1898, a business entrepreneur by the name of Jason L. Rector, known as the town's founder, arrived in the Coachella Valley. Rector took control of the mesquite wood business at Woodspur, a spur along the Southern Pacific Railroad three miles southeast from Indian Wells, and operated a thriving business for a couple of years (City of Coachella 2020). Rector began drilling a well and after 8 months, Rector and his brother Lon B. Rector, tapped a good flow of artesian water at a depth of 550 feet. The Rector brothers completed the well in November 1900, and a town site was laid out by January 1901 (City of Coachella 2020).

In order to promote land sales, Rector formed the Coachella Land & Water Company. He built an adobe house along Front Street where he conducted business locating available lots for settlers at a cost of $10 per filing. In 1902, he established and became president and manager of the Coachella Valley Produce Association and began shipping produce from the valley to Los Angeles by train. In 1904, he organized the Coachella Valley Refrigerating Company, built a pre-cooling plant and started manufacturing ice (City of Coachella 2020). A weekly newspaper called the *Coachella Valley Submarine* was started by Randolph R. Freeman on November 27, 1901 (Nordland 1978:114). That year, the Valley's population claimed to total 250 whites and about 600 Indians. A post office was established in Coachella on November 30, 1901, with George C. Huntington, postmaster.

Rector maintained an active interest in the town as its unofficial mayor and held properties throughout the valley until his death at his Los Angeles home on September 24, 1919. The town of Coachella remained a small farming community through the 1920s and 1930s and was eventually incorporated as a city on December 13, 1946. The City Hall and City Hall Park were dedicated on October 29, 1949 (City of Coachella 2020).

4.0 CULTURAL RESOURCES INVENTORY

As a result of the current closure of the Eastern Information Center due to the COVID-19 stay at home orders, PaleoWest conducted an internal literature review as well as a review of previously acquired resource data housed in PaleoWest archives. PaleoWest has extensive past experience conducting cultural resource assessments in the Project vicinity and has accumulated enough data to adequately assess the resource potential of the Project area. The "in-house" data review included a comprehensive review of technical reports, historic aerials, USGS maps, and the PaleoWest GIS resource databases. This inventory effort included the Project area and a one-mile radius around the Project area, collectively termed the Project study area. The objective of this data review was to identify prehistoric or historical cultural resources that have been previously recorded within the study area during prior cultural resource investigations.

4.1 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

The data review indicates that no fewer than 15 previous investigations have been conducted and documented within the Project study area since 1974 (Table 4-1). At least six of these studies appear to include portions of the Project area. As a result, approximately 25 percent of the Project area has been previously investigated by these studies.

Table 4-1
Previous Cultural Studies within the Study Area

Report No.	Date	Author(s)	Title
RI-1831*	1984	Woodward, Jim, and Kathleen Davis	Cultural Resources Assessment of Four Potential Sites for a New State Prison, Riverside County, California
RI-1919*	1974	Von Werhhof, Jay	A Cultural Impact Survey, Phase I
RI-1922*	1985	Dominici, Debra	Report of an Archaeological Survey for the Proposed 86 Expressway in Riverside County
RI-1925	1992	Dominici, Debra	Negative Archaeological Survey Report - Seventh Addendum, Riverside 86 Expressway Project
RI-6259	2006	Chambers Group, Inc.	Cultural Resources Survey Report, Union Pacific Railroad, Fingal-Thermal Phase III Expansion, Riverside County, California
RI-6528*	2006	Tang, Bai, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Historical/Archaeological Resources Survey Report, Maravilla Specific Plan EIR, in and near the City of Coachella, Riverside County, California
RI-6531*	2006	Tang, Bai, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Historical/Archaeological Resources Survey Report, Maravilla Specific Plan EIR, in and near the City of Coachella, Riverside County, California
RI-6615	2006	Tang, Bai, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Historical/Archaeological Resources Survey Report: Thermal Street, Water, and Sewer Improvements, Near the Community of Thermal, Riverside County, California
RI-6962	2006	Everson, Dicken	Archaeological Survey Report for the State Route 86S at Airport Boulevard (Avenue 56) Interchange Project, City of Coachella, Riverside County, California
RI-6963	2007	Figueroa, Earnest	State Route 86S at Airport Boulevard New Interchange: Draft Initial Study with Proposal Negative Declaration, Volume 1 of 2

Table 4-1
Previous Cultural Studies within the Study Area

Report No.	Date	Author(s)	Title
RI-7770	2007	Formica, Tracy H.	Class III Cultural Resources Survey of the Airport Boulevard Water Transmission Pipeline Project Corridor for the Coachella Valley Water District, Thermal, Riverside County, California (ARPA Permit No. LC-CA-07-11P)
RI-7853	2008	Tang, B. Tom	Letter Report: Addendum to Historical/Archaeological/Paleontological Resources Survey Report Thermal Street, Water, and Sewer Improvements in and near the Community of Thermal, Riverside County, California
RI-7929	2008	Tang, Bai and Quinn Harry	Letter Report: RE: Historical/Archaeological/Paleontological Resources Survey of Whitewater Channel Thermal 551 Brookfield Project near the Community of Thermal, Riverside County, California
RI-8503	2010	Everson, Dicken, Billy Silva, and John Eddy	Extended Phase I (XPI) Proposal for the State Route 86S & Airport Boulevard New Interchange Project, Riverside County, California
RI-8719*	2011	McDougall, Dennis, and Vanessa Mirro	Cultural Resources Monitoring of the Coachella Valley Water District's Airport Boulevard Agricultural Drainline Project

* Indicates portions of the Project area were included in this study

4.2 CULTURAL RESOURCES REPORTED WITHIN THE STUDY AREA

The data review indicated that no fewer than 22 cultural resources have been previously documented within one mile of the Project area. These resources include 2 historic-period archaeological sites and 20 historic-period built-environment resources. None of the identified resources are prehistoric and none of them have been identified within the Project area. These resources are listed in Table 4-2. The Coachella Valley Stormwater Channel (33-017259) borders the Project area and is described in more detail, below.

Table 4-2
Cultural Resources Recorded within 1-Mile of the Project Area

Primary No.	Trinomial	Type	Age	Description
33-005637		Built	Historical	Single family residence
33-005638		Built	Historical	Single family residence
33-005639		Built	Historical	Single family residence
33-005640		Built	Historical	Single family residence
33-005641		Built	Historical	Single family residence
33-005642		Built	Historical	Single family residence
33-005643		Built	Historical	Single family residence
33-005646		Built	Historical	Single family residence
33-005684		Built	Historical	Single family residence
33-009498	CA-RIV-6381H	Built	Historical	Union Pacific Railroad
33-011223		Built	Historical	Single family residence
33-014812		Built	Historical	Single family residence
33-017259	CA-RIV-10847	Built	Historical	Coachella Valley Stormwater Channel
33-017913	CA-RIV-9456H	Built	Historical	Durbrow Drain
33-019859	CA-RIV-10106H	Site	Historical	Ash lined refuse pit
33-019860		Site	Historical	Former roadbed, Avenue 56
33-020750	CA-RIV-010672	Built	Historical	Segment of Fillmore Road, asphalt-paved road
33-020764	CA-RIV-010686	Built	Historical	Transmission lines

Table 4-2
Cultural Resources Recorded within 1-Mile of the Project Area

Primary No.	Trinomial	Type	Age	Description
33-020921	CA-RIV-10846	Built	Historical	Aspahlt-paved private driveway
33-020926	CA-RIV-10852	Built	Historical	Kokell Avenue, asphalt-paved road
33-020927	CA-RIV-10853	Built	Historical	Main Street, asphalt-paved road
33-020928	CA-RIV-10854	Built	Historical	Church Street, asphalt-paved road
33-020989	CA-RIV-10869H	Built	Historical	property boundary from 1942 As-built
33-024105		Built	Historical	Segment of Avenue 58

4.2.1 33-017259

33-017259 is a segment of the Coachella Valley Stormwater Channel, an earthen and partially concrete-lined channel constructed between 1915 and the early 1940s by the Coachella Valley Water District to control floodwater flows (Ballester 2008). The Coachella Valley Stormwater Channel, also known as the Whitewater Stormwater Channel is not located within the Project area but is located immediately adjacent to the Project along the western border.

In 2008 a segment of the Coachella Valley Stormwater Channel was recorded and evaluated by Tom Tang and Terri Jacquemain of CRM Tech and recommended as ineligible for listing on the California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP) (Tang and Jacquemain 2008). In subsequent years the Coachella Valley Stormwater Channel has been evaluated several times for historical significance (George and Mirro 2009; McDougall 2017; Smallwood 2012) and each time has been recommended as not eligible for the CRHR or the NRHP.

4.3 ADDITIONAL SOURCES

Additional sources consulted during the cultural resource literature and data review include the National Register of Historic Places, the Office of Historic Preservation Archaeological Determinations of Eligibility, and the Office of Historic Preservation Directory of Properties in the Historic Property Data File. There are no listed archaeological resources recorded within the Project area or within one mile of the Project area.

Historical maps consulted include Santa Ana, CA (1947, 1959, and 1965) 60-minute, Indio, CA (1904) 30-minute, Coachella, CA (1943 and 1956) 15-minute, and Indio, CA (1956 and 1972) 7.5-minute USGS quadrangles. Historical aerials from NETROnline dated 1953, 1972, and 1996 were also reviewed. None of the historical topographic quadrangles or aerial images show any historical structures or buildings within the Project area; however, the historic aerials appear to suggest that a portion of the Project was once used for agricultural purposes. Additionally, the stormwater channel appears as early as 1943 on the USGS quadrangles.

Finally, an archaeological sensitivity model for the Whitewater River Stormwater Channel prepared by Applied EarthWorks in 2012 was consulted. This model indicated that this general area in the vicinity of the Whitewater River Stormwater Channel is Holocene valley fill, consisting of sands and clays, fluvial and lacustrine sediments (Mirro 2012). This combination of sediments suggests former pathways of the Whitewater River as a migrating wash through the valley interfingering with lake sediments. Few archaeological resources have been documented in this portion of the valley, especially at elevations lower than 150 ft below sea level. The model suggests that this may be because the former native vegetation was not of interest to Native inhabitants due to the abundance of alkali water making this area unappealing (Mirro 2012). Alternatively, filling of the lake may have resulted in the deep deposition of resource evidence with each generation of the lake.

The sensitivity model concluded that the potential for discovering surface cultural resources in this area, including historical and prehistoric resources, is low while the potential for buried cultural resources is unknown (Mirro 2012). No previous studies have demonstrated either a presence or absence of buried cultural resources. However, the model did identify research that suggests the location of a village may be in the general vicinity and if present, it is possibly buried by muds deposited during the most recent filling of the Salton Sea (Mirro 2012). Thus, the sensitivity of this area is low for surface prehistoric and historical archaeology and unknown for buried resources.

4.4 NATIVE AMERICAN COORDINATION

PaleoWest contacted the NAHC, as part of the cultural resource assessment, on March 18, 2020, for a review of the SLF. The objective of the SLF search was to determine if the NAHC had any knowledge of Native American cultural resources (e.g., traditional use or gathering area, place of religious or sacred activity, etc.) within the immediate vicinity of the Project area. The NAHC responded on March 28, 2020, stating that the SLF was completed with negative results; however, the NAHC requested that 19 individuals representing 12 Native American tribal groups be contacted to elicit information regarding cultural resource issues related to the proposed Project (Appendix A). PaleoWest sent outreach letters to the 12 recommended tribal groups on April 3 and April 6, 2020. These letters will be followed up by phone calls on April 30, 2020.

The Quechan Tribe of the Fort Yuma Reservation responded saying the Tribe does not have any comments for the Project. The Agua Caliente Band of Cahuilla Indians (ACBCI) responded stating that while the Project area is outside the Tribe's reservation it is within their Traditional Use Area (TUA). As such, the ACBCI made the following requests: a copy of the records search, the cultural resource inventory for the Project, copies of cultural resource documentation, and the presence of an ACBCI cultural resource monitor during ground disturbance for the Project. Additionally, the ACBCI provided a monitoring information request form which has been included in Appendix A. The Torres-Martinez Desert Cahuilla Indians responded indicating that a review of the Tribe's records indicates the area is sensitive for cultural resources as at least three village sites are in the vicinity of the Project area. The Tribe stated they will provide additional information regarding the sensitivity of the area during the official AB 52 consultation process. At this time the Tribe is requesting the following: copies of all cultural reports, formal government-to-government consultation, and tribal monitoring of initial ground disturbing activity associated with the Project. The Santa Rosa Band of Cahuilla Indians stated that the Tribe does not have any comments as the Coachella Valley is out of their TUA. And finally, the Soboba Band of Luiseno Indians deferred to the Torres-Martinez Desert Cahuilla Indians. No other responses were received prior to the submittal of this report.

5.0 FIELD INVESTIGATION

5.1 FIELD METHODS

A Phase I intensive pedestrian survey of the Project area was conducted by PaleoWest archaeologist, Roberta Thomas, on March 30, 2020. The survey was conducted by walking parallel transects across the entirety of the Project area spaced at 10- to 15-meter (33- to 50-feet) intervals, when possible. The Project area was recorded with digital photographs for use in the report. Photographs included general views of the topography and vegetation density, and other relevant images. A photo log was maintained to include, at a minimum, photo number, date, orientation, photo description, and comments. The surveyor carefully inspected all areas likely to contain or exhibit sensitive cultural resources to ensure discovery and documentation of and visible, potentially significant cultural resources located within the Project area.

Historical site indicators may include fence lines, ditches, standing buildings, objects or structures such as sheds, or concentrations of materials at least 45 years in age, such as domestic refuse (e.g., glass bottles, ceramics, toys, buttons or leather shoes), refuse from other pursuits such as agriculture (e.g., metal tanks, farm machinery parts, horse shoes) or structural materials (e.g., nails, glass window panes, corrugated metal, wood posts or planks, metal pipes and fittings, railroad spurs, etc.). Prehistoric site indicators may include areas of darker soil with concentrations of ash, charcoal, bits of animal bone (burned or unburned), shell, flaked stone, ground stone, or even human bone.

5.2 FIELD RESULTS

The Project area is relatively flat and densely vegetated with short and tall grasses, trees, and shrubs (Figures 5-1 and 5-2). The Project area is an overgrown, vacant property that has been used for refuse dumping and off-road vehicle use; disperse modern refuse noted throughout the Project area and along SR 86. Ground visibility varied from 0 percent to 80 percent depending upon the density of vegetation. The central part of the Project area is highly visible as it is largely devoid of any vegetation; however, the majority of the eastern edge of the Project area had no visibility due to the dense grasses and trees (Figure 5-3). Sediments mostly consisted of tan/yellowish brown silty sand with small inclusions (15%). The Project area appears to be within a relatively active alluvial plain as the sediments appear to have recently been shifted. As previously stated, disperse modern refuse and roadside toss as well as evidence of off-road vehicle use were noted throughout the Project area. Additional disturbances noted included rodent burrowing.

No prehistoric or historic-period archaeological resources were identified in the Project area during the survey effort; however, he Whitewater Stormwater Channel/Coachella Valley Stormwater Channel (33-017259) runs along the western border of the Project (Figure 5-4). As previously stated, the stormwater channel has been previously evaluated and not recommended eligible for listing on the CRHR. During the field survey no indications that the previous eligibility recommendations should be altered were identified. As such, PaleoWest concurs with the previous recommendation that the Coachella Valley Stormwater Channel is not eligible for listing on the CRHR (Castells 2020).

Figure 5-1 Overview from southern edge of survey area, view to the north/northwest

Figure 5-2 Overview from northwestern edge of survey area, view to the southeast

Figure 5-3 Dense vegetation on the eastern side of the survey area, view to the north

Figure 5-4 Overview of the stormwater channel from the survey area, view to the northwest

6.0 MANAGEMENT RECOMMENDATIONS

As a result of the cultural resource records search and survey, no archaeological resources were identified within the Project area. The Project area is relatively disturbed and is located within a relatively active alluvial plain. As such, the likelihood of identify archaeological resources in original context is considered low. PaleoWest does not recommend any further cultural resource management for the current Project.

In the event that potentially significant archaeological materials are encountered during Project-related ground-disturbing activities, all work should be halted in the vicinity of the archaeological discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological resource. In addition, Health and Safety Code 7050.5, CEQA 15064.5(e), and Public Resources Code 5097.98 mandate the process to be followed in the unlikely event of an accidental discovery of any human remains in a location other than a dedicated cemetery. Finally, should additional actions be proposed outside the currently defined Project area that have the potential for additional subsurface disturbance, further cultural resource management may be required.

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1943 Coachella, CA. 15-minute (1:62,500 scale) topographic quadrangle.

1947 Santa Ana, CA. 60-minute (1:250,000 scale) topographic quadrangle.

1956 Coachella, CA. 15-minute (1:62,500 scale) topographic quadrangle.

1956 Indio, CA. 7.5-minute (1:24,000 scale) topographic quadrangle.

1959 Santa Ana, CA. 60-minute (1:250,000 scale) topographic quadrangle.

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Appendix A.
Native American Coordination

STATE OF CALIFORNIA — Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 25, 2020

Roberta Thomas
PaleoWest Archaeology

Via Email to: rthomas@paleowest.com

Re: Coachella Airport Business Park Project, Riverside County

Dear Ms. Thomas:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Riverside County
3/25/2020

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantrib e.com

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Coachella Airport Business Park Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
3/25/2020

Contact	Affiliation
Ramona Band of Cahuilla Joseph Hamilton, Chairperson P.O. Box 391670 Anza, CA, 92539 Phone: (951) 763 - 4105 Fax: (951) 763-4325 admin@ramona-nsn.gov	Cahuilla
Ramona Band of Cahuilla John Gomez, Environmental Coordinator P. O. Box 391670 Anza, CA, 92539 Phone: (951) 763 - 4105 Fax: (951) 763-4325 jgomez@ramona-nsn.gov	Cahuilla
Santa Rosa Band of Cahuilla Indians Mercedes Estrada, P. O. Box 391820 Anza, CA, 92539 Phone: (951) 659 - 2700 Fax: (951) 659-2228 mercedes.estrada@santarosacahuilla-nsn.gov	Cahuilla
Santa Rosa Band of Cahuilla Indians Steven Estrada, Chairperson P.O. Box 391820 Anza, CA, 92539 Phone: (951) 659 - 2700 Fax: (951) 659-2228 mflaxbeard@santarosacahuilla-nsn.gov	Cahuilla
Soboba Band of Luiseno Indians Scott Cozart, Chairperson P. O. Box 487 San Jacinto, CA, 92583 Phone: (951) 654 - 2765 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	Cahuilla Luiseno
Soboba Band of Luiseno Indians Joseph Ontiveros, Cultural Resource Department P.O. BOX 487 San Jacinto, CA, 92581 Phone: (951) 663 - 5279 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	Cahuilla Luiseno
Torres-Martinez Desert Cahuilla Indians Michael Mirelez, Cultural Resource Coordinator P.O. Box 1160 Thermal, CA, 92274 Phone: (760) 399 - 0022 Fax: (760) 397-8146 mmirelez@tmdci.org	Cahuilla
Twenty-Nine Palms Band of Mission Indians Anthony Madrigal, Tribal Historic Preservation Officer 46-200 Harrison Place Coachella, CA, 92236 Phone: (760) 775 - 3259 amadrigal@29palmsbomi-nsn.gov	Chemehuevi
Twenty-Nine Palms Band of Mission Indians Darrell Mike, Chairperson 46-200 Harrison Place Coachella, CA, 92236 Phone: (760) 863 - 2444 Fax: (760) 863-2449 29chairman@29palmsbomi-nsn.gov	Chemehuevi

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Coachella Airport Business Park Project, Riverside County.

PALEOWEST

T: 626.408.8006
info@paleowest.com

LOS ANGELES COUNTY
517 S. Ivy Avenue
Monrovia, CA 91016

April 3, 2020

Patricia Garcia-Plotkin, Director
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92264
Transmitted via email to ACBCI-THPO@aguacaliente.net

RE: Cultural Resource Investigation for the Coachella Airport Business Park Project in Coachella, Riverside County, California

Dear Ms. Garcia-Plotkin,

On behalf of The Altum Group, PaleoWest Archaeology (PaleoWest) is conducting a cultural resource investigation in compliance with the California Environmental Quality Act for the Coachella Airport Business Park Project (Project) in Coachella, Riverside County, California. The proposed Project would include development of a mixed use business park with a primary focus on warehouse/commercial cannabis, small business-, and service station-related land uses. The Project area is located on the Indio, Calif. 7.5' USGS quadrangle map, within Section 15 in T6S/R8E (see attached map).

A review of previous cultural resource literature reviews and records search data from the area was conducted. This review of existing data indicates that no less than 16 cultural resource studies have been conducted within a one-mile radius of the Project area; four of these studies appear to intersect the Project area. The existing data review indicated that 25 cultural resources have been previously documented within one mile of the Project area; however, none of these resources are located within or immediately adjacent to the Project area. These are largely made up of historic-period built-environment single family residences.

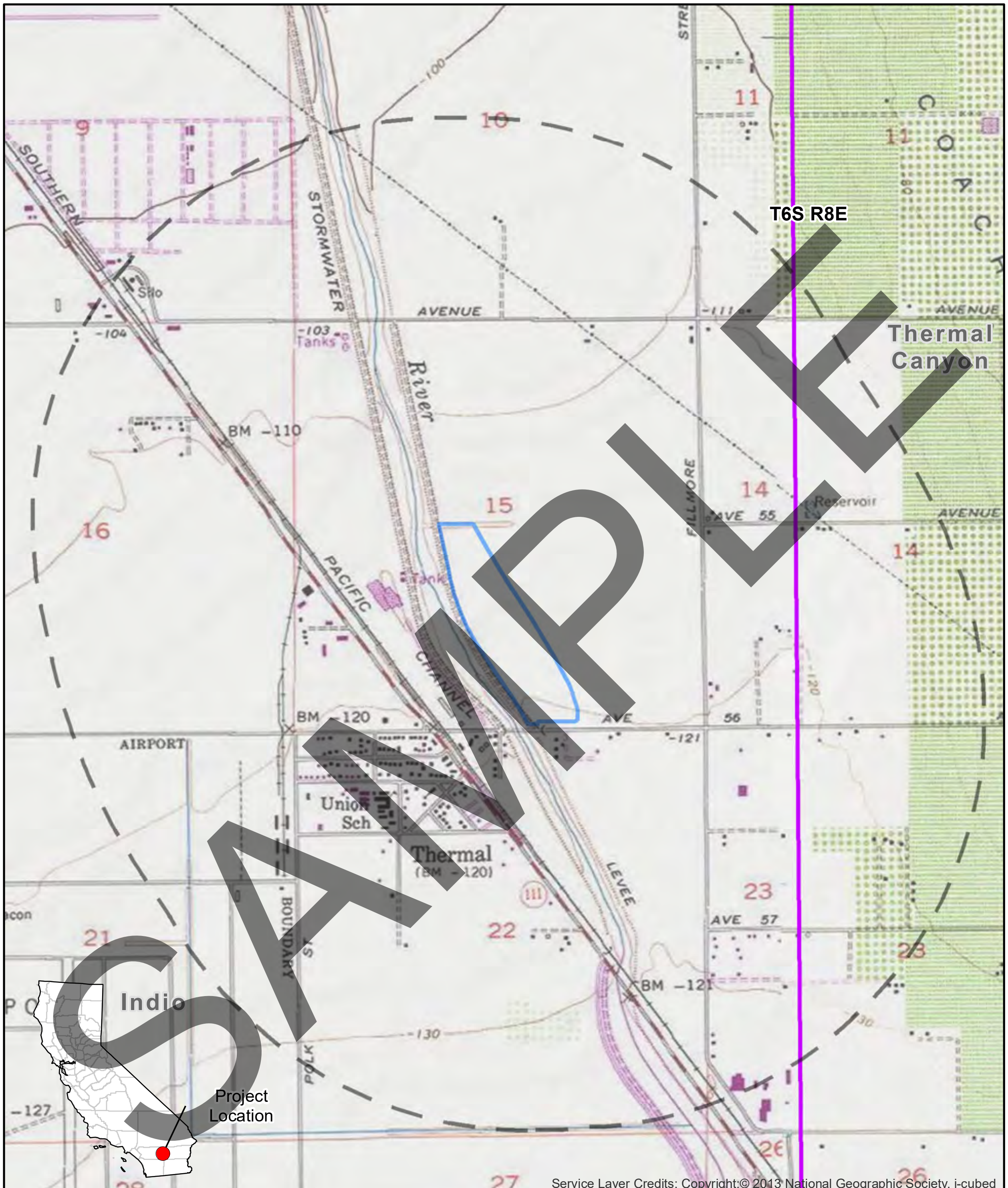
As part of the cultural resource investigation of the Project area, PaleoWest requested a search of the Native American Heritage Commission's (NAHC's) *Sacred Lands File* on March 18, 2020. The NAHC responded on March 25, 2020 indicating that that no Native American cultural resources were identified within the Project area. However, should your records show that cultural properties exist within or near the Project area (see enclosed map), please contact me at (626) 408-8006 or rthomas@paleowest.com. I will follow-up in two weeks with a phone call or email if I do not hear from you.

Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Sincerely,

Roberta Thomas

Roberta Thomas, M.A., RPA
Senior Archaeologist
PaleoWest



PALEO WEST

0 feet 2,000
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1:24,000

N

Record Search Map
USGS 7.5' Quadrangle:
Indio, Ca (1977)
T6S, R8E; Sec 15
NAD 83 UTM Zone 11

Project Area
One Mile RS Buffer

Native American Contact/Response Matrix			
Recommended Contacts (Name and Tribal Affiliation)	**Initial Contact**	**Follow up Attempts**	**Comments/Notes**
Patricia Garcia-Plotkin, Director, Agua Caliente Band of Cahuilla Indians	Letter/email dated April 3, 2020		Ms. Garcia-Plotkin responded on April 24 stating that while the Project area is outside the Tribe's reservation it is within their Traditional Use Area. As such the ACBCI made the following requests: a copy of the records search, the cultural resource inventory for the project, copies of cultural resource documentation, and the presence of an ACBCI cultural resource monitor during ground disturbance for the Project.
Amanda Vance, Chairperson, Augustine Band of Cahuilla Mission Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Left a message.
Doug Welmas, Chairperson, Cabazon Band of Mission Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Left a message.
Daniel Salgado, Chairperson, Cahuilla Band of Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	No voicemail available; no message left.
Shane Chapparosa Chairman, Los Coyotes Band of Cahuilla and Cupeño Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Provided with new Chairperson's email address; email sent to new Ray Chapparosa, Chairperson, on April 30.
Denisa Torres, Cultural Resources Manager, Morongo Band of Mission Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Number provided by NAHC "not in service"; follow email was sent
Jill McCormick, Historic Preservation Officer, Quechan Tribe of the Fort Yuma Reservation	Letter/email dated April 3, 2020		Emailed on on April 14 indicating the Tribe has no comments for the Project.
John Gomez, Environmental Coordinator, Ramona Band of Cahuilla	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Left a message.
Steven Estrada, Chairman, Santa Rosa Band of Cahuilla Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Mariana indicated that the Tribe would not have a response as the Coachella Valley is out of their area.
Joseph Ontiveros, Cultural Resources Department, Soboba Band of Luiseno Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Mr. Ontiveros deferred to the Torres-Martinez Desert Cahuilla Indians

Native American Contact/Response Matrix			
Recommended Contacts (Name and Tribal Affiliation)	**Initial Contact**	**Follow up Attempts**	**Comments/Notes**
Michael Mirelez, Cultural Resource Coordinator, Torres-Martinez Desert Cahuilla Indians	Letter/email dated April 3, 2020		Mr. Mirelez responded on April 28 indicating that a review of the Tribe's records indicates the area is sensitive for cultural reosources as at least 3 village sites are in the vicinity. The Tribe will provide additional information regarding the sensitivity of the area during official AB 52 consultation. At this time the Tribe is requesting the following: copies of all cultural reports, formal government-to-government consultation, and tribal monitoring of initial ground disturbing activitiy associated with the Project.
Anthony Madrigal, Tribal Historic Preservation Officer, Twenty-Nine Palms Band of Mission Indians	Letter/email dated April 3, 2020	Phone call, April 30, 2020	Left a message.

Robbie Thomas

From: Quechan Historic Preservation <historicpreservation@quechantribe.com>
Sent: Tuesday, April 14, 2020 11:29 AM
To: Robbie Thomas
Subject: Coachella Airport Business Park Project in Coachella, Riverside County, California

This email serves to inform you that we wish to make no comments on this project.

H. Jill McCormick, M.A.
Historic Preservation Officer
Ft. Yuma Quechan Tribe
350 Picacho Road
Yuma, AZ 85366
Office: 760-572-2423
Cell: 928-261-0254

AGUA CALIENTE BAND OF CAHUILLA INDIANS
TRIBAL HISTORIC PRESERVATION

03-017-2020-001

April 24, 2020

[VIA EMAIL TO:rthomas@paleowest.com]
PaleoWest Archaeology
Ms. Roberta Thomas
517 S. Ivy Avenue
Monrovia, CA 91016

Re: Coachella Airport Business Park Project (20-221)

Dear Ms. Roberta Thomas,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Coachella Airport Business Park (20-221) project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*A copy of the records search with associated survey reports and site records from the information center.

*A cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

*The presence of an approved Agua Caliente Native American Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer and the Agua Caliente Tribal Historic Preservation Office.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6907. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Patricia Garcia-Plotkin

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

Pattie Garcia-Plotkin
Director
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION OFFICE
5401 Dinah Shore Drive
PALM SPRINGS, CA 92264
(760) 699-6800
FAX (760) 669-6924

Agua Caliente Band of Cahuilla Indians
Tribal Historic Preservation Office
Monitoring Request Form

Please fill out the information below. Once the Tribal Historic Preservation Office receives the request we will complete a draft contract for your review. Upon your approval our team will provide legal review and finalize the contract for signatures.

1. What is the name of the project?

2. What is the address of the project?

3. What is the name of the land owner? Please provide the owner's address, phone number, fax number, email and President and/or owner's name.

4. Please provide a brief description of your project. Include a description of ground disturbing activities.

5. What date will construction begin?

6. How many days grubbing?

7. How many days grading and pad preparation?

8. How many days utility installation?

9. Does your project have conditions of approval? Please provide our office with a copy.

10. Please provide contact information for authorized signatory. Include name, title, address, phone number and email address.

11. Include a map of your project and return form and supporting documents to:

    Agua Caliente Band of Cahuilla Indians
    Tribal Historic Preservation Office
    ACBCI-THPO@aguacaliente.net
    (760) 699-6800.

TORRES MARTINEZ DESERT CAHUILLA INDIANS
MAU - WAL - MAH
SU-KUTT MENYIL

TORRES MARTINEZ DESERT CAHUILLA INDIANS
P.O. Box 1160
Thermal, CA 92274
(760) 397-0300 – FAX (760) 397-8146

April 28, 2020

Attn: **Roberta Thomas** - Senior Archaeologist
PaleoWest
Los Angeles County Office
517 S. Ivy Avenue
Monrovia, CA, 91016

Re: Airport Business Park Project in Coachella, California.

Torres Martinez Desert Cahuilla Indians appreciates your concern for cultural resource preservation in your project. We have reviewed the information that you have submitted. According to our records your project is within what the Tribe considers a sensitive Tribal Culture Resource supported by at least 3 different Village sites, those being Palsetamul, Palsetahut, Kelewut kwiikwiinut. These are known Village sites which makes it a strong possibility to disturb Cremation and Cultural artifacts that are of importance to the Tribe.

The Tribe understands that your company is not a part of the AB52 process. Rather that this is an inquiry to collect information pertaining to the area the project is located on to assess the sensitivity of the area. However the Tribe is only willing to share the details of that information with the project proponents and lead agency. The Tribe is requesting that you list its response in your report so that the wishes of the Tribe are documented.

Although the project is located outside the existing reservation, the location does fall within our Tribal Traditional Use Area. Therefore the concern for inadvertent discoveries is high for the Torres Martinez Desert Cahuilla Indians. As a result, we are requesting the following:

Torres Martinez Desert Cahuilla Indians is requesting the following:

- Copies of all Cultural reports
- Formal Government to Government Consultation.
- Tribal Monitoring for all initial ground disturbing activities by a designated tribal monitor from the Torres Martinez Desert Cahuilla Indians. The monitor shall be present during any ground disturbing proceedings including surveys and archaeological testing.

Please feel free contact me at your earliest convenience either by email or phone in order to make arrangements.

Respectfully,

Michael Mirelez
Cultural Resource Coordinator
Torres-Martinez Desert Cahuilla Indians
Office: 760-397-0300 Ext: 1213
Cell:760-399-0022
Email: mmirelez@tmdci.org

Appendix B.
DPR Form Update

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # **P-33-017913 (Update)**
HRI# **CA-RIV-10847 (Update)**
Trinomial

*Resource Name or # **(Assigned by recorder)** Coachella Valley Stormwater Channel (Update)
*Recorded by: PaleoWest, LLC
*Date: April 2020 ☐ Continuation ■ Update

In 2008 a segment of the Coachella Valley Stormwater Channel was recorded and evaluated by Tom Tang and Terri Jacquemain of CRM Tech and recommended as ineligible for listing on the California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP) (Tang and Jacquemain 2008). In subsequent years the Coachella Valley Stormwater Channel has been evaluated several times for historical significance (George and Mirro 2009; Smallwood 2012, McDougall 2017) and each time has been recommended as not eligible for the CRHR or the NRHP.

On March 30, 2020 PaleoWest, LLC completed a field survey which included the Coachella Valley Stormwater Channel and found no indications that the previous eligibility recommendations should be altered. PaleoWest, LLC concurs with the previous recommendation that the Coachella Valley Stormwater Channel is not eligible for the CRHR or the NRHP. The segment of the Coachella Valley Stormwater Channel assessed during the current study extends from Airport Boulevard to approximately 0.5 mile north of Airport Boulevard in Coachella, CA.

Coachella Valley Stormwater Channel, facing northwest, March 30, 2020

References

George, Joan and Vanessa Mirro
2009 Phase I Cultural Resources Assessment for the Coachella Valley Water District's Stormwater Channel Project, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

McDougall, Dennis
2017 DPR recording forms, P-33-017913 (Coachella Valley Stormwater Channel). On file, Eastern Information Center, University of California, Riverside

Smallwood, Josh
2012 DPR recording forms, P-33-017913 (Coachella Valley Stormwater Channel). On file, Eastern Information Center, University of California, Riverside.

Tang, Tom, and Terri Jacquemain
2008 DPR recording forms, P-33-017259 (Coachella Valley Stormwater Channel). On file, Eastern Information Center, University of California, Riverside.

P1. Other Identifier:

P2. Location: a. County Riverside, CA ☐ Not for Publication ☒ Unrestricted

b. USGS 7.5′ Quad Cathedral City, CA **Date** 1958; photorevised 1981
T 4 S; **R** 5 E; Portions **of Sections** 28, 33, and 34; **S.B.B.M.**

c. Address: None **City** Cathedral City, CA **Zip**

d. Zone 11, NAD 83
NW corner of segment (UTM A): 548551 **mE/** 3740253 **mN**
NE corner of segment (UTM B): 548797 **mE/** 3740256 **mN**
SW corner of segment (UTM C): 551409 **mE/** 3737078 **mN**
SE corner of segment (UTM D): 551749 **mE/** 3737080 **mN**

e. Other Locational Data: The segment of the Coachella Valley Stormwater Channel documented by this record is located north of State Route (Highway 111) between Frank Sinatra Drive (south end) and Dinah Shore Drive (north end) in Cathedral City.

P3a. Description: This recorded segment of the Coachella Valley Stormwater Channel (CVSC) located between Frank Sinatra Drive (south end) and Dinah Shore Drive (north end) in Cathedral City, measures approximately 2.72 miles (14,375 ft or 4,380 m) long, and averages 643 ft (196 m) wide. The approximate southern two-thirds of this segment of the CVSC from its southern end at Frank Sinatra Drive north to Cathedral Canyon Drive consists of a channelized segment of the Whitewater River bordered along each side by cement-lined slopes. The northern part of the segment measuring approximately 0.88 miles (4,644 ft or 1,415 m) long from Cathedral Canyon Drive north to Dinah Shore Drive appears less channelized and more like the natural course of the Whitewater River drainage—the sides along this segment of the CVSC outside of the main drainage channel are not cement-lined, but landscaped and groomed gradual slopes that form portions of a golf course. Within the channelized portions with cement-lined side-slopes, the sides of the channel angle down at a 10 to12 degree slope to the relatively flat bottom of the channel approximately 20 ft below street grade.

P3b. Resource Attributes: HP11: Engineering structure

P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District

P5. Photograph or Drawing: See attached Continuation Sheets for photographs.

P6. Date Constructed/Age and Source: ☐ Prehistoric ☒ Historic ☐ Both

P7. Owner and Address: Unknown

P8. Recorded by: Dennis McDougall, Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544

P9. Date Recorded: January 12, 2017.

P10. Type of Survey: ☒ Intensive ☐ Reconnaissance ☐ Other
Describe: Maximum of 15-m pedestrian transects.

P11. Report Citation: *Cultural Resource Assessment for the Coachella Valley Water District's Whitewater River Stormwater Channel Bureau of Indian Affairs Easement Renewal Project, City of Rancho Mirage, Riverside County, California*. Report prepared for the Coachella Valley Water District by Applied EarthWorks, Inc., Hemet, California.

Attachments: ☐ None ☒ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record Other:

B1. Historic Name: Coachella Valley Stormwater Channel **B2. Common Name:** Same

B3. Original Use: Flood control **B4. Present Use:** Flood control

B5. Architectural Style: This segment of the CVSC is an earthen and cement-lined channel bordered by large earthen levees.

B6. Construction History: The Coachella Valley Stormwater District was initially organized in 1915 by settlers of the Coachella Valley with the objective of controlling floodwater flows and constructing flood channels and levees. Prior to their formation the Whitewater River periodically flooded its banks and damaged farm lands. An objective of the District was to replace individual ad hoc levee-building by individuals who often worked against each other, with one property-owner inadvertently causing damage to another in times of flood. The Coachella Valley Stormwater District and the Coachella Valley County Water District merged in 1937. After a March 1938 storm, the District repaired, relocated, and reconstructed the segment of channel between Indio and the Salton Sea (Nordland 1978:81). The channel was rebuilt again in the late 1960s and early 1970s. The channel is depicted on the USGS Coachella quadrangle edition of 1941 (USGS 1941).

B7. Moved? ☒ No ☐ Yes ☐ Unknown **Date:** **Original Location:**

B8. Related Features: None

B9. a. Architect: Coachella Valley Stormwater District
b. Builder: Coachella Valley Stormwater District/Coachella Valley County Water District

B10. Significance: Theme: Flood Control Systems
Area: Riverside County
Period of Significance: 1915–present
Property Type: Stormwater channel **Applicable Criteria:** None apply

The Coachella Valley Stormwater District was initially organized in 1915 by settlers of the Coachella Valley with the intention of controlling floodwater flows and constructing flood channels and levees (Nordland 1978:18–19). Dropping groundwater levels and plans to export Coachella Valley groundwater to Imperial Valley led local farmers to create the Coachella Valley County Water District (CVCWD) in 1918. An objective of the CVCWD was to replace individual ad hoc levee-building, which often worked at cross-purposes, with one property owner doing damage to another in times of flood. Devastating flooding in 1919 inundated Indio, Coachella, Thermal, and Mecca, underscoring the urgency for building appropriate flood control devices. Flooding had been a problem that predated settlement and development of the Coachella Valley, with major floods recorded as early as 1862 and nearly every decade since (Nordland 1978:18–20, 99–102).

The Stormwater District began building flood control levees in 1915 (i.e., the Coachella Valley Stormwater Channel [CVSC]), beginning with the Indio Levee, and continued efforts throughout the Coachella Valley during the 1920s and 1930s. The Whitewater River, the principal drainage in the Coachella Valley, would flood every few years. Prior to channelization of the Whitewater River between Palm Springs and the Salton Sea, its course of meandering flows was one of constant change. One of the greatest flood episodes occurred in January 1916, culminating from the combination of heavy rainfall in the valley and snow melt from the mountains. During the rain storm, 11 mi of Southern Pacific Railroad track and bed were washed out between Whitewater and Thousand Palms, with numerous other breaks along the line below Indio. Indio itself was covered with a sheet of water two feet deep and one mile wide. The river's channel had become a narrow, 50-ft-deep gorge in many areas. Another major flood occurred in 1927, and the Whitewater Channel was again deeply cut in many places. Improvements carried out to improve the Whitewater Channel at that time had included rebuilding a system of levees which were affected by the storm in the vicinity of Indio, Thermal, and Mecca. The Stormwater District and the CVCWD merged in 1937.

In March of 1938, another major storm occurred, which again caused deep gouging in the channel and levee damage. In the aftermath of this storm, rebuilding and improvement of the channel took place. The CVCWD applied to the State of California for $80,000 in emergency funds "to repair, relocate and reconstruct the channel from Indio to the

[Salton] sea" (Nordland 1978:81). The channel was again rebuilt in the late 1960s and early 1970s, partly with funds from the U.S. Army Corps of Engineers (Nordland 1978:101). It was estimated in the 1970s that nearly $16,000,000 had been spent on protective works constructed on the Whitewater River Channel alone, and that $34 million would be needed to provide the remaining protective works within the District (Nordland 1978:20).

Portions of the CVSC were initially constructed by the Coachella Valley Stormwater District as early as 1915 and through the 1930s to control floodwater flows in the valley, although it is unclear what the extent of their flood control channel, its design, and exact alignment were. The segment of the CVSC that extends from Indio to the Salton Sea was constructed as an earthen channel bordered by large earthen levees after the 1938 storm, and completed by at least 1941.

Other segments of the CVSC have been evaluated for historical significance and do not appear eligible for listing in the NRHP or CRHR (Tang and Jacquemain 2008:2–4; George and Mirro 2009:24; Smallwood 2012:2). The segment of the CVSC recorded during this study also does not appear eligible for the NRHP or CRHR. While it is associated with a trend of events that allowed for the improvement of agricultural lands during the mid-twentieth century, and development of the area into an urban center during the late twentieth century, the channel itself is not directly responsible for these developments, and did not play a significant role in the growth and development of the region. Rather, it is one of many factors in the overall scheme of Coachella Valley historical development. The stormwater channel is not directly associated with any historical events that have made a significant contribution to the broad patterns of our history (Criterion A/1). The stormwater channel is not directly associated with the productive life of any persons significant in our past (Criterion B/2). This earthen and cement-lined channel is relatively plain in appearance and utilitarian in nature, and its construction does not represent any innovative design or building technique. Therefore, it does not exhibit any distinctive architectural characteristics or engineering merits that would suggest it is significant under Criterion C/3. Finally, the channel does not have the potential to yield any information important to the study of twentieth century channel construction through intensive study of its design, materials, or construction methods (Criterion D/4).

B11. Additional Resource Attributes: None

B12. References:

George, Joan and Vanessa Mirro
2009 Phase I Cultural Resources Assessment for the Coachella Valley Water District's Stormwater Channel Project, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

Nordland, Ole J.
1978 *Coachella Valley's Golden Years*. Revised edition. Desert Printing Co., Inc., Indio, California.

Smallwood, Josh
2012 DPR recording forms, P-33-017913 (Coachella Valley Stormwater Channel). On file, Eastern Information Center, University of California, Riverside.

Tang, Tom, and Terri Jacquemain
2008 DPR recording forms, P-33-017259 (Coachella Valley Stormwater Channel). On file, Eastern Information Center, University of California, Riverside.

USGS (U.S. Geological Survey, Washington D.C.)
1941 Coachella, Calif. (15-minute/1:62,500 scale). Aerial photographs taken 1941.

B13. Remarks: None

B14. Evaluator: Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite I, Hemet, CA 92544
Date of Evaluation: January 2017

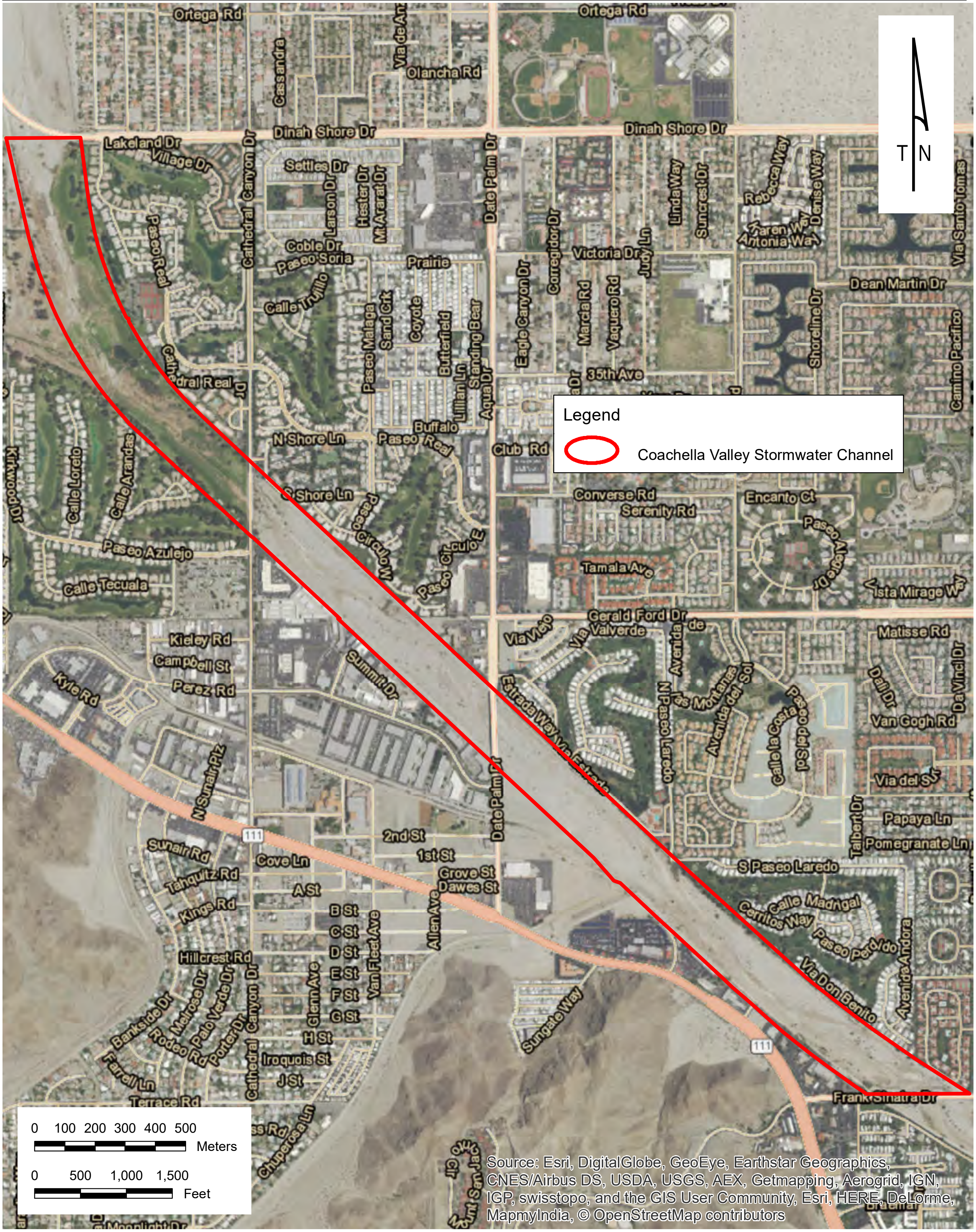
Channelized segment of the CVSC with cement-lined slopes between Frank Sinatra Drive and Cathedral Canyon Drive (view to the northwest; photograph taken January 10, 2017).

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary # 33-017259 (Update)
HRI#
Trinomial CA-RIV-10847H (Update)

 ***Resource Name or #:** (Assigned by recorder) Coachella Valley Stormwater Channel

***Drawn by:** D. McDougall ***Scale:** 1 inch equals 1,500 feet ***Date of map:** January 2017

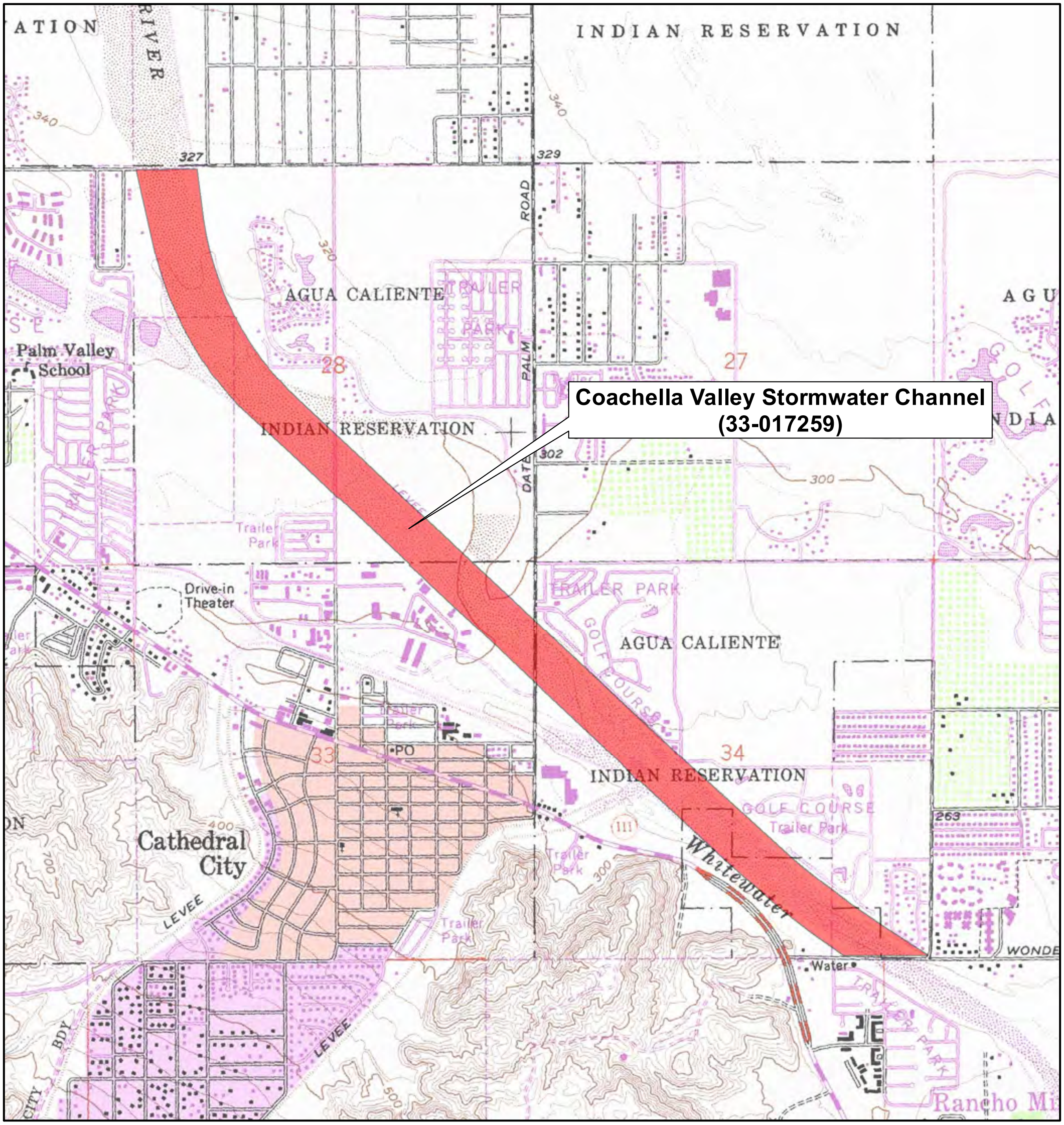


State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

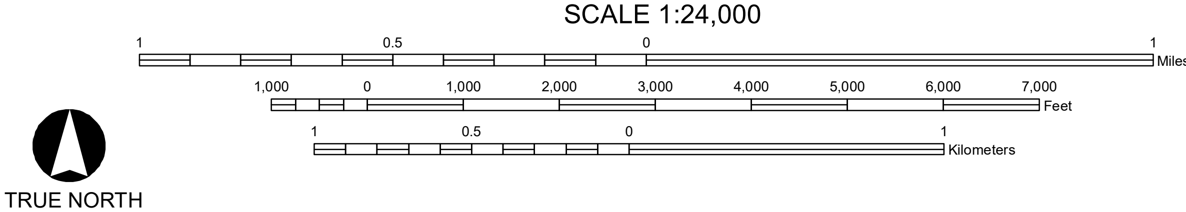
Primary # 33-017259 (Update)
HRI#
Trinomial CA-RIV-10847H (Update)

 Resource Name or #: Coachella Valley Stormwater Channel **Scale:** 1:24,000

Map Name: Cathedral City (1958, photorevised 1981), CA 7.5' USGS Quadrangle **Date:** 2017



SCALE 1:24,000



33-17259

CA-RIV-10847

ALSO SEE

33-20750

CA-RIV-10672

EIC FORMS\SeeAlso.frm.wpd
January 25, 2012

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847
NRHP Status Code

Other Listings
Review Code Reviewer Date

***Resource Name or #:** SRI-14202 (UPDATE)

P1. Other Identifier: SRI-14202

***P2. Location:** ☑ Not for Publication ☐ Unrestricted ***a. County:** Riverside

***b. USGS Quad:** 7.5' MECCA (2009); T 7S R 8E, NE¼ of NW¼ of Sec. 13; SBBM

c. Address:

d. UTM: Zone 11; 582819 mE/ 3714563 mN NAD27 GPS

e. Other Locational Data:

The site crosses Highway 111 southeast of Thermal, between postmiles 23.7 and 23.9. The site also crosses Highway 195 between postmiles 5.6 and 5.7, west of Mecca.

***P3a. Description:**

This site consists is the Coachella Valley Stormwater Channel (P-33-17259), which crosses Highway 111, southeast of the town of Thermal and Highway 195, west of Mecca. The main channel consists of a wide expanse of land covered in various riparian species of plants and trees with the channelized Whitewater River located centrally. This channel is bound by wide earthern levees. Located atop these levees are graded access roads that covered with crushed granite.

At the interection with Highway 195, the channelized river passes through a concrete beneath the highway. The banks of the channel are fortified with concrete and boulders to reduce erosion. Like the segment crossing Highway 111, the channel is flanked by levees with access roads located on top of the levees. The roads are oriented northwest to southeast on both sides of Highway 195 and are covered with crushed granite. Access to these roads, as well as those associated with the levees on Highway 111, is blocked by large meal swinging gates. No cultural materials were observed.The site boundary is determined in part by the right-of-way established by Caltrans. The right-of-way extends 15 m from the edge of the highway. The site continues beyond the right-of-way, but these portions were not recorded.

***P3b. Resource Attributes:** HP20 Canal; AH6 water conveyence system; AH7 Historical-period road, HP37 Historical-period road

***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☑ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

***P5b. Description of Photo:**
Facing NW; 3/7/2012; eastern north road overview

***P6. Date Constructed/Age & Sources:**
☑ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
PRIVATE PROPERTY, ADDRESS UNKNOWN

***P8. Recorded by:**
Patrick Stanton

***P9. Date Recorded:** 2/22/2012

***P10. Survey Type:**
Reconnaissance survey of highway right-of-way

***P11. Citation:** Report forthcoming

***Attachments:** ☐ None ☑ Location Map ☑ Sketch Map ☑ Continuation Sheet ☐ Building, Structure, and Object Record ☑ Archaeological Record ☐ District Record ☑ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☑ Photograph Record ☐ Other:

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHAEOLOGICAL SITE RECORD

Primary # P-33-017259
Trinomial CA-RIV-10847

 *Resource Name or #: SRI-14202 (UPDATE)

***A1. Dimensions: a. Length** 259 m (E/W) **x b. Width** 56 m (N/S)
Method of Measurement: ☐ Paced ☐ Taped ☐ Visual estimate ☑ GPS ☐ Other:
Method of Determination: ☐ Artifacts ☑ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☑ Other: The site boundary is determined in part by the right-of-way established ...
Reliability of determination: ☑ High ☐ Medium ☐ Low
Explain: Because the site is bounded by two large, easily distinguished levees, the site boundaries are ...
Limitations: ☐ Restricted access ☐ Paved/built over ☑ Site limits incompletely defined ☐ Disturbances ☐ Vegetation ☐ Other:

A2. Depth: None ☑ None ☐ Unknown **Method of determination:** None

***A3. Human Remains:** ☐ Present ☑ Absent ☐ Possible ☐ Unknown

***A4. Features:**

This site consists is the Coachella Valley Stormwater Channel (P-33-17259), which crosses Highway 111, southeast of the town of Thermal and Highway 195, west of Mecca. The main channel (Feature 16216) consists of a wide expanse of land covered in various riparian species of plants and trees with the channelized Whitewater River located centrally. This channel is bound by wide earthern levees (Feature 16136-northwest and 16137-southeast). Located atop these levees are graded access roads that covered with crushed granite.

At the interection with Highway 195, the channelized river (Feature 16216) passes through a concrete beneath the highway. The banks of the channel are fortified with concrete and boulders to reduce erosion. Like the segment crossing Highway 111, the channel is flanked by levees with access roads located on top of the levees. The roads (Features 16217-west road and 16218-east road) are oriented northwest to southeast on both sides of Highway 195 and are covered with crushed granite. Access to these roads, as well as those associated with the levees on Highway 111, is blocked by large meal swinging gates. No cultural materials were observe. The site boundary is determined in part by the right-of-way established by Caltrans. The right-of-way extends 15 m from the edge of the highway. The site continues beyond the right-of-way, but these portions were not recorded. The site was identified on the Coachella (1941, 1956) 15-minute and the Mecca (1955) 7.5-minute USGS topographic quads.

***A5. Cultural Constituents:**

No cultural materials were observed.

***A6. Were Specimens Collected?** ☑ No ☐ Yes

***A7. Site Condition** ☑ Good ☐ Fair ☐ Poor

Because access roads run along the tops of the levees, the levees are covered with tire tracks and ruts.

***A8. Nearest Water:** The channelized Whitewater River flows through the center of the canal.

***A9. Elevation:** -57 m amsl

A10. Environmental Setting:

The site is located in the Coachella Valley. Vegetation associated with the levees is sparse and consists of scattered brush and grasses. In the channel, vegetation gets much denser with tall grasses, brush, and the occasional tree. The surrounding sediment is a fine silty sand with some smaller gravel deposits.

A11. Historical Information:

According to previous site records, after the Whitewater River's course was changed after torrential rains in 1916, the river was channelized and became "the 'backbone' of the Coachella Valley Stormwater Channel" (Ballester 2008). The site was identified on the Coachella (1941, 1956) 15-minute and the Mecca (1955) 7.5-minute USGS topographic quads.

***A12. Age:** ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☑ 1880-1914 ☑ 1914-1945 ☑ Post-1945 ☐ Undetermined

A13. Interpretations:

None

A14. Remarks:

There have been no chnges since the previous site record was written in 2008.

A15. References:

Ballester, Daniel

2008 Archaeological Site Record for P-33-017259. On file at the Eastern Information Center. University of California, Riverside.

A16. Photographs: See photograph record
Original Media/Negatives Kept At: 21 W. Stuart Ave, Redlands, CA 92373
***A17. Form Prepared By:** Patrick Stanton **Date:** 2/22/2012
Affiliation and Address: Statistical Research, Inc., 21 W. Stuart Ave, Redlands, CA 92373

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

***Resource Name or #:** SRI-14202 (UPDATE)

L1. Historic and/or Common Name: None

L2a. Portion Described: ☐ Entire Resource ☑ Segment ☐ Point Observation **Designation:** Feature 16136

L2b. Location of Point or Segment:

Zone 11; 582704 mE/ 3714582 mN NAD27 GPS
Zone 11; 582731 mE/ 3714544 mN NAD27 GPS
Zone 11; 582904 mE/ 3714585 mN NAD27 GPS
Zone 11; 582935 mE/ 3714546 mN NAD27 GPS

L3. Description:

This site consists is the Coachella Valley Stormwater Channel (P-33-17259), which crosses Highway 111, southeast of the town of Thermal and Highway 195, west of Mecca. The main channel (Feature 16216) consists of a wide expanse of land covered in various riparian species of plants and trees with the channelized Whitewater River located centrally. This channel is bound by wide earthern levees (Feature 16136-northwest and 16137-southeast). Located atop these levees are graded access roads that covered with crushed granite.

At the interection with Highway 195, the channelized river (Feature 16216) passes through a concrete beneath the highway. The

L4. Dimensions:

a. Top Width: 100.00 m
b. Bottom Width: N/A
c. Height or Depth: None
d. Length of Segment: 45.00 m

L4e. Sketch of Cross-Section: **Facing:**

L5. Associated Resources:

None

L6. Setting:

The site is located in the Coachella Valley. Vegetation associated with the levees is sparse and consists of scattered brush and grasses. In the channel, vegetation gets much denser with tall grasses, brush, and the occasional tree. The surrounding sediment is a fine silty sand with some smaller gravel deposits.

L7. Integrity Considerations:

Because access roads run along the tops of the levees, the levees are covered with tire tracks and ruts.

L8b. Description of Photo, Map, or Drawing

See sketch map

L9. Remarks:

There have been no chnges since the previous site record was written in 2008.

L10. Form Prepared By:

Patrick Stanton

L11. Date: 2/22/2012

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

*Resource Name or #: SRI-14202 (UPDATE)

L1. Historic and/or Common Name: None

L2a. Portion Described: ☐ Entire Resource ☑ Segment ☐ Point Observation **Designation:** Feature 16137

L2b. Location of Point or Segment:

Zone 11; 582704 mE/ 3714582 mN NAD27 GPS
Zone 11; 582731 mE/ 3714544 mN NAD27 GPS
Zone 11; 582904 mE/ 3714585 mN NAD27 GPS
Zone 11; 582935 mE/ 3714546 mN NAD27 GPS

L3. Description:

This site consists is the Coachella Valley Stormwater Channel (P-33-17259), which crosses Highway 111, southeast of the town of Thermal and Highway 195, west of Mecca. The main channel (Feature 16216) consists of a wide expanse of land covered in various riparian species of plants and trees with the channelized Whitewater River located centrally. This channel is bound by wide earthern levees (Feature 16136-northwest and 16137-southeast). Located atop these levees are graded access roads that covered with crushed granite.

L4. Dimensions:

- **a. Top Width:** 100.00 m
- **b. Bottom Width:** N/A
- **c. Height or Depth:** None
- **d. Length of Segment:** 100.00 m

L5. Associated Resources:

None

L4e. Sketch of Cross-Section: **Facing:**

L6. Setting:

The site is located in the Coachella Valley. Vegetation associated with the levees is sparse and consists of scattered brush and grasses. In the channel, vegetation gets much denser with tall grasses, brush, and the occasional tree. The surrounding sediment is a fine silty sand with some smaller gravel deposits.

L7. Integrity Considerations:

Because access roads run along the tops of the levees, the levees are covered with tire tracks and ruts.

L8b. Description of Photo, Map, or Drawing

See sketch map

L9. Remarks:

There have been no chnges since the previous site record was written in 2008.

L10. Form Prepared By:

Patrick Stanton

L11. Date: 2/22/2012

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

***Resource Name or #:** SRI-14202 (UPDATE)

L1. Historic and/or Common Name: None

L2a. Portion Described: ☐ Entire Resource ☑ Segment ☐ Point Observation **Designation:** Feature 16216

L2b. Location of Point or Segment:

Zone 11; 582704 mE/ 3714582 mN NAD27 GPS
Zone 11; 582731 mE/ 3714544 mN NAD27 GPS
Zone 11; 582904 mE/ 3714585 mN NAD27 GPS
Zone 11; 582935 mE/ 3714546 mN NAD27 GPS

L3. Description:

This site consists is the Coachella Valley Stormwater Channel (P-33-17259), which crosses Highway 111, southeast of the town of Thermal and Highway 195, west of Mecca. The main channel (Feature 16216) consists of a wide expanse of land covered in various riparian species of plants and trees with the channelized Whitewater River located centrally. This channel is bound by wide earthern levees (Feature 16136-northwest and 16137-southeast). Located atop these levees are graded access roads that covered with crushed granite.

L4. Dimensions:

a. Top Width: 12.00 m
b. Bottom Width: N/A
c. Height or Depth: None
d. Length of Segment: 15.00 m

L5. Associated Resources:

None

L4e. Sketch of Cross-Section: **Facing:**

L6. Setting:

The site is located in the Coachella Valley. Vegetation associated with the levees is sparse and consists of scattered brush and grasses. In the channel, vegetation gets much denser with tall grasses, brush, and the occasional tree. The surrounding sediment is a fine silty sand with some smaller gravel deposits.

L7. Integrity Considerations:

Because access roads run along the tops of the levees, the levees are covered with tire tracks and ruts.

L8b. Description of Photo, Map, or Drawing

See sketch map

L9. Remarks:

There have been no chnges since the previous site record was written in 2008.

L10. Form Prepared By:

Patrick Stanton

L11. Date: 2/22/2012

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

***Resource Name or #:** SRI-14202 (UPDATE)

L1. Historic and/or Common Name: None

L2a. Portion Described: ☐ Entire Resource ☑ Segment ☐ Point Observation **Designation:** Feature 16217

L2b. Location of Point or Segment:

Zone 11; 582704 mE/ 3714582 mN NAD27 GPS
Zone 11; 582731 mE/ 3714544 mN NAD27 GPS
Zone 11; 582904 mE/ 3714585 mN NAD27 GPS
Zone 11; 582935 mE/ 3714546 mN NAD27 GPS

L3. Description:

At the interection with Highway 195, the channelized river (Feature 16216) passes through a concrete beneath the highway. The banks of the channel are fortified with concrete and boulders to reduce erosion. Like the segment crossing Highway 111, the channel is flanked by levees with access roads located on top of the levees. The roads (Features 16217-west road and 16218-east road) are oriented northwest to southeast on both sides of Highway 195 and are covered with crushed granite. Access to these roads, as well as those associated with the levees on Highway 111, is blocked by large meal swinging gates.

L4. Dimensions:

a. Top Width: 5.00 m
b. Bottom Width: N/A
c. Height or Depth: None
d. Length of Segment: 51.00 m

L5. Associated Resources:

None

L4e. Sketch of Cross-Section: **Facing:**

L6. Setting:

The site is located in the Coachella Valley. Vegetation associated with the levees is sparse and consists of scattered brush and grasses. In the channel, vegetation gets much denser with tall grasses, brush, and the occasional tree. The surrounding sediment is a fine silty sand with some smaller gravel deposits.

L7. Integrity Considerations:

Because access roads run along the tops of the levees, the levees are covered with tire tracks and ruts.

L8b. Description of Photo, Map, or Drawing

See sketch map

L9. Remarks:

There have been no chnges since the previous site record was written in 2008.

L10. Form Prepared By:

Patrick Stanton

L11. Date: 2/22/2012

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

 ***Resource Name or #:** SRI-14202 (UPDATE)

L1. Historic and/or Common Name: None

L2a. Portion Described: ☐ Entire Resource ☑ Segment ☐ Point Observation **Designation:** Feature 16218

L2b. Location of Point or Segment:

Zone 11; 582704 mE/ 3714582 mN NAD27 GPS
Zone 11; 582731 mE/ 3714544 mN NAD27 GPS
Zone 11; 582904 mE/ 3714585 mN NAD27 GPS
Zone 11; 582935 mE/ 3714546 mN NAD27 GPS

L3. Description:

At the interection with Highway 195, the channelized river (Feature 16216) passes through a concrete beneath the highway. The banks of the channel are fortified with concrete and boulders to reduce erosion. Like the segment crossing Highway 111, the channel is flanked by levees with access roads located on top of the levees. The roads (Features 16217-west road and 16218-east road) are oriented northwest to southeast on both sides of Highway 195 and are covered with crushed granite. Access to these roads, as well as those associated with the levees on Highway 111, is blocked by large meal swinging gates.

L4. Dimensions:

a. Top Width: 5.00 m
b. Bottom Width: N/A
c. Height or Depth: None
d. Length of Segment: 92.00 m

L5. Associated Resources:

None

L4e. Sketch of Cross-Section: **Facing:**

L6. Setting:

The site is located in the Coachella Valley. Vegetation associated with the levees is sparse and consists of scattered brush and grasses. In the channel, vegetation gets much denser with tall grasses, brush, and the occasional tree. The surrounding sediment is a fine silty sand with some smaller gravel deposits.

L7. Integrity Considerations:

Because access roads run along the tops of the levees, the levees are covered with tire tracks and ruts.

L8b. Description of Photo, Map, or Drawing

See sketch map

L9. Remarks:

There have been no chnges since the previous site record was written in 2008.

L10. Form Prepared By:

Patrick Stanton

L11. Date: 2/22/2012

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH RECORD

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

***Resource Name or #:** SRI-14202 (UPDATE)

Camera Format:
Lens Size:
Film Type and Speed: Digital
Negatives Kept At: 21 W. Stuart Ave, Redlands, CA 92373

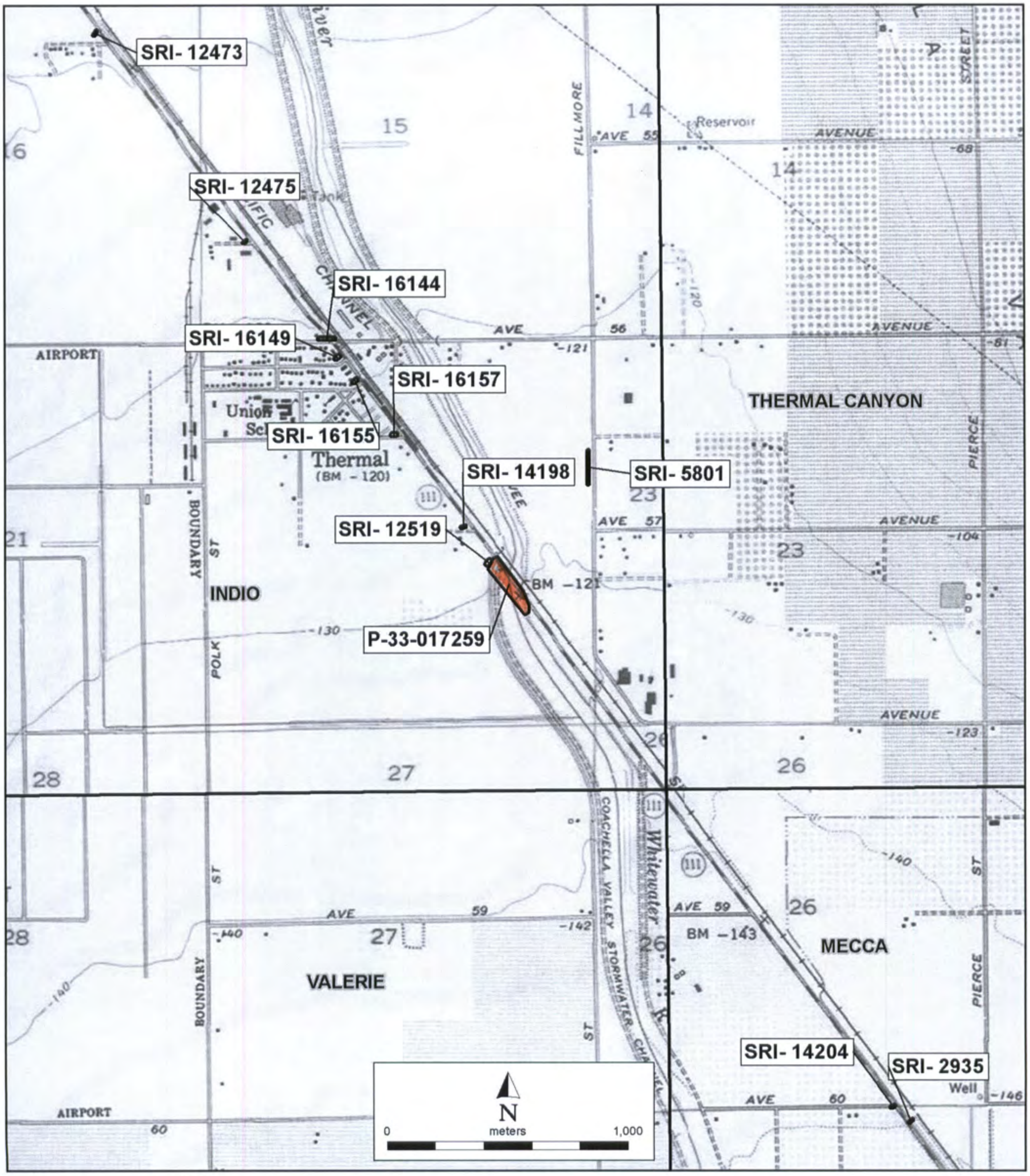
Date	Time	Exp/ Frame	Subject/Description	View Toward	Accession #
3/7/2012		5253	eastern north road overview	NW	
3/7/2012		5252	southern channel overview	S	
3/12/2012		5222	canal overview	NW	
3/7/2012		5251	overview	E	

State of California - The Resources Agency DEPARTMENT OF PARKS AND RECREATION **LOCATION MAP**	Primary # P-33-017259 HRI # Trinomial CA-RIV-10847

***Resource Name or #:** SRI-14202 (UPDATE)

***Map Name:** 7.5' MECCA USGS Topographic Quad Scale: 1:24,000

***Year:** 2009



DPR523J (1/95)

*Required Information

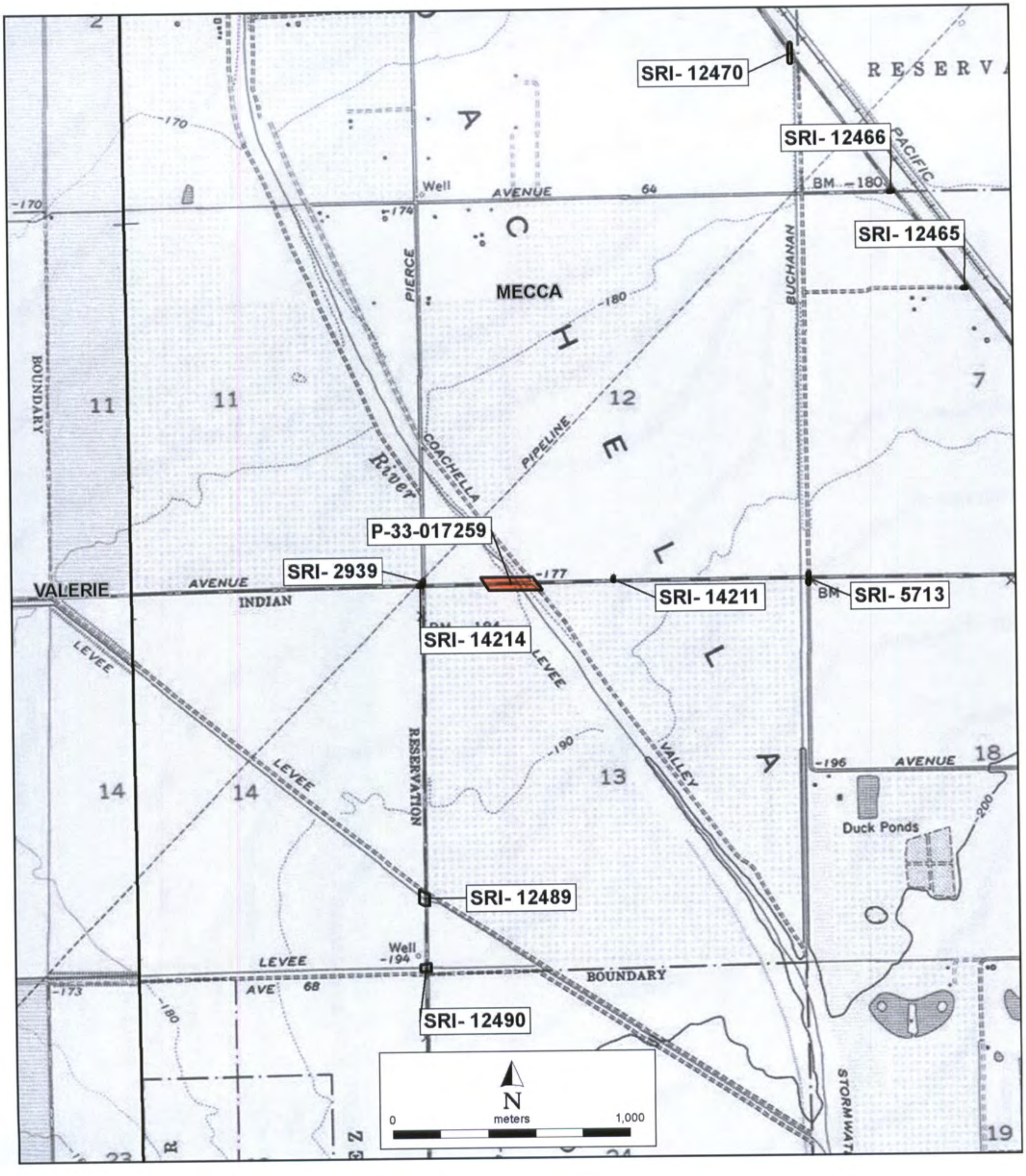
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

*Resource Name or #: SRI-14202 (UPDATE)

*Map Name: 7.5' MECCA USGS Topographic Quad Scale: 1:24,000

*Year: 2009



DPR523J (1/95)

*Required Information

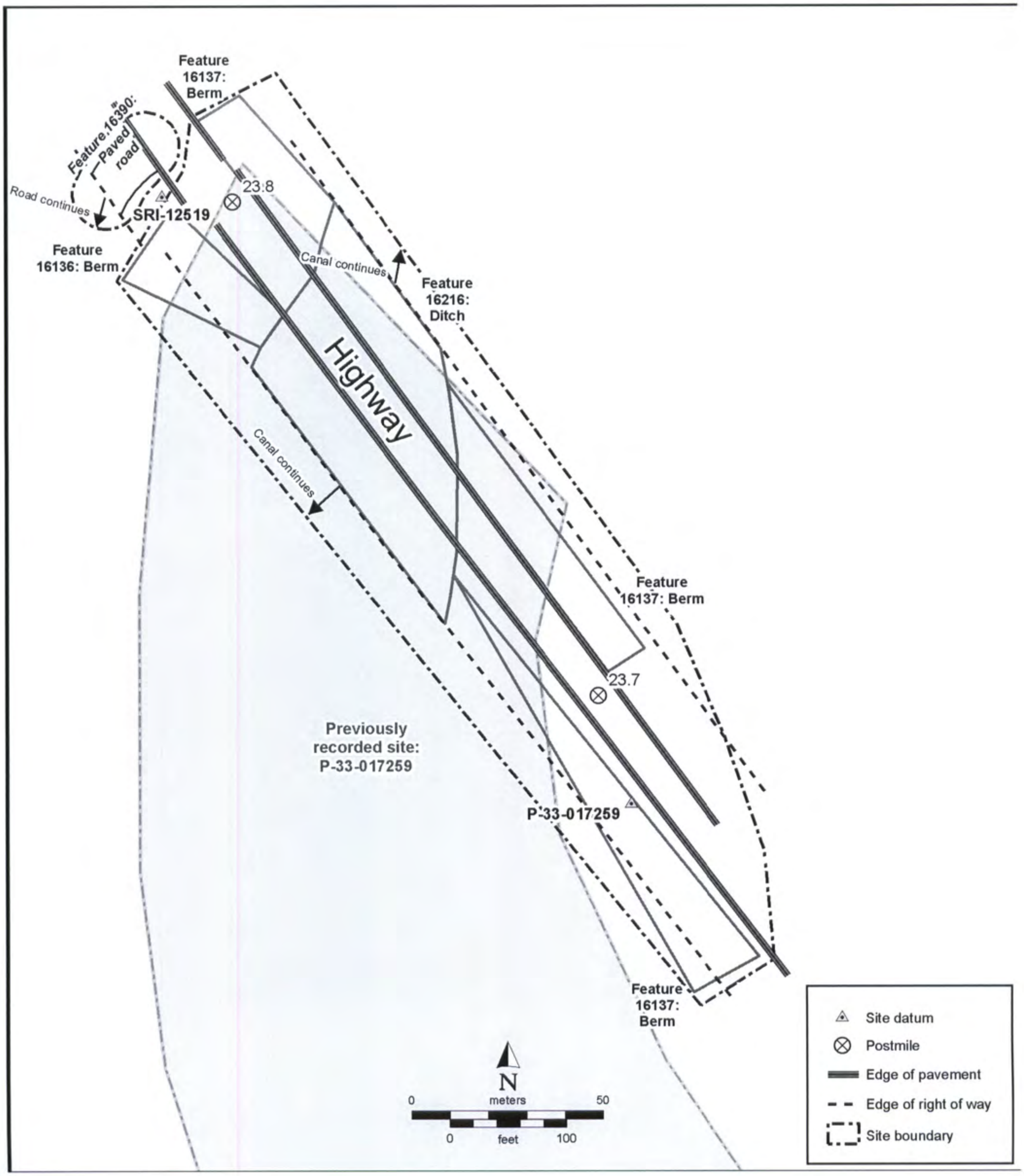
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

*Resource Name or #: SRI-14202 (UPDATE)

*Drawn By: Patrick Stanton

*Date: 02/22/2012



*Required Information

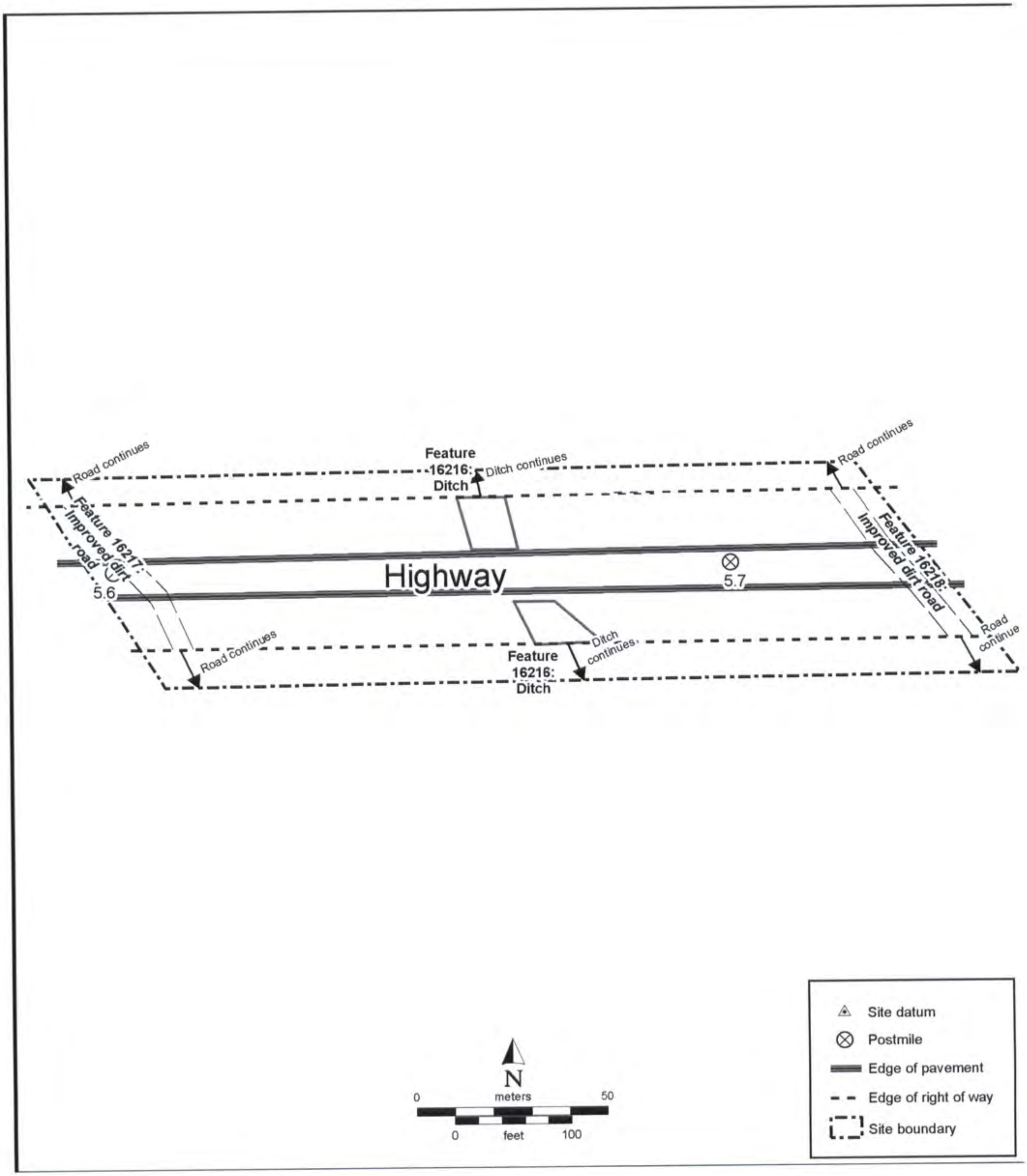
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

*Resource Name or #: SRI-14202 (UPDATE)

*Drawn By: Patrick Stanton

*Date: 02/22/2012



*Required Information

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-33-017259
HRI #
Trinomial CA-RIV-10847

***Resource Name or #:** SRI-14202 (UPDATE)

***Recorded By:** Patrick Stanton

***Date:** 2/22/2012 ☑ Continuation ☐ Update

P2b. Legal description
T 7S R 8E; NW¼ of NW¼ of Sec 13; SBBM
T 7S R 8E; SE¼ of SW¼ of Sec 12; SBBM
T 7S R 8E; SW¼ of SW¼ of Sec 12; SBBM

P2d. UTM
Zone 11; 582731 mE/ 3714544 mN NAD27 GPS
Zone 11; 582904 mE/ 3714585 mN NAD27 GPS
Zone 11; 582935 mE/ 3714546 mN NAD27 GPS

P4. Resources Present
[X] Other (linear)

A1. Method of determination
by Caltrans. The right-of-way extends 15 m from the edge of the highway. The site continues beyond the right-of-way, but these portions were not recorded. The site was identified on the Coachella (1941, 1956) 15-minute and the Mecca (1955) 7.5-minute USGS topographic quads.

A1. Reliability of determination
readily apparent.

*Required Information

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # 33-17259
HRI #
Trinomial
NRHP Status Code 6Z
Other Listings
Review Code Reviewer Date

Page 1 of 5 *Resource Name or # (Assigned by recorder) CRM TECH 2265-1

P1. Other Identifier: Coachella Valley Stormwater Channel/Whitewater River

***P2. Location:** ___ Not for Publication √ Unrestricted ***a. County** Riverside

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Indio, Valerie and Mecca, Calif. **Date** 1972

T6S; R8E; Sec 22, 23, 26 and 27; S.B. B.M.;

Elevation: Approximately -130 to -150 feet below mean sea level

c. Address N/A **City** Thermal **Zip** 92274

d. UTM: (Give more than one for large and/or linear resources) **Zone** 11; **A** 580440 **mE/** 3721700 **mN**
B 581200 **mE/** 3719400 **mN**

UTM Derivation: √ USGS Quad ___ GPS

e. Other Locational Data: (e.g., parcel #, directions to resource, etc., as appropriate) An approximately 1.5-mile-long segment of the Coachella Valley Stormwater Channel located southwest of Grapefruit Boulevard (SR 111) and north of Avenue 60.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) The segment of the channel is defined by two parallel earthen levees, each topped by a dirt access road that run the entire length of the segment and beyond. The interior sides of the levees slope gently at approximately 18-20 degrees to the bottom of the riverbed, about 25-30 feet *(Continued on p. 4)*

***P3b. Resource Attributes:** (List attributes and codes) AH6: Water conveyance system

***P4. Resources Present:** ___ Building √ Structure ___ Object ___ Site ___ District ___ Element of District ___ Other (isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

P5b. Description of Photo: (view, date, accession #) Photo taken on August 11, 2008; view to the east

***P6. Date Constructed/Age of Sources:** √ Historic ___ Prehistoric ___ Both
Ca. 1910s-1950s (see Items B6 and B12 for details)

***P7. Owner and Address:** Unknown

***P8. Recorded by** (Name, affiliation, and address): Daniel Ballester, CRM TECH, 1016 East Cooley Drive, Suite A/B, Colton, CA 92324

***P9. Date Recorded:** August 2008

***P10. Survey Type:** Intensive-level survey for CEQA-compliance purposes

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Bai "Tom" Tang and Harry M. Quinn (2008): Historical/Archaeological/Paleontological Survey of Whitewater River Channel, Thermal 551 Brookfield Project, near the Community of Thermal, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

***Attachments:** ___ None √ Location Map √ Continuation Sheet √ Building, Structure, and Object Record ___ Archaeological Record ___ District Record √ Linear Resource Record ___ Milling Station Record ___ Rock Art Record ___ Artifact Record ___ Photograph Record ___ Other (List):

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # 33-17259
HRI #

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 6Z

*Resource Name or # (Assigned by recorder) CRM TECH 2265-1

B1. Historic Name: Coachella Valley Stormwater Channel B2. Common Name: Same

B3. Original Use: Flood control B4. Present Use: Same

*B5. **Architectural Style:** N/A

*B6. **Construction History:** (Construction date, alterations, and date of alterations) After torrential flooding changed the course of the Whitewater River between Cathedral City and Point Happy in January 1916, the newly altered riverbed became the "backbone" of the Coachella Valley Stormwater Channel, which carries the runoff to the Salton Sea. The segment of the riverbed from Point Happy to *(Continued on p. 4)*

*B7. **Moved?** √ No __ Yes __ Unknown **Date:** ____ **Original Location:** ____

*B8. **Related Features:** See Item P3a.

B9a. Architect: Unknown b. Builder: Coachella Valley Stormwater District

*B10. **Significance: Theme** Flood protection/public works

Area Coachella Valley **Period of Significance** 1910s-1950s

Property Type Stormwater channel **Applicable Criteria** N/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.) This segment of the stormwater channel follows the natural course of the Whitewater River, but was "channelized" as a flood-control facility prior to the 1930s, possibly as early as the late 1910s. As such, *(Continued on p. 4)*

B11. Additional Resource Attributes: (List attributes and codes) AH6: Water conveyance system

*B12. **References:** Coachella Valley Water District: Water and the Coachella Valley, http://www.cvwd.org/about/waterandcv; Patricia B. Laflin: *Coachella Valley, California: A Pictorial History* (The Donning Company Publishers, Virginia Beach, Virginia, 1998); Dennis Mahr (Director of Communications and Legislation, Coachella Valley Water District), telephone interview on August 12, 2008; U.S. Bureau of Reclamation: Boulder Dam Project, All-American Canal System, Calif. (topographic maps, Sheets C-2N-182, -239, and -241, 1938); USGS topographic maps, 1941 and 1956 (Coachella quadrangle, 15', 1:62,500).

B13. Remarks:

*B14. **Evaluator:** Bai "Tom" Tang and Terri Jacquemain

*Date of Evaluation: August 2008

(Sketch Map with north arrow required.)

(See p. 5)

(This space reserved for official comments.)

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # 33-17259
HRI #
Trinomial

*Resource Name or # (Assigned by recorder) CRM TECH 2265-1

L1. Historic and/or Common Name: Coachella Valley Stormwater Channel

L2a. Portion Described: __ Entire Resource √ Segment __ Point Observation **Designation:**

b. Location of Point or Segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) See p. 1

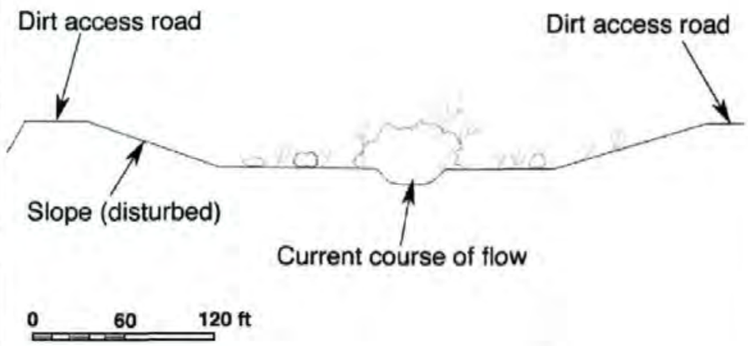
L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/ sections as appropriate.) The segment of the channel is defined by two parallel earthen levees, each topped by a dirt access road that run the entire length of the segment and beyond. The interior sides of the levees slope gently at approximately 18-20 degrees to the bottom of the riverbed, about 25-30 feet below the top of the levees. The slopes are mostly clear of vegetation, while dense vegetation grows near the narrow flow at the river bottom, including cottonwoods, arrow weeds, tumbleweeds, tamarisks, and small desert shrubs and grasses. The channel and the levees are well maintained, but do not demonstrate any notable characteristics in terms of design and engineering.

L4. Dimensions: (In feet for historic features and meters for pre-historic features)

a. **Top Width** 411-500 feet
b. **Bottom Width** 220 feet
c. **Height or Depth** 25-30 feet
d. **Length of Segment** 1.5 miles

L5. Associated Resources:

L4e. Sketch of Cross-Section (Include scale)
Facing: North



L6. Setting (Describe natural features, landscape characteristics, slope, etc. as appropriate) At this location, the earthen levees are located along the original course of the Whitewater River, which is the main natural waterway across the arid Coachella Valley. The surrounding land use is mostly agricultural.

L7. Integrity Considerations: The historic integrity of the features are uncertain but questionable due to repeated repairs and constant maintenance over the years.

L8a. Photograph, Map or Drawing

(See p. 1 and p. 5)

L8b. Description of Photo, Map, or Drawing (View, scale, etc.)

L9. Remarks:

L10. Form Prepared by: (Name, affiliation and address) Daniel Ballester and Terri Jacquemain, CRM TECH, 1016 East Cooley Drive, Suite A/B, Colton, CA 92324

L11. Date: August 20, 2008

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # 33-17259
HRI #
Trinomial

Resource name or # (Assigned by recorder) CRM TECH 2265-1

Recorded by: Daniel Ballester

***Date:** August 2008 √ Continuation ___ Update

***P3a. Description** (continued): below the top of the levees. The slopes are mostly clear of vegetation, while dense vegetation grows near the narrow flow at the river bottom, including cottonwoods, arrow weeds, tumbleweeds, tamarisks, and small desert shrubs and grasses. The channel and the levees are well maintained, but do not demonstrate any notable characteristics in terms of design and engineering.

***B6. Construction History** (continued): the Salton Sea has also evolved into a man-made channel bent to skirt communities and provide flood-control protection through devices like the earthen levees in this segment. By the 1930s-1950s, the presence of levees and dykes along the course of the former Whitewater River wash was well documented in historic maps. Over the years, the channel and levees have undergone periodic repairs and routine maintenance to insure that the banks are stable and that the brush does not become overgrown.

***B10. Significance:** it could be argued that the channel played an important part in the accelerated growth of the Coachella Valley since the early 20th century, which was certainly a pattern of events that made significant contributions to regional history. The development of the desert valley, by necessity, was contingent on not only the control but also the supply and distribution of water, in which the Whitewater River/Coachella Valley Stormwater Channel and the Coachella Canal served in similar capacities, if not with equal importance.

Unlike the Coachella Canal, however, the stormwater channel is based on a natural waterway with only limited human alterations, at least at this location, and does not demonstrate any notable design or engineering qualities. Furthermore, as an element of the historic-period infrastructure that remains in use today, the channel and its largely nondescript components do not retain any features that are particularly historic in appearance. Therefore, the channel's association with the pattern of events in its history and its potential period of significance is compromised considerably by the lack of any specifically historical characteristics and the questionable historic integrity.

For the same reasons, the existing stormwater channel does not represent an important example of its property type or method of construction. It is not recognized as a structure of high artistic or aesthetic value, nor is it known to be the work of a prominent designer, builder, or engineer. Despite extensive research, no persons or specific events of known historic significance have been identified in close association with the segment of stormwater channel at this location, or with the stormwater channel in general. Meanwhile, as a common infrastructure element that required only limited construction work to create, the channel retains little data potential for the study of regional history or the history of engineering

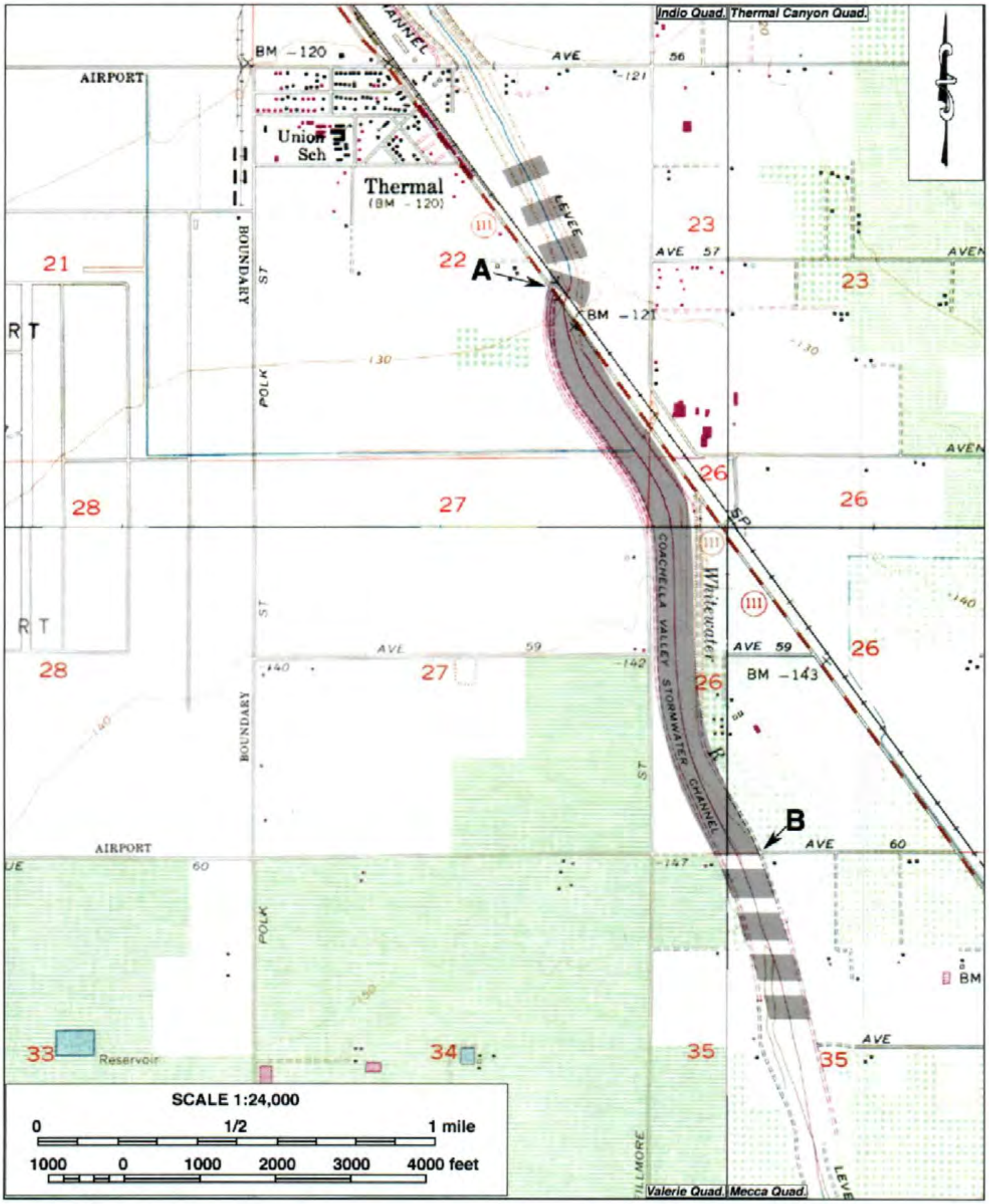
Based on these considerations, the present study concludes that this segment of the Coachella Valley Stormwater Channel does not appear eligible for listing in the National Register of Historic Places or the California Register of Historical Resources.

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 33-17259
HRI #
Trinomial

*Resource Name or # (Assigned by recorder) CRM TECH 2265-1

*Map Names: (see labels in map) *Scale: 1:24,000 *Date of Maps: 1972



Appendix D

Geotechnical Investigation

GEOTECHNICAL
PROFESSIONALS INC.

GEOTECHNICAL INVESTIGATION
PROPOSED COACHELLA AIRPORT BUSINESS PARK
NWC STATE HIGHWAY 86 AND AIRPORT BOULEVARD
COACHELLA, CALIFORNIA

Prepared for:
Haagen Co., LLC
12302 Exposition Boulevard
Los Angeles, California 90064

Prepared by:
Geotechnical Professionals Inc.
5736 Corporate Avenue
Cypress, California 90630
(714) 220-2211

Project No. 2884.I

September 25, 2018

GEOTECHNICAL PROFESSIONALS INC.

September 25, 2018

Haagen Co., LLC
12302 Exposition Boulevard
Los Angeles, California 90064

Attention: Mr. Chris Fahey

Subject: Report of Geotechnical Investigation
Proposed Coachella Airport Business Park
NWC State Highway 86 and Airport Boulevard
Coachella, California
GPI Project No. 2884.I

Dear Mr. Fahey:

Transmitted herewith is our report of geotechnical investigation for the subject project. The report presents our evaluation of the foundation conditions at the site and recommendations for design and construction.

We are providing this report in an electronic format. Further copies of the report can be provided if required for City submittal upon request.

We appreciate the opportunity of offering our services on this project and look forward to seeing the project through its successful completion. Feel free to call us if you have any questions regarding our report or need further assistance.

Very truly yours,
Geotechnical Professionals Inc.

James E. Harris, G.E.
Principal

2884-I-01L (09/18)

TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION	1
1.1 GENERAL	1
1.2 PROJECT DESCRIPTION	1
1.3 PURPOSE OF INVESTIGATION	1
2.0 SCOPE OF WORK	2
3.0 SITE CONDITIONS	3
3.1 SURFACE CONDITIONS	3
3.2 SUBSURFACE SOILS	3
3.3 GROUNDWATER AND CAVING	4
4.0 CONCLUSIONS AND RECOMMENDATIONS	5
4.1 GENERAL	5
4.2 MITIGATION OF SETTLEMENT	6
4.3 SEISMIC CONSIDERATIONS	7
4.3.1 General	7
4.3.2 Strong Ground Motion Potential	8
4.3.3 Potential for Ground Rupture	8
4.3.4 Liquefaction	8
4.2.5 Lateral Spreading	9
4.4 EARTHWORK	10
4.4.1 Clearing	10
4.4.2 Excavations	11
4.4.3 Subgrade Preparation	12
4.4.4 Material for Fill	12
4.4.5 Placement and Compaction of Fills	13
4.4.6 Shrinkage and Subsidence	13
4.4.7 Trench/Wall Backfill	14
4.4.8 Observation and Testing	14
4.5 SHALLOW FOUNDATIONS	14
4.5.1 General	14
4.5.2 Allowable Bearing Pressures – Spread Footings	15
4.5.3 Lateral Load Resistance	15
4.5.4 Footing Excavation Observation	16
4.6 MAT FOUNDATIONS	16
4.7 FOUNDATION CONCRETE	17
4.8 BUILDING FLOOR SLABS	17
4.9 LATERAL EARTH PRESSURES	18
4.10 CORROSIVITY	19
4.11 DRAINAGE	19
4.12 EXTERIOR CONCRETE AND MASONRY FLATWORK	19
4.13 STORM WATER INFILTRATION	19
4.14 PAVED AREAS	20
4.15 GEOTECHNICAL OBSERVATION AND TESTING	21
5.0 LIMITATIONS	22

REFERENCES

TABLE OF CONTENTS - CONTINUED

APPENDICES
A CONE PENETRATION TESTS
B EXPLORATORY BORINGS
C LABORATORY TESTS

LIST OF FIGURES

FIGURE NO.
1 Site Location Map
2 Site Plan

APPENDIX A

A-1 Cone Penetrometer Diagram
A-2 to A-24 Cone Penetration Test Results

APPENDIX B

B-1 to B-9 Logs of Borings

APPENDIX C

C-1 Atterberg Limits Test Results
C-2 to C-6 Direct Shear Test Results
C-7 to C-9 Consolidation Test Results
Table 1 Corrosivity Test Results

1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of the geotechnical investigation performed by Geotechnical Professionals Inc. (GPI) for the proposed business park in Coachella, California. The geographical site location is shown on the Site Location Map, Figure 1.

1.2 PROJECT DESCRIPTION

We understand that the proposed improvements at the site will consist of a new business park with single-story buildings of various sizes on a 43-acre parcel. The buildings will include large warehouses, small warehouses, small business, self-storage buildings, a service station, and a drive-thru coffee shop. Preliminary plans indicate the footprint of the buildings will range from approximately 103,300 square feet (sf) for the large warehouse to 4,000 sf for the coffee shop. Currently, thirty-two buildings are planned for the site plus 14 self-storage buildings. The proposed buildings will cover a footprint of approximately 677,000 sf. Additional improvements will include paved vehicular drives and parking as well as landscaping. The preliminary layout of the proposed development is shown on Figure 2.

We have assumed that the buildings will be tilt-up, masonry block, or wood construction. Based on our experience with similar projects, we expect that the structures will have maximum column and wall loads on the order of 30 to 100 kips and 2 to 5 kips per lineal foot, respectively.

Information regarding proposed finish grades for the development is not known at this time. We assume that finish grades will be found at or near existing grades and no changes of grade not more than 3 to 4 feet from existing grades.

Since structural loads or grades can significantly impact the performance of the proposed development, we should perform additional evaluations if the final grades and/or loads vary significantly from those discussed herein.

1.3 PURPOSE OF INVESTIGATION

The primary purpose of this investigation and report is to provide an evaluation of the existing geotechnical conditions at the site as they relate to the design and construction of the proposed development. More specifically, this investigation was aimed at providing geotechnical recommendations for planning earthwork, and design of foundations, floor slabs, and pavements.

2.0 SCOPE OF WORK

Our scope of work for this investigation consisted of review and use of existing geotechnical data, field exploration, laboratory testing, engineering analysis, and the preparation of this report.

The field exploration program consisted of 23 Cone Penetration Tests (CPT's) and 11 exploratory borings. The locations of the explorations are shown on the Site Plan, Figure 2.

The CPT's were advanced to depths ranging from 50 to 80 feet below existing site grades. Detailed logs of the CPT's and a summary of the equipment used are presented in Appendix A. The borings were drilled using hollow-stem auger equipment to depths of 6 to 81½ feet below existing site grades. Details of the drilling and Logs of Borings are presented in Appendix B.

Laboratory soil tests were performed on selected representative samples as an aid in soil classification and to evaluate the engineering properties of the soils. The geotechnical laboratory testing program included determinations of moisture content and dry density, Atterberg Limits, grain size, compressibility (consolidation), shear strength (direct shear), collapse, R-value, and corrosion. Laboratory testing procedures and results are summarized in Appendix C.

Soil corrosivity testing was performed by HDR under subcontract to GPI. R-value testing was performed by Geologic Associates under subcontract to GPI. Their test results are presented in Appendix C.

Engineering evaluations were performed provide geotechnical and foundation recommendations. The results of our evaluations are presented in the remainder of this report.

3.0 SITE CONDITIONS

3.1 SURFACE CONDITIONS

The site is located on an undeveloped parcel located directly between State Route 86 and an unlined storm water channel (Whitewater River). We observed no evidence of previous development at the site. Historic aerials (historicaerials.com) indicate the land has been undeveloped since prior the 1950's. Minor grading may have been performed along the property lines associated with the channelization of Whitewater River and the roadway construction.

The site is bounded by Airport Road to the south, State Route 86 to the east, undeveloped land to the north, and the storm water channel to the west.

The site is relatively flat sloping very gently to the south. In general, the north side of the site is approximately 8 feet higher than the southern side over a distance of approximately 3,000 feet. Existing ground surface elevations ranged from about -112 to -120 feet MSL based on a topographic map. The Civil Engineer is using a project datum that is 500 feet greater than actual MSL elevations to avoid negative elevations. The elevations on our exploration logs reflect the project datum.

Along the property limits, there are minor slopes adjacent to the site. State Route 86 is, in general, a few feet higher than the site with a minor descending slope. Directly adjacent to the western side of the site, an unpaved maintenance road is located at the top of the storm channel on a berm, which is approximately 2 to 3 feet higher than the project site at the southern end of the site and approximately 8 to 10 feet higher than the project site at the northern end of the site. The berm appears to have been constructed as a levee for the storm water channel. The bottom of the storm channel appears to be on the order of 6 to 8 feet lower than project site.

3.2 SUBSURFACE SOILS

Our field investigation disclosed a subsurface profile consisting of native soils. Detailed descriptions of the conditions encountered are shown on the Logs of CPT's and Borings in Appendices A and B, respectively.

Though significant fill soils were not encountered, some fills are expected at the top of the slope immediately adjacent to the storm water channel.

The natural soils consist of interbedded layers of sands, silts, and clays and their mixtures. The consistencies of the sandy soils ranged typically from loose to medium dense in the upper 30 feet and medium dense to dense at greater depths. The sandy soils in the upper 30 feet exhibit moderate strength and moderate to low compressibility characteristics. Very dense sand layers were encountered at depths greater than approximately 55 to 60 feet.

The fine grained soils (silts and clays) are generally firm to stiff with some very stiff to hard layers in the upper 20 feet. In general, the fine-grained soils within the upper 20 to

30 feet varied from firm to stiff and moderately compressible. The underlying fine-grained soils become predominantly stiffer with depth, exhibiting moderate strength and moderate to low compressibility characteristics.

Clay soils were not observed in the near surface soils. The near surface soils can be anticipated to have very low expansion characteristics.

3.3 GROUNDWATER AND CAVING

In the borings, groundwater was measured at depths of 14 to 20 feet immediately after drilling. Due to the method of drilling, accurate depths to groundwater and the potential for caving were very difficult to determine. Groundwater may rise from the deeper measured levels if allow to stabilize with time. Based on the moisture content of the soil samples, we anticipate a stabilized groundwater level at a depth of 10 to 15 feet below existing grade. The historical high groundwater has not been determined in the area by the State of California. We recommend a design groundwater depth of 10 feet for the project

The sandy soils are expected to cave in dry loose soils in the upper 10 feet of the soil profile and severely cave below the groundwater.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 GENERAL

Based on the results of our investigation, it is our opinion that from a geotechnical engineering viewpoint it is feasible to develop the site as proposed. The most significant geotechnical issues that will affect the design and construction of the proposed structures are as follows:

- The site is located in an area mapped by the City of Coachella as having a potential for soil liquefaction. Some of the sandy soils underlying the site at depths from 10 to 55 feet below existing grade exhibit a potential for liquefaction in the event of a design earthquake. We estimate that the maximum settlements at the site in the event of a design earthquake would range from approximately 2½ to 3 inches. See Section 4.2 for methods to mitigate settlement.

- To help limit total and differential settlements of the proposed buildings to the magnitudes described above either mat foundations, pile foundations and pile supported structural floor slabs, or ground improvement will be required. If ground improvement is performed to limit settlements to an acceptable magnitude, the buildings can be supported on conventional spread footings.

- Prior to construction of the building foundations (conventional or mat), disturbed soils and a portion of dry, compressible soils should be removed and replaced as properly compacted fill. Deeper removals will be required if conventional footings tied together with grade beams are used for buildings. The depth of removals and details regarding grading are provided in the “Earthwork” section of this report.

- Removals are also recommended in the pavement for drives and parking and under minor structures, in order to provide a consistent, moist layer of soils for uniform support. The depth of removals and details regarding grading are provided in “Earthwork” section of this report.

- The near surface soils exhibit soluble sulfate contents that are detrimental to concrete. The foundation concrete should conform to the requirements for severe sulfate exposure as outlined in ACI 318, Section 4.3.

- The on-site soils should be considered severely corrosive to buried metals. If buried metal elements are required, a corrosion engineer should be consulted.

Our recommendations related to the geotechnical aspects of the development of the site are presented in the subsequent sections of this report.

4.2 MITIGATION OF SETTLEMENT

The maximum allowable total and differential settlements for shallow foundations and slabs on grade, from all sources, is typically on the order of 1½ inches and ¾-inch, respectively in Southern California. For mat foundations, the maximum allowable total and differential settlements, from all sources, is typically on the order of 4 inches and 2 inches, respectively. Sources include static (gravity) and seismic causes.

The site soil profile includes compressible and potentially liquefiable soils in the upper 55 feet. The potential building settlement under both static and earthquake loads could be mitigated by specially designed spread footings, mat foundations, pile foundations, or in-place ground modification methods (ground improvement) supporting conventional shallow foundations.

Structural mitigation measures for the impacts of the seismic settlements of shallow foundations could be implemented by the Structural Engineer. The risk associated with not mitigating seismic settlement by the methods in the above paragraph should be fully understood. With proper structural mitigation measures, the risk would include the building not being fully functional after a design seismic event causing the predicted seismic settlement. The floor slab and footings of the building may need to be re-leveled by compaction grouting or underpinning following a seismic event. The utility connections may also need to be repaired. The structural mitigation must be designed such that the structure would not collapse during a design seismic event causing a life and safety issue. On past, similar projects the footings were tied together with grade beams to help mitigate the impacts of seismic settlement and supported on a relatively thick layer of properly compacted soil. The details of the structural mitigation should be determined by the Project Structural Engineer.

Other potential structural mitigation methods are also provided in “Foundation Type” section of this report.

Pile foundations should be designed to resist both static loads and downdrag loads caused from seismic settlement by embedding the pile to sufficient depths below the liquefiable soil layers.

We reviewed typical methods used in Southern California such as vibro-replacement (stone columns), deep soil mixing (soil-cement columns), and rammed aggregate piers.

Vibro-replacement utilizes a large vibrating probe (mandrel) to create a cavity which is filled with gravel or crushed stone, and compacted as the mandrel is removed. The result is a stone column with the stone pushed laterally into the soil. Based on past discussions with a geotechnical specialty contractor, stone columns would not be effective to reduce the total settlements (static and seismic) due high silt or clay content of liquefiable soils, and relatively thin layers of liquefiable soils at the site. Stone columns are effective for densifying thicker, clean, loose sand layers, which are not prevalent at the site.

Rammed aggregate piers consist of drilled holes that are filled with aggregate base that is mechanically compacted as it is placed and were considered. Rammed aggregate piers are not effective in densifying surrounding soils and typically do not extend to the depth of soils exhibiting a potential for liquefaction.

Deep soil mixing involves the creation of soil/cement mixed columns extending through the soft compressible soil deposits and portion of the liquefiable soils. The resultant is similar to that of stone columns in that the method results in lower compressibility and increased shear strengths of soils below slabs and foundations. Deep soil mixing can reduce both anticipated static and seismic settlement in both the siltier sands and the significant layers of cohesive soils at the site. The soil mixing would have to reduce the static and seismic settlements to a magnitude acceptable to the Structural Engineer (typically 1½ inches or less) in order to utilize conventional spread foundations.

The proposed structures can be supported on deep foundations. Because of the anticipated seismic settlement, a pile supported structural slab would also be needed, if the previously described settlements are not tolerable and risk of floor slab damage is not acceptable. In order to limit settlement to an acceptable value, pile foundations would need to resist the downdrag of soils from liquefaction occurring above a depth of 45 feet. The total length of the piles to support this downdrag load as well as the building loads would likely be on the order of 65 to 75 feet. For the single story buildings proposed at the site, pile foundations are not likely to be economically feasible. If pile foundations were to be selected for the project, it is our opinion that the most feasible type of deep foundation would be an Augercast Pile. This type of foundation consists of a pressure-grouted pile constructed in a hollow-stem auger. The pile is especially suited for construction below groundwater. If desired, supplemental recommendations can be provided.

If mat foundations or shallow foundations with structural mitigation are not acceptable for any of the buildings, an evaluation should be made if pile foundations or deep soil mixing are economically feasible for the single story buildings planned for the site. Our report can be provided to specialty design-build contractors experienced in deep soil mixing and/or augercast piles to determine which of these methods appear to be the most cost effective to sufficiently reduce settlement of the buildings.

4.3 SEISMIC CONSIDERATIONS

4.3.1 General

The site is located in a seismically active area and is likely to be subjected to strong ground shaking due to earthquakes on nearby faults.

We assume the seismic design of the proposed development will be in accordance with the California Building Code, 2016 edition. For the 2016 CBC, a Soil Class D may be used. The seismic code values can be obtained directly from the tables in the building code using the above values and appropriate United States Geological Survey web site (earthquake.usgs.gov). The Project Structural Engineer should determine the seismic design method.

4.3.2 Strong Ground Motion Potential

Based on published information (earthquake.usgs.gov), the most significant fault in the proximity of the site is the San Andreas Fault, which is located about 2½ miles from the site.

During the life of the project, the site will likely be subject to strong ground motions due to earthquakes on nearby faults. Based on the USGS website (earthquake.usgs.gov), we computed that the site could be subjected to a peak ground acceleration (PGA_M) of 0.80g for a magnitude 6.9 earthquake. This acceleration has been computed using the mapped Maximum Considered Geometric Mean peak ground acceleration from ASCE 7-10 (ASCE, 2010) and a site coefficient (F_{PGA}) based on site class. The predominant earthquake magnitude was determined using a 2-percent probability of exceedance in a 50-year period, or an average return period of 2,475 years. The structural design will need to incorporate measures to mitigate the effects of strong ground motion.

4.3.3 Potential for Ground Rupture

There are no known active faults crossing or projecting through the site. The site is not located in an Alquist-Priolo Earthquake Fault Zone. Therefore, ground rupture due to faulting is considered unlikely at this site.

4.3.4 Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils undergo a temporary loss of strength during severe ground shaking and acquire a degree of mobility sufficient to permit ground deformation. In extreme cases, the soil particles can become suspended in groundwater, resulting in the soil deposit becoming mobile and fluid-like. Liquefaction is generally considered to occur primarily in loose to medium dense deposits of saturated sandy soils. Thus, three conditions are required for liquefaction to occur: (1) a sandy soil of loose to medium density; (2) saturated conditions; and (3) rapid, large strain, cyclic loading, normally provided by earthquake motions.

The site is located within an area mapped by the City of Coachella as having a potential for soil liquefaction (City of Coachella, 2014). The State of California has not determined a historical high groundwater depth in the project area. Groundwater was encountered at depths of 14 to 20 feet below existing grades immediately after drilling in our recent explorations.

Revisions to the 2016 California Building Code, ASCE 7-10, and Special Publication 117A (CGS, 2008) require that the ground motion used for this evaluation be based on the Peak Ground Acceleration (PGA_M) adjusted for site class effects. This value is computed using the mapped Maximum Considered Geometric Mean (MCE_G) peak ground acceleration for a Site Class B and a site coefficient, F_{PGA}. In accordance with the 2016 CBC, we considered a ground acceleration of 0.80g for a magnitude 6.9 earthquake for our analyses, which corresponds to the PGA_M obtained using the methods described above.

The potential for liquefaction was evaluated using the methods presented by the NCEER and updated by Robertson (Robertson, 2009) and modifications provided in Special Publication 117A. Criterion for liquefaction susceptibility of the fine-grained soils was based on methods presented in Bray and Sancio (2006). We used a groundwater depth of 10 feet for our evaluations.

The soils encountered in our CPT's below the groundwater level are predominantly layers of medium dense to dense silty sands interbedded with layers of firm to very stiff layers of silts and clays. At depths of approximately 35 to 45 feet, the layers of silty sands generally become dense to very dense and silts and clays become very stiff to hard.

In general, the clays below foundation and groundwater level are resistant to liquefaction based on criteria in Bray and Sancio (2006). This conclusion is based upon the plasticity indices of soils below design water level being greater than 12. A portion of the clays have plasticity indices between 12 and 18, which are more resistant to liquefaction but susceptible to cyclic mobility.

Based on our evaluation of the field data, generally isolated and thin layers of silty sands occurring at depths of approximately 10 to 55 feet exhibit a potential for liquefaction. Based on our analyses, we computed an overall potential seismic-induced liquefaction settlement of 2½ to 3 inches. Differential seismic settlement is estimated to be 1¼- to 2-inches across a span of 40 feet.

4.3.5 Lateral Spreading

A potential result of soil liquefaction at the site is lateral spreading. Lateral spreading is defined as the horizontal movement of soils resulting from the loss of shear strength during liquefaction combined with either a sloping ground surface or a nearby free face condition. Conditions contributing to the potential for lateral spreading include the extent and severity of liquefaction, grain size of liquefiable materials, distance to the causative fault, and extent of surficial grade changes.

The unlined storm water channel on the east side of the site is an open face excavation (free face condition) with an estimated depth on the order of approximately 6 to 8 feet. The slope to the storm water channel is approximately 100 to 150 feet from the western property line at the site. The project site is essentially flat with a very minor ground slope of about 0.3 percent towards the southeast paralleling the storm water channel.

These conditions along with the liquefaction potential of underlying soils are consistent with areas that may be subject to lateral spreading.

We evaluated the potential for lateral spreading towards the open face excavation of the storm water channel. A lateral displacement was determined using the calculated Lateral Displacement Index (LDI) as described by Zhang et. al. (2004) for the site geometry. The analyses evaluate the topographic and subsurface information to determine the potential lateral displacement induced by the movement of the site towards the free face caused by severe liquefaction of a continuous layer beneath the site.

The LDI was calculated for soil layers having the potential for liquefaction utilizing the CPT data for the site, we calculated LDI for the CPT's within the western boundary of the project site. Utilizing this geometry and the analytical method described above, we determined the potential total lateral-spreading induced displacement from approximately 3 to 12 inches could occur at the western portion of the site.

As the discussed above, lateral spreading requires continuous liquefiable layers across the site in a westerly direction to the drainage channel. We reviewed 9 cross sections of CPT data toward the channel. Evidence of distinct and consistent liquefiable layers across the site toward the channel could only be identified in a few of the cross sections. Based on this data, lateral spreading has a moderate potential to adversely impact the site in limited areas of the site with displacements on the order discussed above.

Other empirical methods (Youd,1997) indicate that for lateral spreading to occur, the layers subject to liquefaction should be continuous across the site and have an overburden-normalized standard penetration test blowcount (sandy soils) of less than 15. Our data did not indicate continuous layers across the site with these blowcounts.

If mat foundations or footings tied together with grades beams are used to support the buildings, minor amounts of lateral spreading as discussed above is not expected to adversely impact the building from a life and safety standpoint. Some minor displacement of the buildings, utility connections, and parking lot along the west side of the site due to lateral spreading in the event of a design earthquake may occur but repairing the structures, pavements and other site improvements would likely be more cost-effective than ground improvement methods. Ground improvement required to resist the potential impacts of lateral spreading would likely consist of a deep barrier wall with multiple rows of soil-cement columns along the entire western boundary of the property.

4.4 EARTHWORK

The earthwork anticipated at the project site will consist of clearing, overexcavation of disturbed and natural soils, subgrade preparation, and placement and compaction of fill.

4.4.1 Clearing

Prior to grading, the areas to be developed should be stripped of vegetation, pavements, foundations, and cleared of all debris. Buried obstructions, such as utilities and tree roots, should be removed. Although none were encountered, any cesspools or septic systems exposed during construction should be removed in their entirety. The resulting excavation should be backfilled as recommended in the "Subgrade Preparation" and "Placement and Compaction of Fill" sections of this report. As an alternative, cesspools can be backfilled with a lean sand-cement slurry. Deleterious materials generated during the clearing operations should be removed from the site. At the conclusion of the clearing operations, a representative of GPI should observe and accept the site prior to any further grading.

4.4.2 Excavations

Excavations at the site will include removal of unsuitable soils, foundation excavations and trenching for utility lines.

Prior to placement of fills or construction of the buildings, existing disturbed soils and a portion of the dry, compressible natural soils within the building areas should be removed and replaced as properly compacted fill. These materials require densification to provide uniform and adequate support of foundations, slab-on-grade floors, and pavements.

For planning purposes, we recommend that removals within footprints of buildings supported on spread footings extend to 7 feet below existing grades or 5 feet below footings, whichever is deeper. We recommend that removals within the footprints of buildings supported on mat foundations extend to 4 feet below existing grades or 2 feet below foundations, whichever is deeper. The purpose of these removals is to remove and recompact the dry, low-density natural soils near the ground surface and disturbed soils, if encountered. If undocumented fills are encountered within the building footprints, we also recommend removal and replacement as properly compacted fill.

In proposed pavement areas, removals should extend to 2-feet below existing grades. Existing grade refers to elevations at locations of explorations.

The actual depths of removal will need to be confirmed in the field during grading by a representative of GPI.

The depth of removals may be reduced by 2-feet if the exposed subgrade soils in the building and parking areas are moisture conditioned and densified in-place using heavy vibratory equipment as discussed in “Subgrade Preparation”. The contractor will need to demonstrate that the recommended compaction has been achieved by provided test pits for access for density testing.

The removals should extend laterally beyond the edge of footing a minimum distance equal to the depth of overexcavation/compaction below finish grade (i.e. a 1:1 projection below the edge of footings).

Where not removed by the aforementioned excavations, existing utility trench backfill should be removed and replaced as properly compacted fill. This is especially important for deeper fills such as existing sewers and storm drains. For planning purposes, removals over the utilities should extend to within 1-foot of the top of the pipe. For utilities, which are 5 feet or shallower, the removal should extend laterally 1-foot beyond both sides of the pipe. For deeper utilities, the removals should include a zone defined by a 1:1 projection upward (and away from the pipe) from each side of the pipe. The actual limits of removal will be confirmed in the field. We recommend that all known utilities be shown on the grading plan.

Temporary construction excavations may be made vertically without shoring to a depth of 4 feet below adjacent grade. For deeper cuts up to 10 feet, the slopes should be properly shored or sloped back to at least 1:1 or flatter. Caving should be anticipated in excavations attempted in dry sands or below the groundwater level. As such, dewatering, shoring, excavation, and backfill methods should be developed by the contractor for structures or utilities that are anticipated to extend below the groundwater. Surcharge loads should not be permitted within a horizontal distance equal to the height of cut from the top of the excavation or 5 feet from the top of the slopes, whichever is greater, unless the cut is properly shored. Excavations that extend below an imaginary plane, inclined at 45 degrees below the edge of any adjacent existing site facilities, should be properly shored to maintain support of adjacent elements. All excavations and shoring systems should meet the minimum requirements given in the most current State of California Occupational Safety and Health Standards.

4.4.3 Subgrade Preparation

After the recommended cuts and removals are performed and prior to placing fills or construction of the proposed improvements, the subgrade soils should be scarified to a depth of 12 inches, moisture conditioned, and compacted to at least 95 percent (90 percent cohesive soils) of the maximum dry density, determined in accordance with ASTM D1557. Moistening of the dry sandy soils anticipated at the site can usually be accomplished by deep ripping and liberal watering (including “rainbirds” or flooding) prior to compaction.

If the removals are reduced by 2-feet, as provided as an option in “Excavations” section of this report, the exposed subgrade soils in building and parking areas should be moisture-conditioned and proofrolled a minimum of six passes with a heavy vibratory pad-foot-roller (minimum 40,000 pounds dynamic force) until the soils have been compacted to at least 95 percent (90 percent cohesive soils) of maximum dry density. Proofrolling should continue until the required compaction has been achieved to a depth of at least 2 feet below the exposed subgrade, as measured by in-place density testing.

The fill soils within the upper 12 inches below building floor slabs and the pavement base should be compacted to dry densities equal to at least 95 percent (90 percent cohesive soils) of maximum dry density (ASTM D-1557).

4.4.4 Material for Fill

The surficial on-site soils are, in general, suitable for use as compacted fill. On-site clays, if encountered, should not be used where non-expansive fill is specified or recommended. Imported fill material should be predominately granular (containing no more than 40 percent fines - portion passing No. 200 sieve) and non-expansive (Expansion Index of 20 or less). The import should also exhibit a minimum R-value of 40, consistent with the existing near surface soils. GPI should be provided with a sample (at least 50 pounds) and notified of the location of soils proposed for import at least 72 hours in advance of importing. Each proposed import source should be sampled, tested and accepted for use prior to delivery of the soils to the site. Soils imported prior to acceptance by GPI may be rejected if not suitable.

Soils used for compacted fills should not contain particles greater than 6 inches in size.

While not anticipated at the site, on-site inert demolition debris, such as concrete and asphalt, may be reused in the compacted fills provided approval is provided by the reviewing regulatory agency and the owner. The material should be crushed to the consistency of aggregate base and blended with the on-site or imported soils.

4.4.5 Placement and Compaction of Fills

Fill soils should be placed in horizontal lifts, moisture-conditioned, and mechanically compacted to at least 95 percent (90 percent cohesive) for of the maximum dry density in building and pavement areas, in accordance with ASTM D-1557. In pavement areas, including the parking structure pavements on grade, the upper 12 inches should be compacted to 95 percent (90 percent for cohesive soils). The optimum lift thickness will depend on the compaction equipment used and can best be determined in the field. The following uncompacted lift thickness can be used as preliminary guidelines.

Plate Compactors	4-6 inches
Track Equipment, Small Vibratory or Static Rollers (5-ton±)	6-8 inches
Scrapers and Heavy Loaders	8-12 inches

The maximum lift thickness should not be greater than 12 inches.

Fills consisting of the on-site clays and silts should be placed at a moisture content of 1 to 3 percent over the optimum moisture content in order to achieve the required compaction. Granular fills should be placed at a moisture content of 0 to 2 percent over the optimum moisture content. The moisture content of the soils encountered in the upper 5 to 10 feet of the explorations was generally well below the optimum moisture content. As such, significant moisture conditioning (wetting) may be required prior to replacing the soils as properly compacted fill. The contractors should allow for moistening of these materials in their bids.

Once moisture conditioned and properly compacted, the exposed soils should not be allowed to dry out prior to covering. A representative of GPI should confirm the moisture content of the subgrade soils immediately prior to placement of concrete or additional fill.

During backfill of excavations, the fill should be properly benched into the construction slopes as it is placed in lifts.

4.4.6 Shrinkage and Subsidence

Shrinkage is the loss of soil volume caused by compaction of fills to a higher density than before grading. Subsidence is the settlement of in-place subgrade soils caused by loads generated by large earthmoving equipment. For earthwork volume estimating purposes, an average shrinkage value of about 15 to 20 percent and subsidence of 0.1 to 0.2 feet may be assumed for the surficial soils. These values are estimates only and exclude losses due to removal of vegetation or debris. Actual shrinkage and subsidence will depend on the types of earthmoving equipment used and should be determined during grading.

4.4.7 Trench/Wall Backfill

Utility trench and wall backfill consisting of the on-site material or imported sand should be mechanically compacted in lifts. Letting or flooding should not be permitted. The on-site silts (or clays if encountered) should not be used in retaining wall backfill. Moistening of the on-site soils should be anticipated prior to backfill. Lift thickness should not exceed those values given in the "Compacted Fill" section of this report. GPI should observe and test trench and wall backfills as they are placed.

In backfill areas where mechanical compaction of soil backfill is impractical due to space constraints, sand-cement slurry may be substituted for compacted backfill. The slurry should contain one sack of cement per cubic yard and have a maximum slump of 5 inches. Within the building area, the slurry should contain two sacks of cement per cubic yard. When set, such a mix typically has the consistency of compacted soil.

4.4.8 Observation and Testing

A representative of GPI should observe excavations, subgrade preparation, and fill placement activities. Sufficient in-place field density tests should be performed during fill placement and in-place compaction to evaluate the overall compaction of the soils. Soils that do not meet minimum compaction requirements should be reworked and tested prior to placement of any additional fill.

4.5 SHALLOW FOUNDATIONS

4.5.1 General

On similar projects, proposed buildings have been supported on spread footings tied together laterally with grade beams provided the static and seismic settlements as designed by the Project Structural Engineer.

In order to help mitigate the seismic settlements (total and differential) at the site after remedial grading, the Structural Engineer should also consider additional structural mitigation beyond connecting the footings with grade beams. The actual method of structural mitigation should be determined by the Project Structural Engineer.

As discussed in Section 4.2 “Mitigation of Settlement” of the report, mat foundations, pile foundations, or ground improvement may also be used to mitigate the potential liquefaction settlements. Recommendations for a mat foundation are provided in Section 4.5 of this report. GPI can provide recommendations for the other mitigation methods, if the static and seismic settlements (total and differential) are beyond the structural mitigation methods provided above and mat foundations are not feasible for the building type.

The subsurface soils should be prepared in accordance with the recommendations given in this report.

4.5.2 Allowable Bearing Pressures – Spread Footings

Based on the shear strength and elastic settlement characteristics of the natural and recompacted on-site soils, static allowable net bearing pressures of up to 3,000 pounds per square foot (psf) may be used for both continuous footings and isolated column footings for the proposed building addition or other lightly-loaded structures. These bearing pressures are for dead-load-plus-live-load, any may be increased one-third for short-term, transient, wind and seismic loading. The actual bearing pressure used may be less than the value presented above and can be based on economics and structural loads to determine the minimum width for footings as discussed below. The maximum edge pressures induced by eccentric loading or overturning moments should not be allowed to exceed these recommended values.

The following minimum footing widths and embedments are recommended for the corresponding allowable bearing pressure.

STATIC BEARING PRESSURE (psf)	MINIMUM FOOTING WIDTH (inches)	MINIMUM FOOTING* EMBEDMENT (inches)
3,000	48	24
2,500	24	24
2,000	18	18
1,500	15	15

* Refers to minimum depth below lowest adjacent grade at the time of foundation construction.

A minimum footing width of 15 inches should be used even if the actual bearing pressure is less than 1,500 psf.

Total static settlement of the column footings (100 kips maximum load) is expected to be on the order of 1-inch or less. Total static settlement of the wall footings (2 to 4 kips per lineal foot maximum load) is expected to be on the order of ¾-inch or less. Maximum differential settlements between similarly loaded adjacent footings or along a 40-foot span are expected to be on the order of ½-inch or less. Similar settlements are anticipated for lightly loaded structures supported on 2 feet of properly compacted fill.

The above settlements should be included with the anticipated seismic settlement caused by liquefaction when evaluating the total settlement of the building or other lightly loaded structures.

The above estimates are based on the assumption that the recommended earthwork will be performed and that the footings will be sized in accordance with our recommendations.

4.5.3 Lateral Load Resistance

Soil resistance to lateral loads will be provided by a combination of frictional resistance between the bottom of foundations and underlying soils, and by passive soil pressures acting against the embedded sides of the foundations. For frictional resistance, a coefficient of friction of 0.35 may be used for design. In addition, an allowable lateral bearing pressure equal to an equivalent fluid weight of 300 pounds per cubic foot may be used, provided the foundations are poured tight against the compacted fill. These values may be used in combination without reduction.

4.5.4 Footing Excavation Observation

Prior to placement of concrete and steel, a representative of GPI should observe and approve all footing and grade beam excavations.

4.6 MAT FOUNDATIONS

The sizes and foundation pressures for mat foundations may vary significantly for the different buildings planned for the project. We evaluated mat foundations for a warehouse building with a footprint of 160 feet by 400 feet and for an office building with a footprint of 300 feet by 75 feet. We assumed that the mat pressure for the warehouse building may be on the order of 300 psf and 150 psf for the office building. Other building sizes and mat pressure can be evaluated as the project develops.

The bearing pressure near the center of a mat (approximately 400 feet length and 160 feet width in dimension) is assumed to be on the order of 300 psf for the warehouse building. We estimate the ground surface under the center portions of the loaded area having the above dimensions and the aforementioned applied pressure will settle approximately ¾-inch. The outside edge of this area under the same loading conditions is expected to settle approximately $^3/_8$-inch. The outside corner of this area under the same loading conditions is expected to settle less than ¼-inch.

The bearing pressure near the center of a mat (approximately 300 feet length and 75 feet width in dimension) is assumed to be on the order of 150 psf for the office building. We estimate the ground surface under the center portions of the loaded area having the above dimensions and the aforementioned applied pressure will settle approximately ½-inch. The outside edge of this area under the same loading conditions is expected to settle approximately ¼-inch. The outside corner of this area under the same loading conditions is expected to settle less than ¼-inch.

The static settlements assume a uniformly applied pressure and do not include the effects (stiffness) of the mat. The actual settlement of the mat will depend on the stiffness of the mat, its ability to distribute the loads and should be determined by the Structural Engineer.

The above settlements should be included with the anticipated seismic settlement caused by liquefaction when evaluating the total settlement of the building.

For the structural analysis of the mat foundation, we recommend using an uncorrected modulus of subgrade reaction of 180 pci. This value is based on a 1-foot square bearing area and medium dense sands and stiff clays. We recommend this modulus be reduced by 75 percent to a value of 45 pci to account for the size of the mat foundation.

The allowable soil bearing pressure will be significantly greater than the average bearing pressures required for the mat foundation as discussed above. At localized thickened areas of the mat, such as columns and point of load applications, a static allowable net bearing pressure of 2,000 pounds per square foot may be used subject to the dimensions provided for spread footings. These allowable bearing pressures are for dead-plus-live loads, and may be increased one-third for short-term, transient, wind and seismic loading.

We should review the final mat design to confirm the estimated values.

4.7 FOUNDATION CONCRETE

Laboratory testing by HDR (Appendix C) indicates that the near surface soils exhibit a soluble sulfate content of 137 to 4,080 mg/kg (0.01 to 0.44 percent by weight). For the 2016 CBC, foundation concrete should conform to the requirements for severe sulfate exposure as outlined in ACI 318, Section 4.3.

4.8 BUILDING FLOOR SLABS

Slab-on-grade floors should be supported on non-expansive, granular compacted soils (Expansion Index less than 20) as discussed in the “Placement and Compaction of Fill” section. On-site clayey soils, if encountered, should not be placed within 2 feet of the finished grade in building floor slab area.

Settlement of the slab-on-grade floors should be anticipated in the event of liquefaction from a seismic event. Distress to the floor slabs may need to be repaired and/or the floor slabs may need to be releveled.

A vapor/moisture retarder should be placed under slabs that are to be covered with moisture-sensitive floor coverings (wood, vinyl, tile, etc.). Currently, common practice is to use a 10 or 15 mil polyethylene product or a 15-mil polyolefin product such as Stego Wrap for this purpose. Whether the concrete slab is placed directly on the vapor barrier or on a clean sand layer between the slab and vapor retarder is a decision for the Project Architect and General Contractor, as it is not a geotechnical issue. If covered by sand, the sand layer should be about 2 inches thick and contain less than 5 percent by weight passing the No. 200 sieve. Based on our explorations and laboratory testing, the near-surface soils at the site are not suitable for this purpose. The sand layer should be nominally compacted using light equipment. The sand placed over the vapor retarder should only be slightly moist. If the sand gets wet (for example as a result of rainfall or excessive moistening) it must be allowed to dry prior to placing concrete. Care should be taken to avoid infiltration of water into the sand layer after placement of the concrete slab, such as at slab cut-outs and other exposures. A sand layer is not required beneath the vapor retarder, but we take no exception if one is provided.

It should be noted that the material used as a vapor retarder is only one of several factors affecting the prevention of moisture accumulation under floor coverings. Other factors include maintaining a low water-cement ratio for the concrete used for the floor slab, effective sealing of joints and edges (particularly at pipe penetrations) as well as excess moisture in the concrete. The manufacturer of the floor coverings should be consulted for establishing acceptable criteria for the condition of the floor surface prior to placing moisture-sensitive floor coverings.

For lateral resistance design, a coefficient of friction value of 0.35 between aggregate base or select fill and concrete may be used. For a slab on a visqueen moisture barrier, a coefficient of 0.1 should be used. For a concrete slab on Stego Wrap, a coefficient of 0.3 may be used, which is consistent with recommendations provided by the American Concrete Institute (ACI).

For elastic design of slabs-on-grade supporting sustained concentrated loads, a modulus of subgrade reaction (k) of 180 pounds per cubic inch (pounds per square inch per inch of deflection) may be used. This value is for a 1-foot by 1-foot square loaded area and should be adjusted by the structural designer for the area of the proposed building slab using appropriate elastic theory.

Although not tested, the upper silty sands and sandy silts are anticipated to have a low potential for expansion. As such, there are no geotechnical requirements for minimum floor slab thickness or reinforcing.

4.9 LATERAL EARTH PRESSURES

Based on information available to us at the time this report was prepared, no major retaining walls or basements were planned on the site. The following recommendations are provided for walls less than 8 feet in height. We recommend that non-expansive, granular soils be used as wall backfill.

Active earth pressures can be used for designing walls that can yield at least ½-inch laterally in 10 feet of wall height under the imposed loads. For level backfill comprised of on-site granular soils, the magnitude of active pressures are equivalent to the pressures imposed by a fluid weighing 35 pounds per cubic foot (pcf). This pressure may also be used for the design of temporary excavation support.

At-rest pressures should be used for restrained walls that remain rigid enough to be essentially non-yielding. At-rest pressures imposed by a fluid weighing 52 pounds per cubic foot should be used for granular backfill.

If the design of retaining walls requires seismic earth pressures to be included, a lateral pressure equivalent to a fluid with a unit weight of 25 pcf may be used. This pressure should be combined with the active earth pressure presented above for a total lateral earth pressure (active plus seismic) equal to a fluid weighing 60 pcf. If walls are designed using at-rest pressures, a total lateral earth pressure may be limited to 60 pcf.

Walls subject to surcharge loads should be designed for an additional uniform lateral pressure equal to one-third and one-half the anticipated surcharge pressure for unrestrained and restrained walls, respectively.

The wall backfill should be well-drained to relieve possible hydrostatic pressure or designed to withstand these pressures. A drain consisting of perforated pipe and gravel wrapped in filter fabric should be used. One cubic foot of rock should be used for each lineal foot of pipe. The fabric (non-woven filter fabric, Mirafi 140N or equivalent) should be lapped at the top.

Wall footings should be designed as discussed in the "Foundations" section.

4.10 CORROSIVITY

Resistivity testing of representative samples of the on-site surficial soils by HDR indicate that the soils are severely corrosive to ferrous metals (resistivity measurements of 160 to 1,040 ohm-cm). GPI does not practice corrosion engineering. Should the use of buried metal pipe be proposed, a corrosion engineer, such as HDR, should be consulted.

4.11 DRAINAGE

Positive surface gradients should be provided adjacent to all structures so as to direct surface water run-off and roof drainage away from foundations and slabs toward suitable discharge facilities. The introduction of water into the existing fill soils can result in subsidence. Long-term ponding of surface water should not be allowed on pavements or adjacent to buildings.

4.12 EXTERIOR CONCRETE AND MASONRY FLATWORK

Exterior concrete and masonry flatwork should be supported on non-expansive, compacted fill. The use of the clayey soils, if encountered, within 2 feet of the slab subgrade should not be permitted unless differential heave is tolerable. This includes exterior sidewalks, stamped concrete, non-traffic pavement, pavers, etc. Prior to placement of concrete, the subgrade should be prepared as recommended in the "Subgrade Preparation" section of this report.

4.13 STORM WATER INFILTRATION

Current regulations require that storm water be infiltrated in the site soils of new developments when possible. The soil types present at the site control the ability of water to infiltrate into the subgrade. Based on our subsurface investigation, groundwater was encountered within 14 feet of the existing ground surface at portions of the site and the upper 15 feet of the soil profile consists predominantly of loose to medium dense silty sands and firm to stiff sandy silts.

Our analysis indicate that the silty sands and sandy silts in the upper 15 feet of the soil profile exhibit a potential for settlement from liquefaction upon saturation. Storm water infiltration into the underlying soils may adversely impact the proposed buildings and improvements as well as the adjacent public roadways. We do not recommend storm water infiltration for the subject site unless the risk is acceptable for potential liquefaction settlement of soils underlying infiltration areas.

If on-site infiltration of storm water is used, we recommend that infiltration areas adjacent to the building and property lines should be avoided. We recommend any infiltration device be located at least 40 feet from the proposed building and property lines. Storm water infiltration should also not be allowed within 10 feet vertically from the current groundwater level which excludes most buried chamber systems.

If infiltration devices are proposed for the project, the rate of infiltration should be determined by on-site percolation tests at the location and depth of the proposed infiltration devise. Infiltration tests should be performed in accordance to Riverside County guidelines (Riverside, 2011).

4.14 PAVED AREAS

Preliminary pavement design has been based on an assumed R-value of 40. The California Division of Highways Design Method was used for design of the recommended preliminary pavement sections. Final pavement design should be based on R-value testing performed near the conclusion of rough grading. The following pavement sections are recommended for planning purposes only.

PAVEMENT SUBGRADE

PAVEMENT AREA	TRAFFIC INDEX	SECTION THICKNESS (inches)	
		Asphalt Concrete	**Aggregate Base Course**
Auto Parking	4	3	4
Circulation Drives	5	3	4
Truck Drives	6	3	7
		Portland Cement Concrete	**Aggregate Base Course**
Auto Parking	4	6	---
Circulation Drives	5	6	---
Truck Drives	6	6.5	---

The pavement subgrade underlying the aggregate base or concrete should be properly prepared and compacted in accordance with the recommendations outlined under "Subgrade Preparation".

The Portland cement concrete used for paving should have a modulus of rupture of at least 550 psi (equivalent to an approximate compressive strength of 3,700 psi) at the time the pavement is subjected to truck traffic.

The pavement base course (as well as the top 12 inches of the subgrade soils) should be compacted to at least 95 percent of the maximum dry density (ASTM D-1557). Aggregate base should conform to the requirements of Section 26 of the California Department of Transportation Standard Specifications for Class II aggregate base (three-quarter inch maximum) or Section 200-2 of the Standard Specifications for Public Works Construction (Green Book) for untreated base materials, excluding processed miscellaneous base.

The above recommendations are based on the assumption that the base course and compacted subgrade will be properly drained. The design of paved areas should incorporate measures to prevent moisture build-up within the base course which can otherwise lead to premature pavement failure. For example, curbing adjacent to landscaped areas should be deep enough to act as a barrier to infiltration of irrigation water into the adjacent base course.

4.15 GEOTECHNICAL OBSERVATION AND TESTING

We recommend that a representative of GPI observe earthwork during construction to confirm that the recommendations provided in our report are applicable during construction. The earthwork activities include grading, compaction of fills, subgrade preparation, pavement construction and foundation excavations. If conditions are different than expected, we should be afforded the opportunity to provide an alternate recommendation based on the actual conditions encountered.

5.0 LIMITATIONS

The report, exploration logs, and other materials resulting from GPI's efforts were prepared exclusively for use by Haagen Co., LLC and their consultants in designing the proposed development. The report is not intended to be suitable for reuse on extensions or modifications of the project or for use on any project other than the currently proposed development as it may not contain sufficient or appropriate information for such uses. If this report or portions of this report are provided to contractors or included in specifications, it should be understood that they are provided for information only.

Soil deposits may vary in type, strength, and many other important properties between points of exploration due to non-uniformity of the geologic formations or to man-made cut and fill operations. While we cannot evaluate the consistency of the properties of materials in areas not explored, the conclusions drawn in this report are based on the assumption that the data obtained in the field and laboratory are reasonably representative of field conditions and are conducive to interpolation and extrapolation.

Furthermore, our recommendations were developed with the assumption that a proper level of field observation and construction review will be provided during grading, excavation, and foundation construction by GPI. If field conditions during construction appear to be different than is indicated in this report, we should be notified immediately so that we may assess the impact of such conditions on our recommendations. If construction phase services are performed by others they must accept full responsibility for all geotechnical aspects of the project including this report.

Our investigation and evaluations were performed using generally accepted engineering approaches and principles available at this time and the degree of care and skill ordinarily exercised under similar circumstances by reputable Geotechnical Engineers practicing in this area. No other representation, either expressed or implied, is included or intended in our report.

Respectfully submitted,
Geotechnical Professionals Inc.

Donald A. Cords, G.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
DONALD A. CORDS
No. GE 2529
GEOTECHNICAL
STATE OF CALIFORNIA

James E. Harris, G.E.
Principal

SEP 25 2018

REGISTERED PROFESSIONAL ENGINEER
JAMES E. HARRIS, IV
No. GE 2100
GEOTECHNICAL
STATE OF CALIFORNIA

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BASE MAP REPRODUCED FROM GOOGLE MAPS © 2018

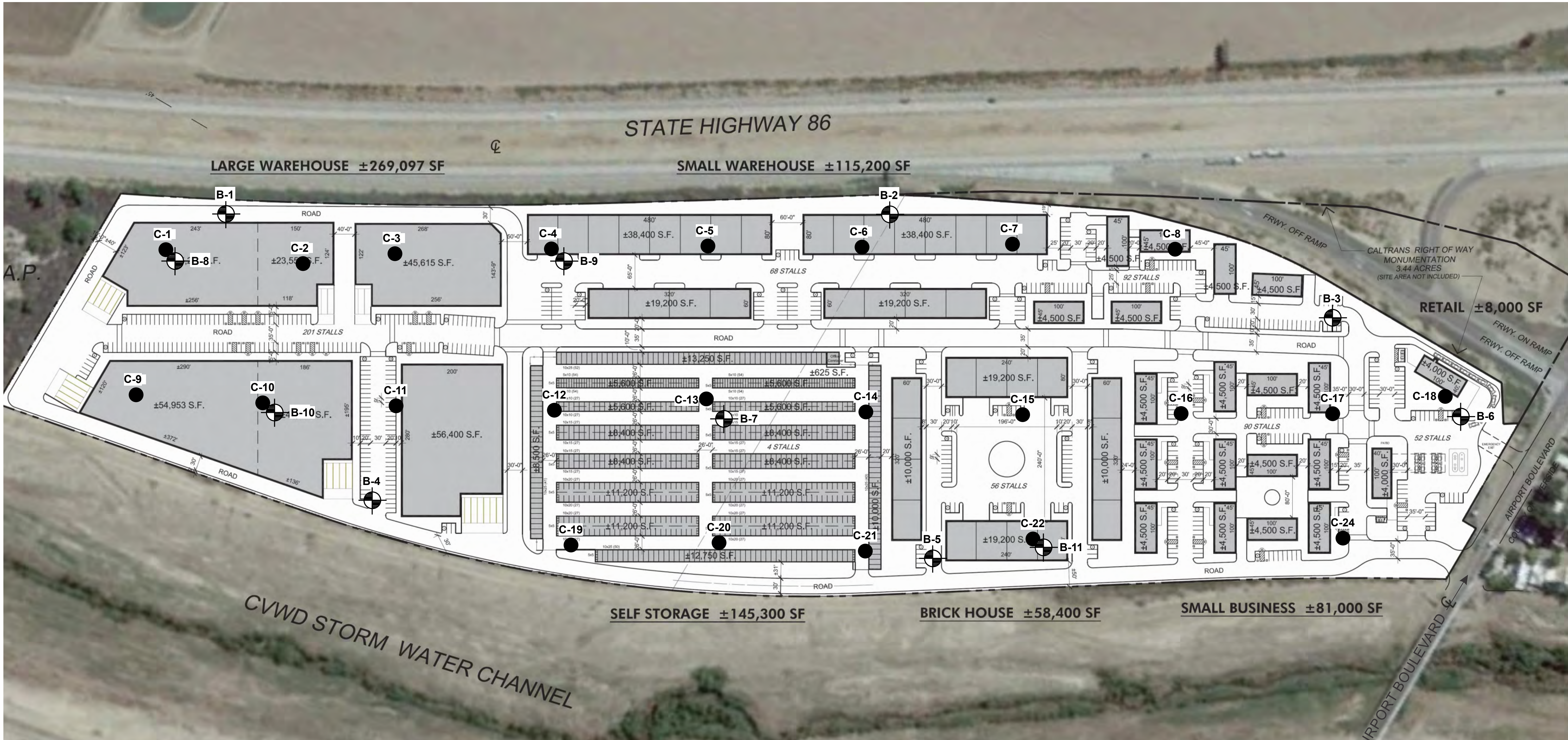
GEOTECHNICAL PROFESSIONALS, INC.

COACHELLA BUSINESS PARK

GPI PROJECT NO.: 2884.I	SCALE: 1" = 3000'

SITE LOCATION MAP

FIGURE 1



EXPLANATION

B-11 APPROXIMATE LOCATION AND NUMBER OF EXPLORATORY BORING

C-24 APPROXIMATE LOCATION AND NUMBER OF CONE PENETRATION TEST

0 200 400 FEET

BASE MAP REPRODUCED FROM PROPOSED SITE PLAN BY MCKENTLY MALAK ARCHITECTS DATED 5/1/18

GPI GEOTECHNICAL PROFESSIONALS, INC.

COACHELLA BUSINESS PARK

GPI PROJECT NO.: 2884.I

SCALE: 1" = 200'

SITE PLAN

FIGURE 2

APPENDIX A

APPENDIX A

CONE PENETRATION TESTS

Twenty-three Cone Penetration Tests (CPT's) were performed at the site. The soundings were advanced to depths of 50 to 80 feet below existing grades. One proposed CPT was not performed due to the location being inaccessible due to soft sands. The locations of the CPT's are shown on the Site Plan, Figure 2.

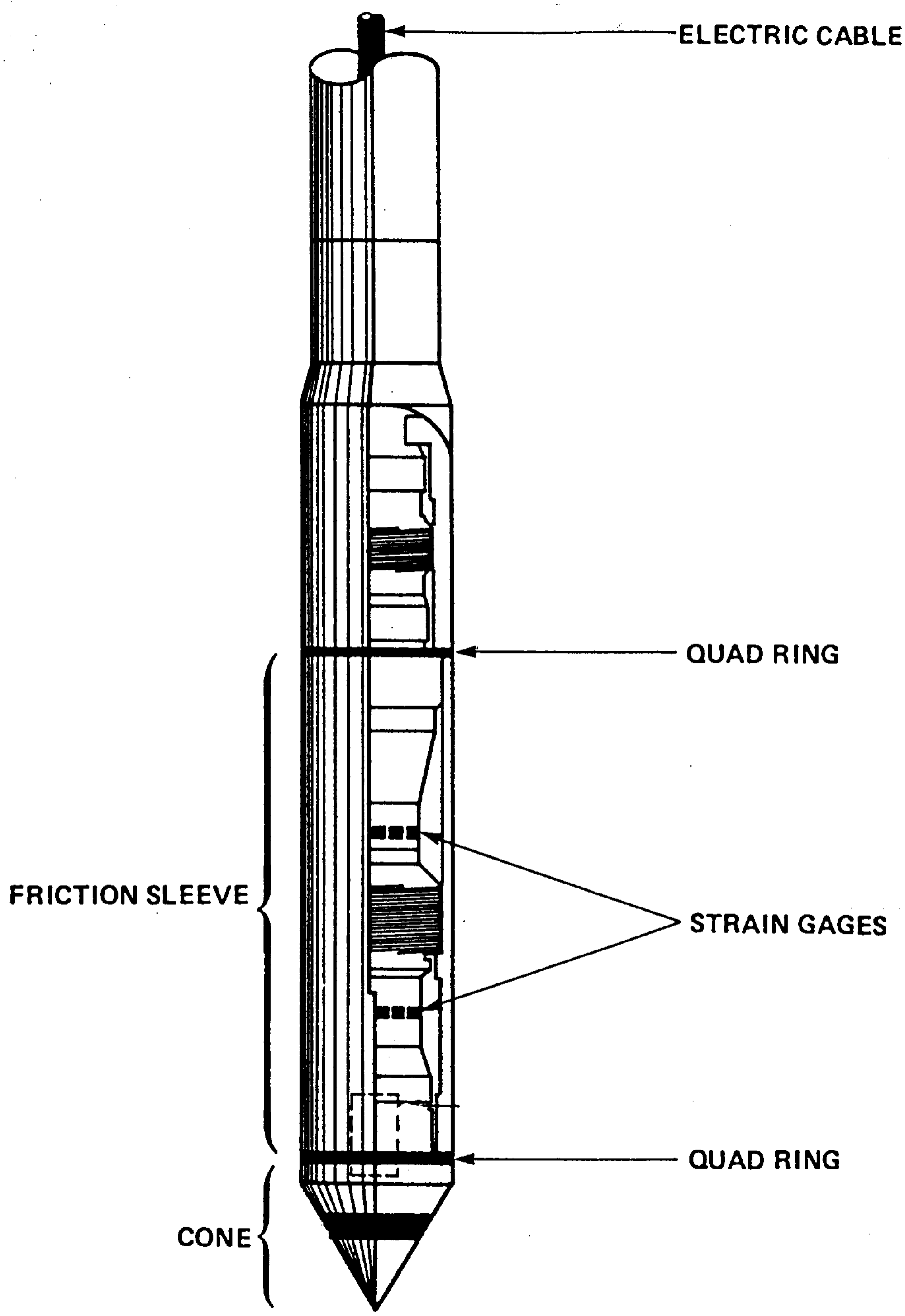
The Cone Penetration Test consists of pushing a cone-tipped probe into the soil deposit while simultaneously recording the cone tip resistance and side friction resistance of the soil to penetration (refer to Figure A-1). The CPT described in this report was conducted in general accordance with ASTM specifications (ASTM D 5778) using an electric cone penetrometer.

The CPT equipment consists of a cone assembly mounted at the end of a series of hollow sounding rods. A set of hydraulic rams is used to push the cone and rods into the soil while a continuous record of cone and friction resistance versus depth is obtained in both analog and digital form at the ground surface. A specially designed truck is used to transport and house the test equipment and to provide a 30-ton reaction to the thrust of the hydraulic rams.

Standard data obtained during a CPT consists of continuous stratigraphic information with close vertical resolution. Stratigraphic interpretation is based on relationships between cone tip resistance and friction resistance. The calculated friction ratio (CPT friction sleeve resistance divided by cone tip resistance) is used as an indicator of soil type. Granular soils typically have low friction ratios and high cone resistance, while cohesive or organic soils have high friction ratios and low cone resistance. These stratigraphic material categories form the basis for all subsequent calculations which utilize the CPT data.

Computer plots of the reduced CPT data acquired for this investigation are presented in Figures A-2 through A-24 of this appendix. The field testing and computer processing was performed by Kehoe Testing and Engineering under subcontract to Geotechnical Professionals Inc. (GPI). The interpreted soil descriptions were prepared by GPI.

The CPT locations were laid out in the field by measuring from existing site features. Ground surface elevations at the CPT locations were estimated from topographic map dated July 5, 2018 by The Altum Group using a project datum and should be considered approximate. The project datum is 500 feet greater than actual MSL elevations to avoid negative elevations.



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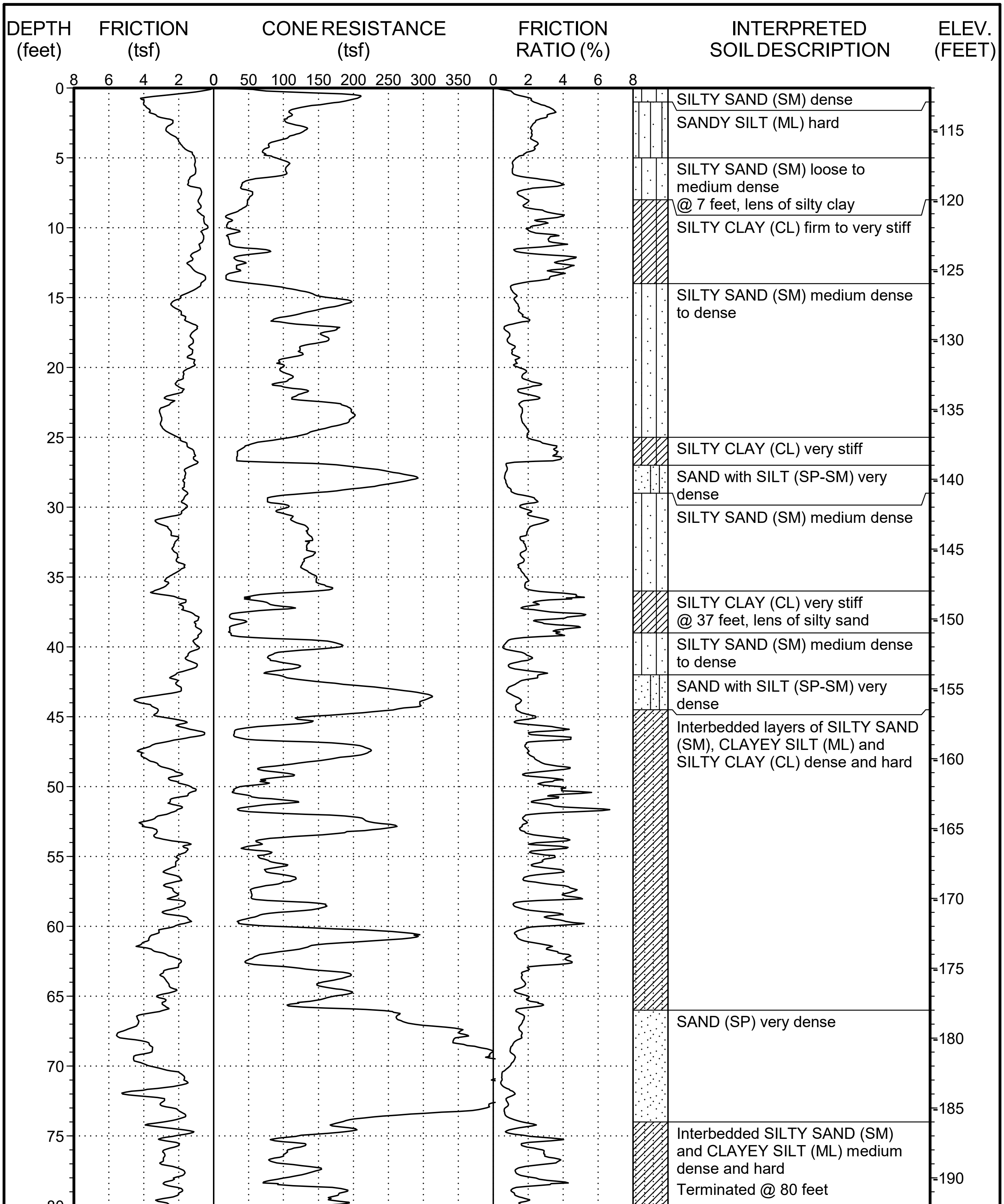
CONE PENETROMETER

FIGURE A-



Date performed: 7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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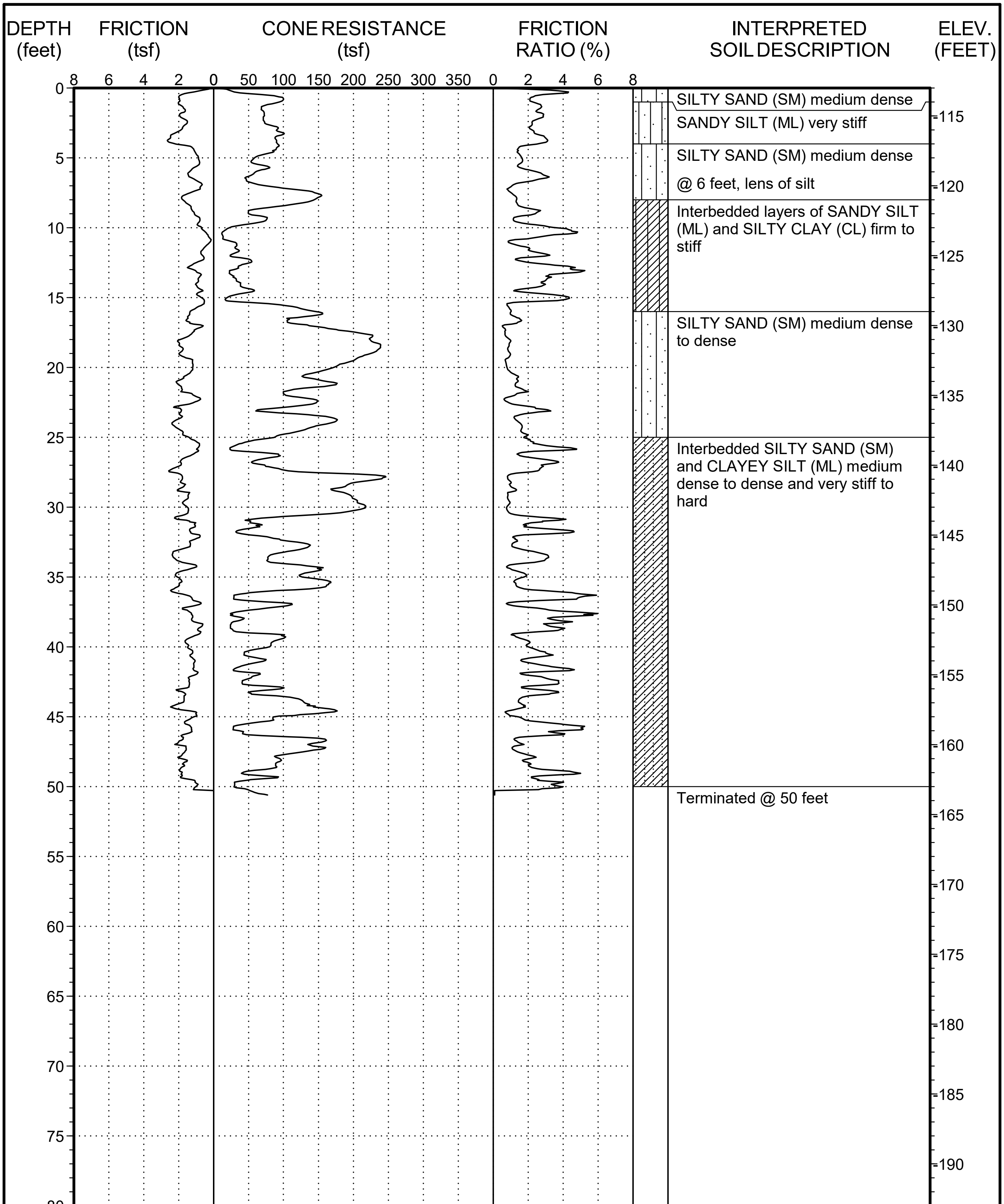
LOG OF CPT NO. C-1

FIGURE A-2



Date performed:7-23-18

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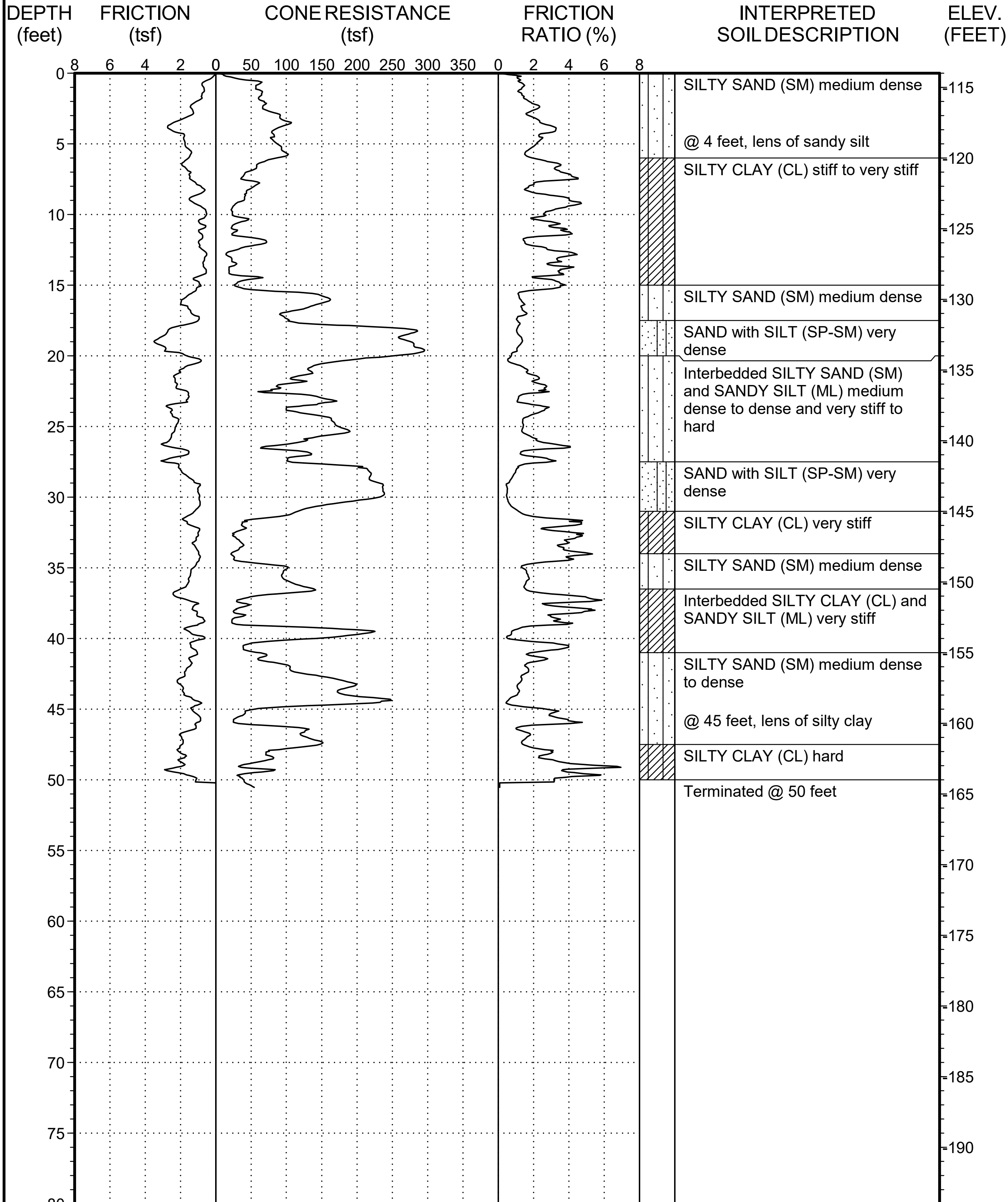
LOG OF CPT NO. C-2

FIGURE A-3



Date performed:7-20-18

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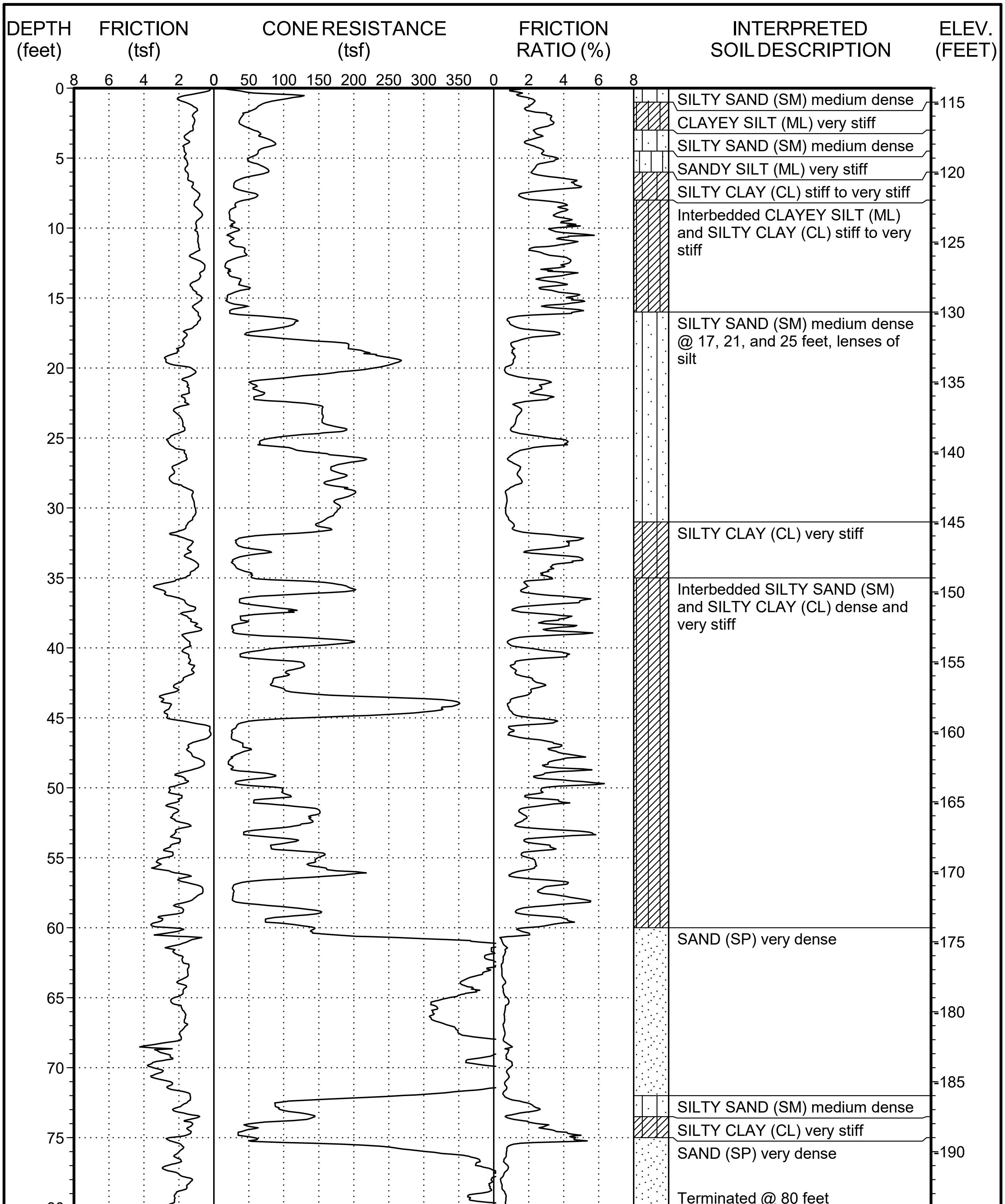
LOG OF CPT NO. C-3

FIGURE A-4



Date performed: 7-20-18

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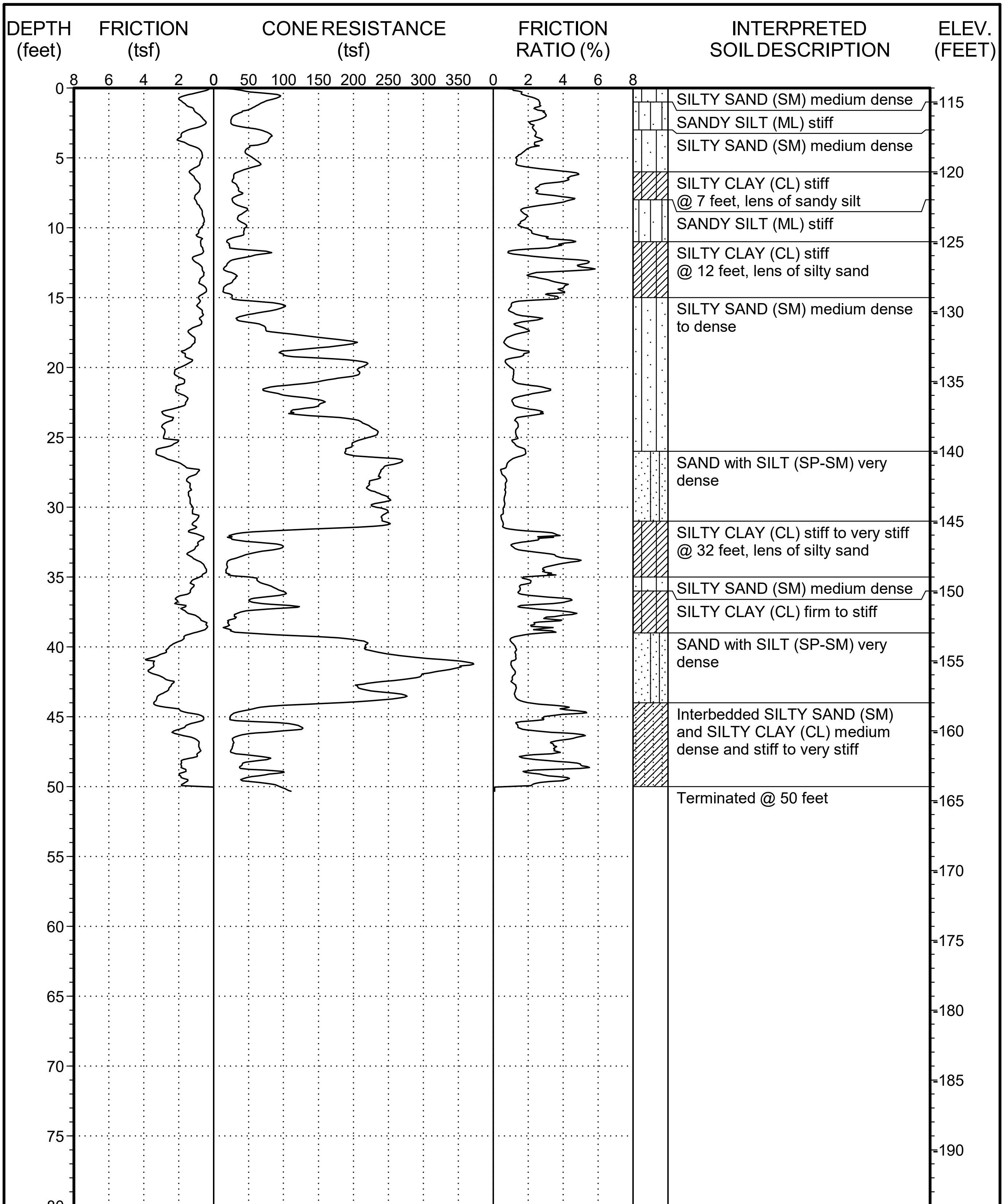
LOG OF CPT NO. C-4

FIGURE A-5



Date performed:7-20-18

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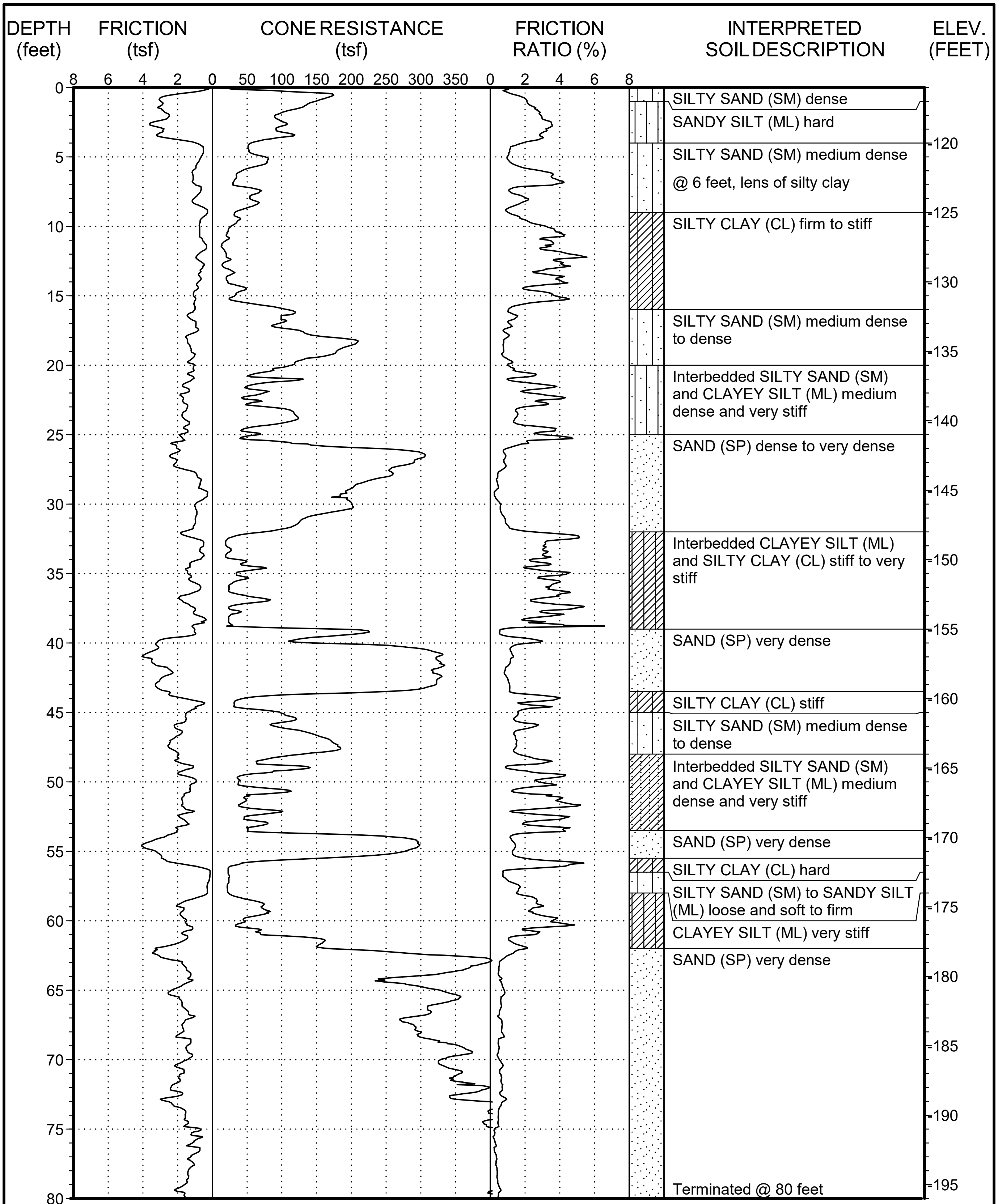
LOG OF CPT NO. C-5

FIGURE A-6



Date performed:7-23-18

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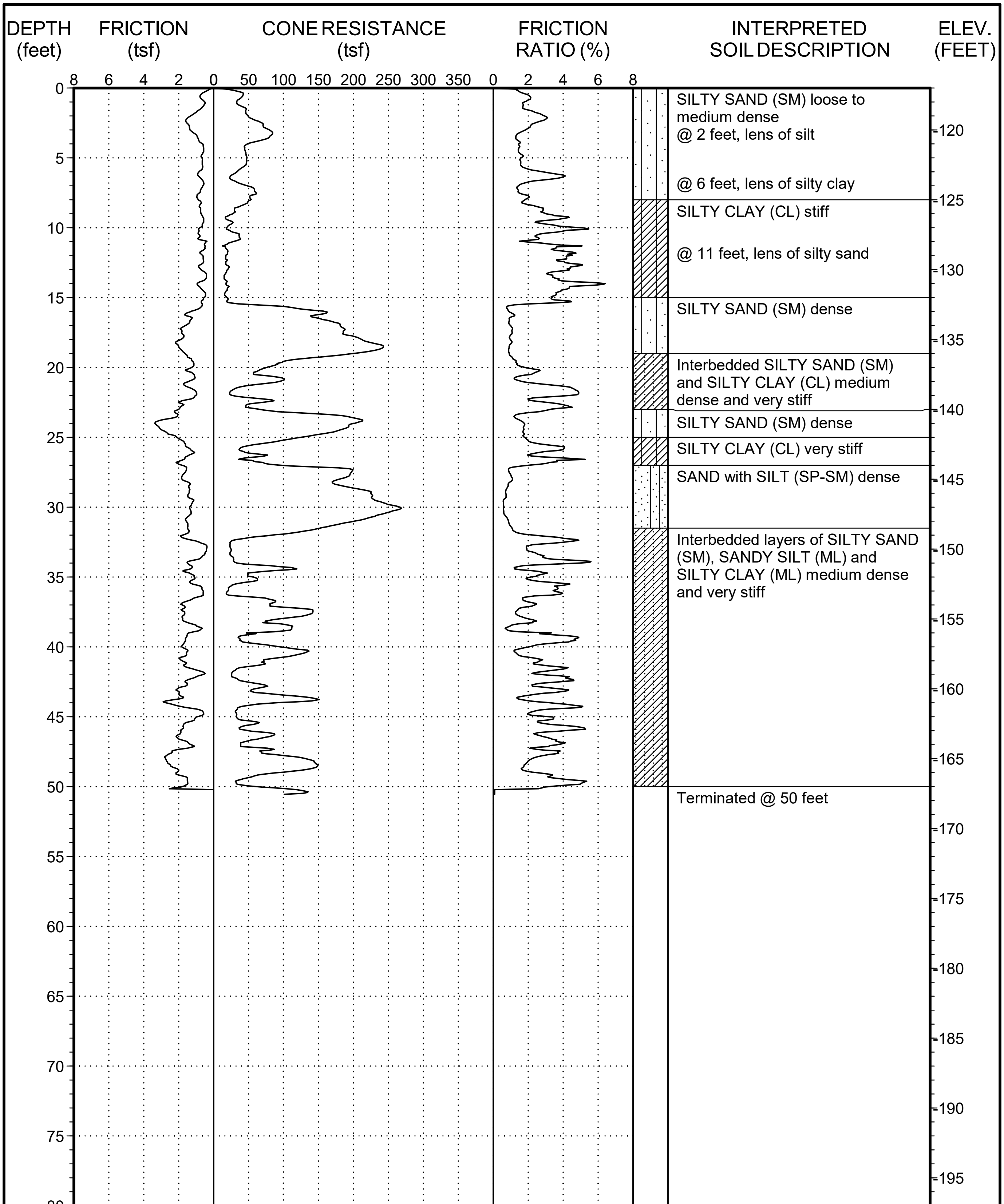
LOG OF CPT NO. C-6

FIGURE A-7



Date performed:7-20-18

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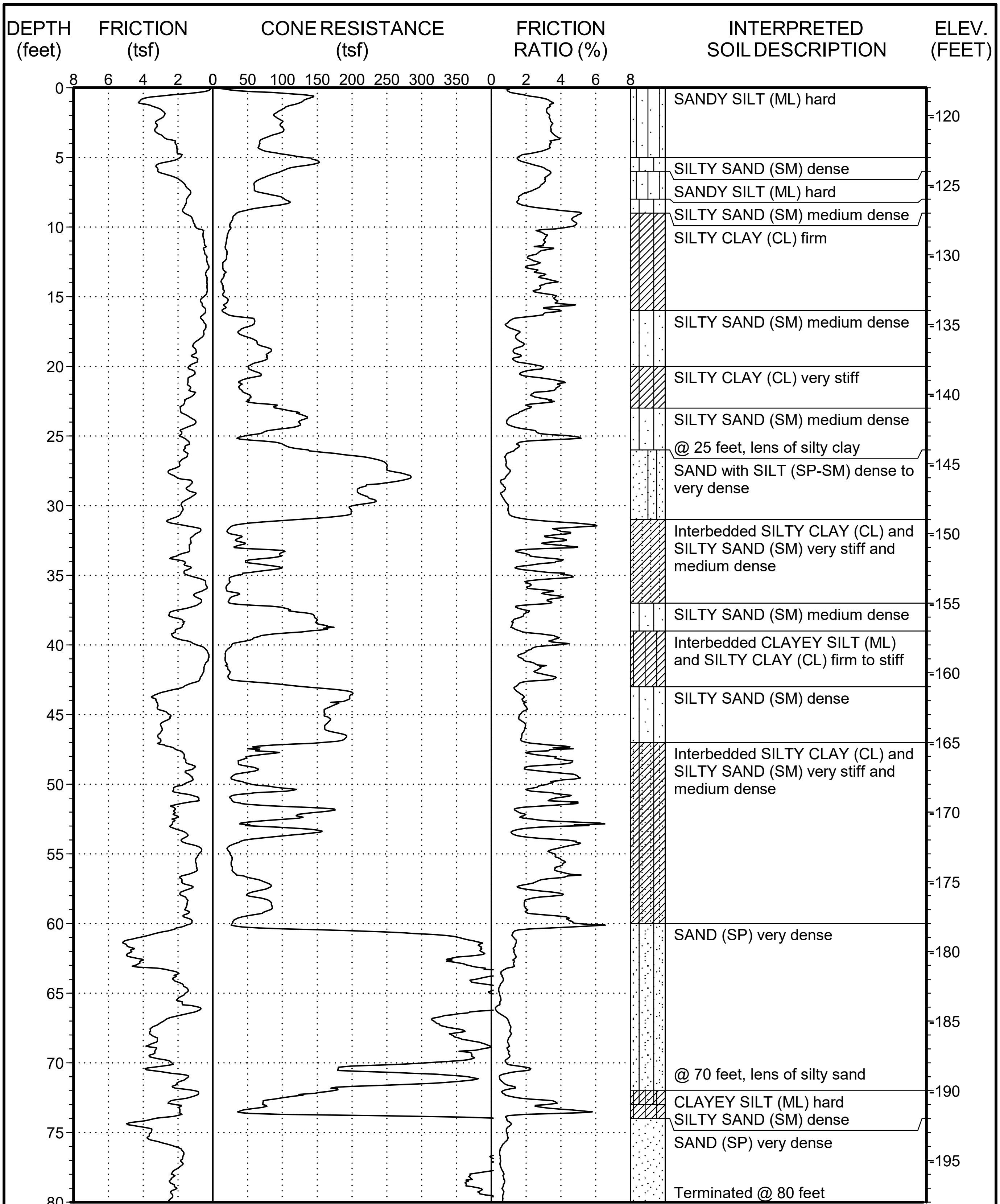
LOG OF CPT NO. C-7

FIGURE A-8



Date performed: 7-20-18

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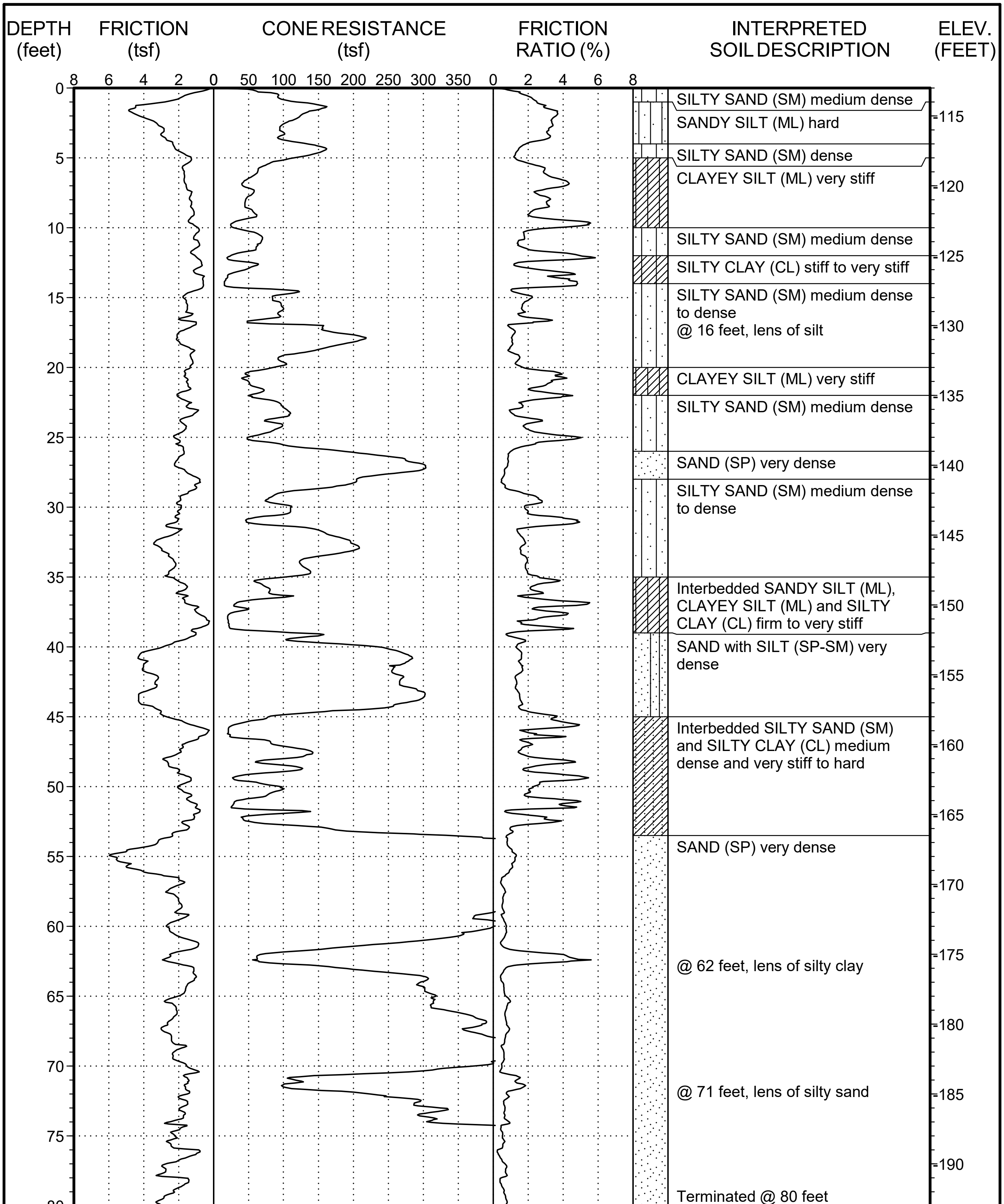
LOG OF CPT NO. C-8

FIGURE A-9



Date performed:7-23-18

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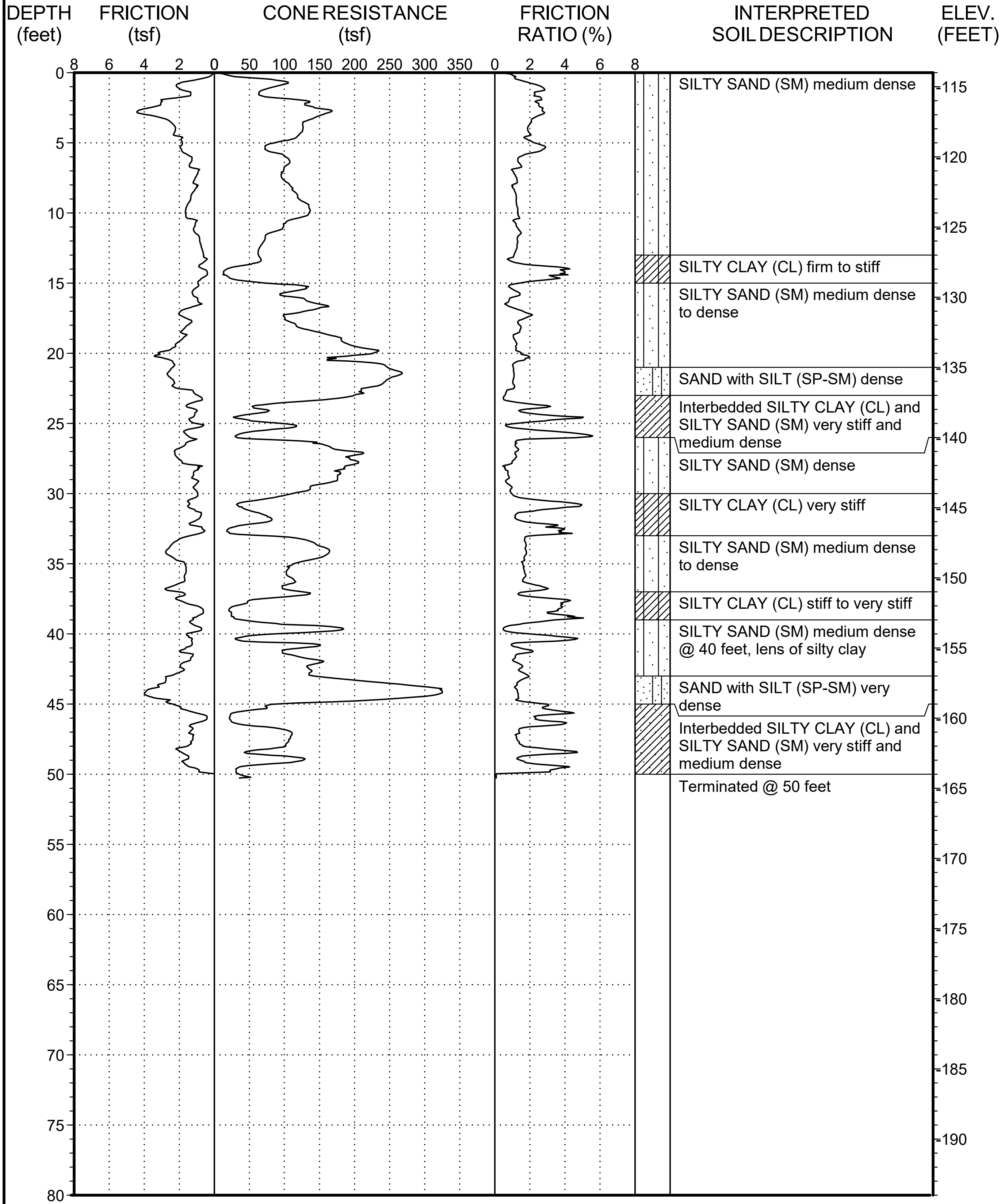
LOG OF CPT NO. C-9

FIGURE A-10



Date performed: 7-23-18

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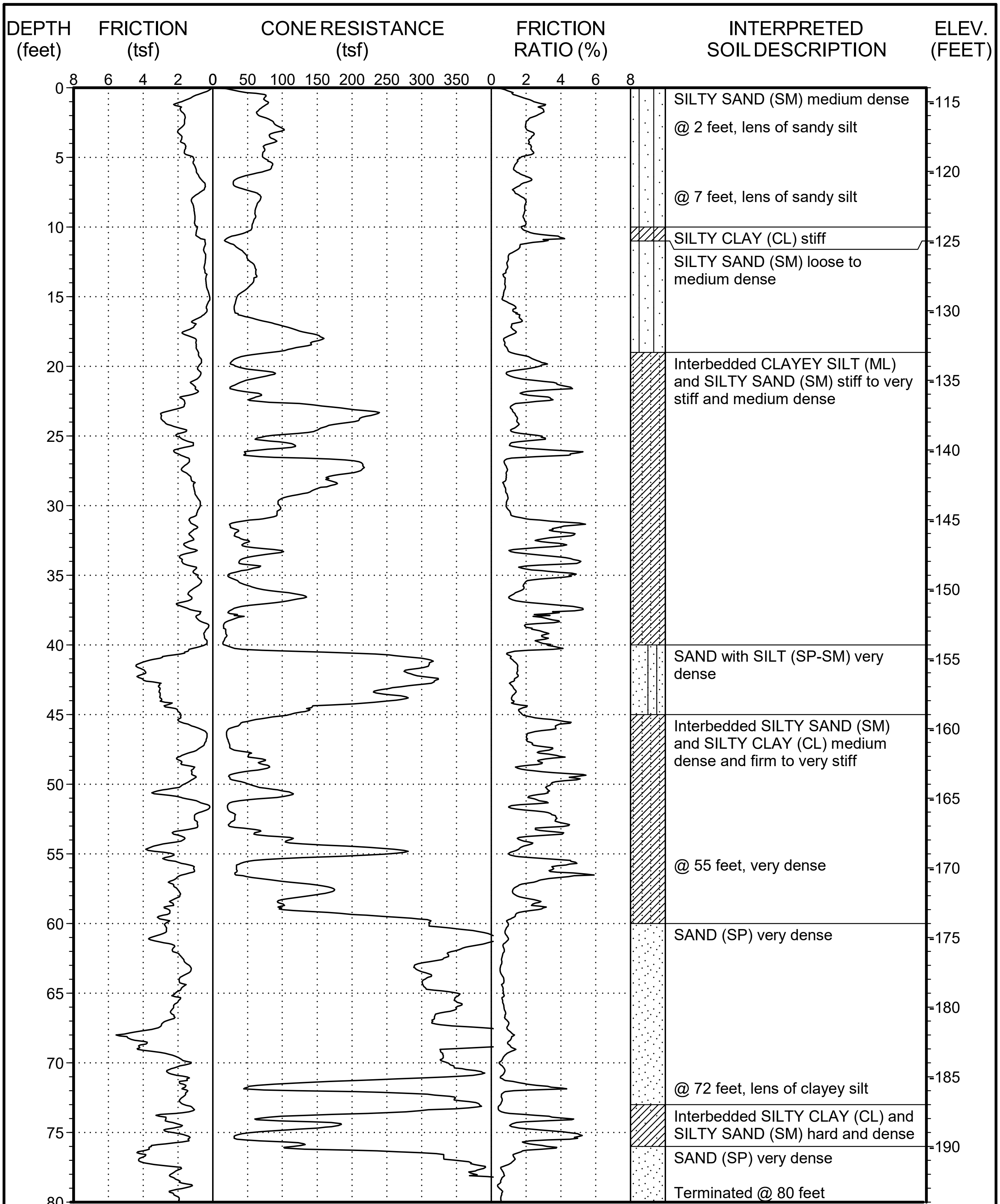
LOG OF CPT NO. C-10

FIGURE A-11



Date performed: 7-23-18

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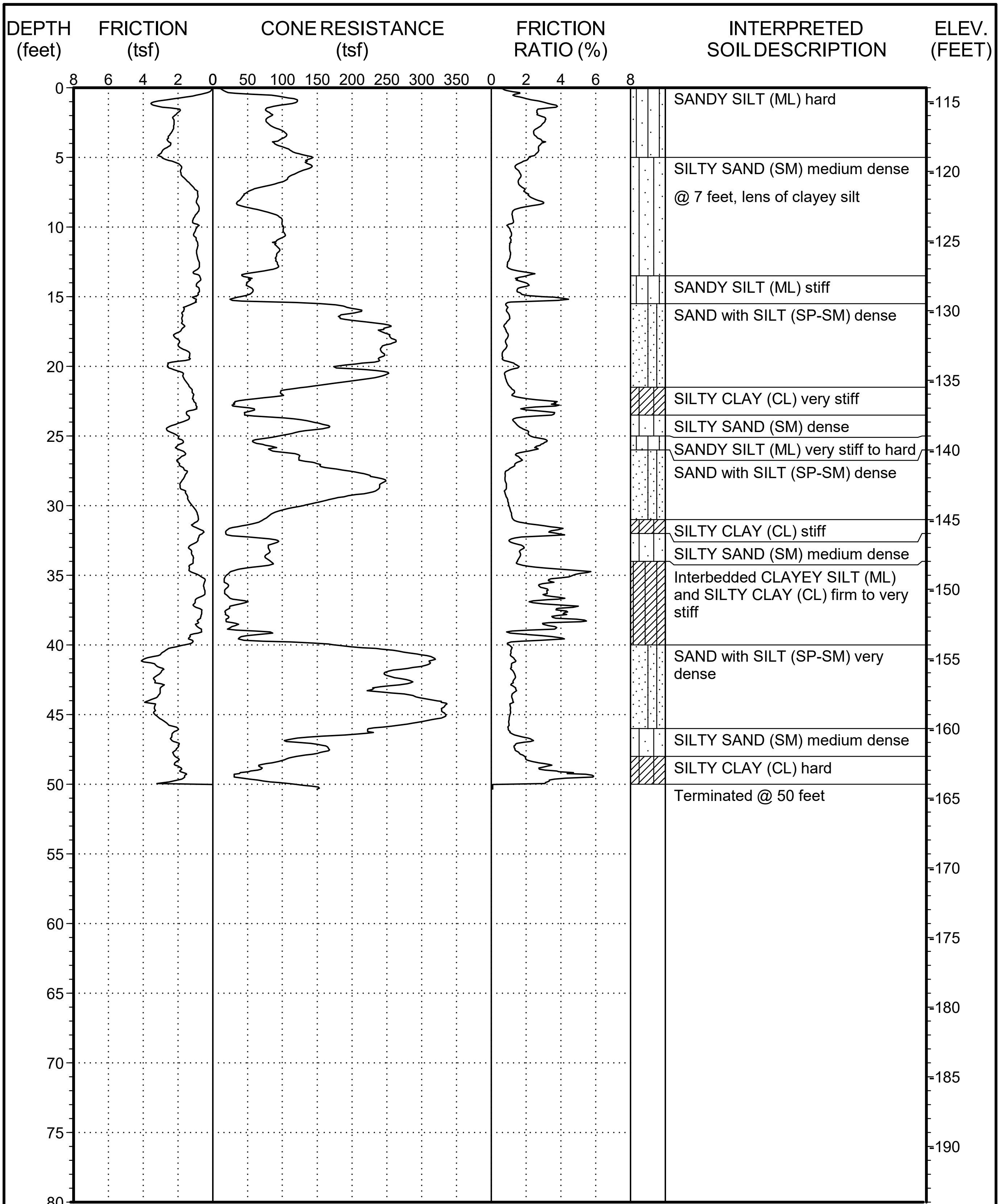
LOG OF CPT NO. C-11

FIGURE A-12



Date performed:7-19-18

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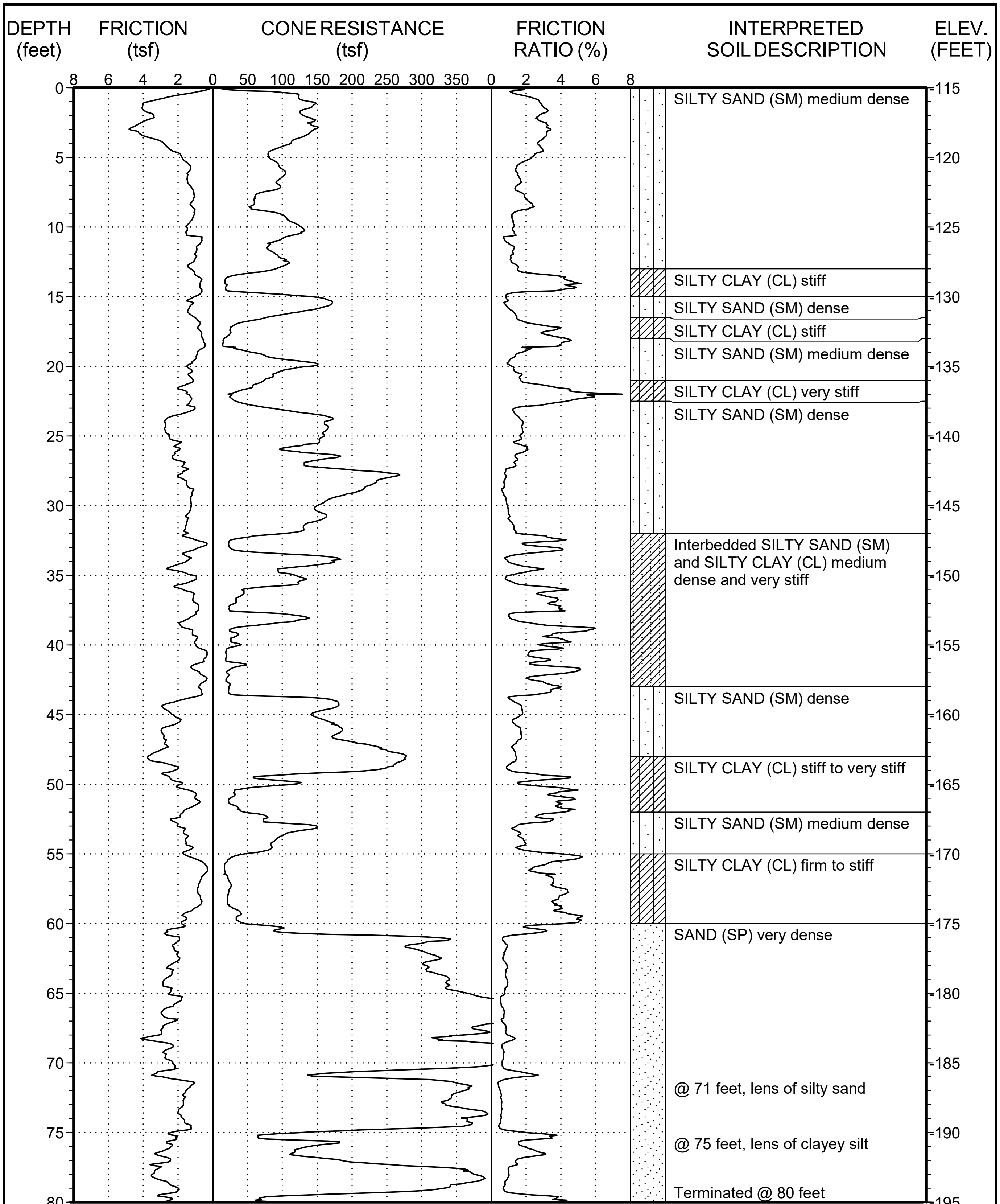
LOG OF CPT NO. C-12

FIGURE A-13



Date performed:7-19-18

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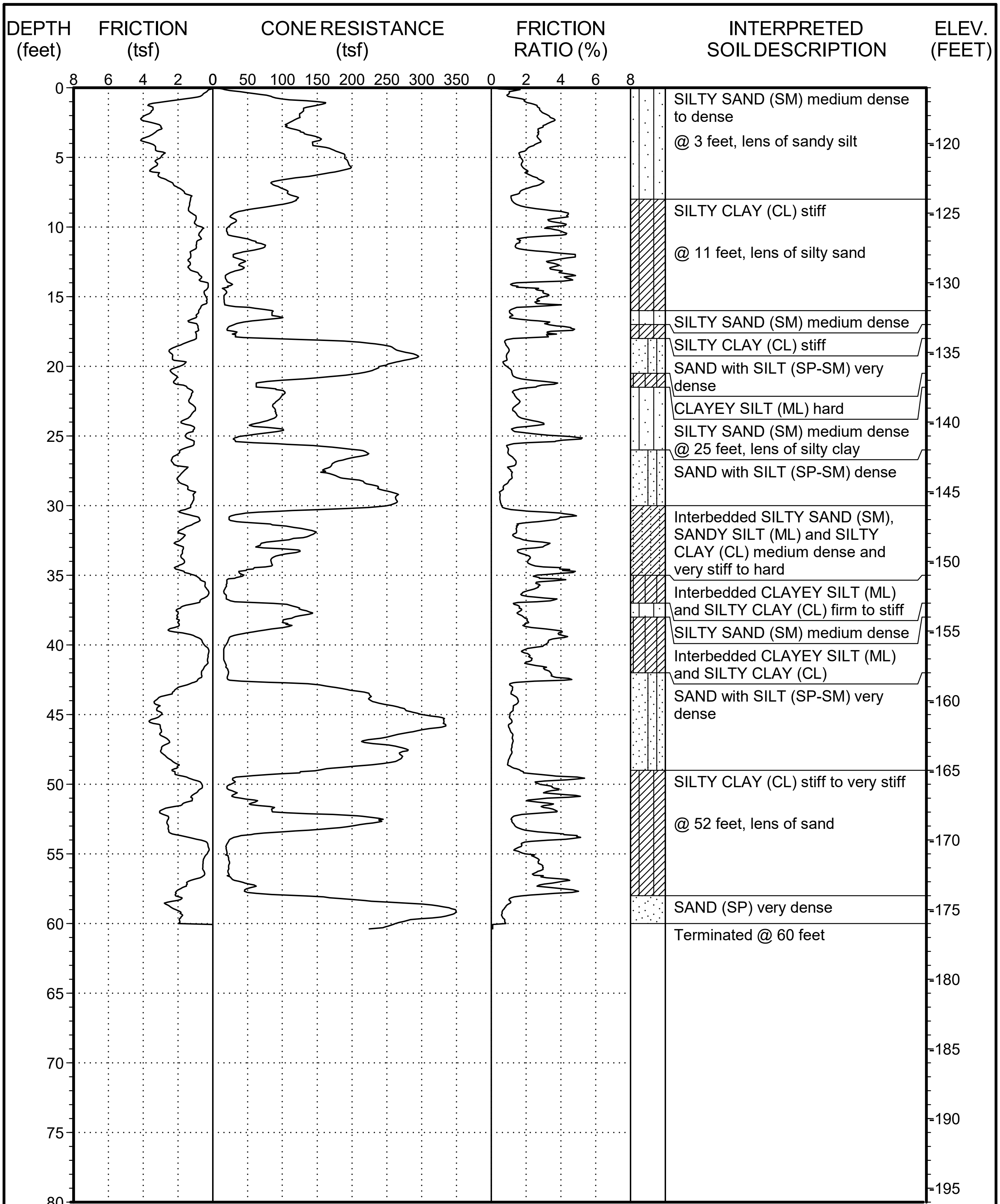
LOG OF CPT NO. C-13

FIGURE A-14



Date performed: 7-19-18

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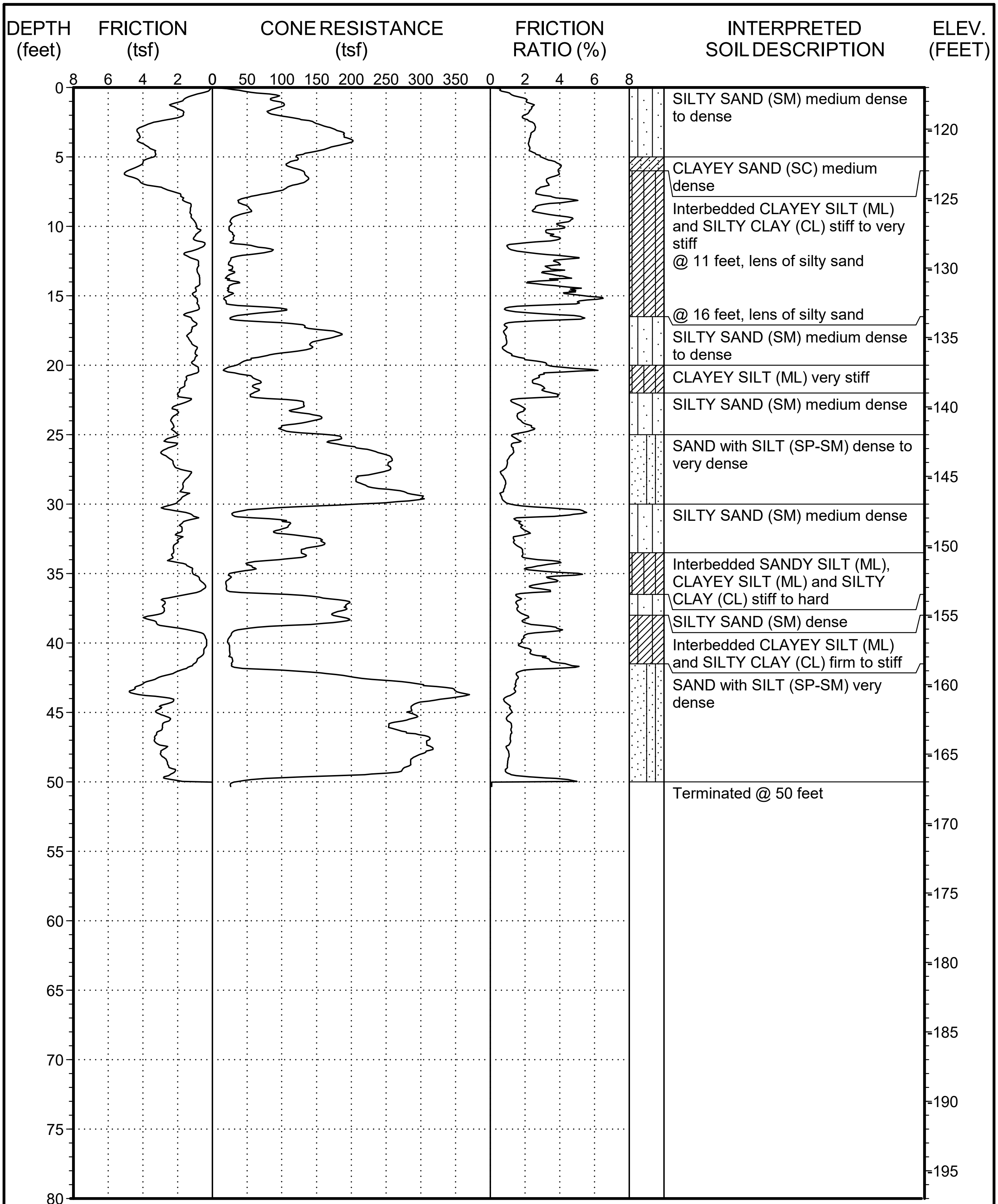
LOG OF CPT NO. C-14

FIGURE A-15



Date performed:7-19-18

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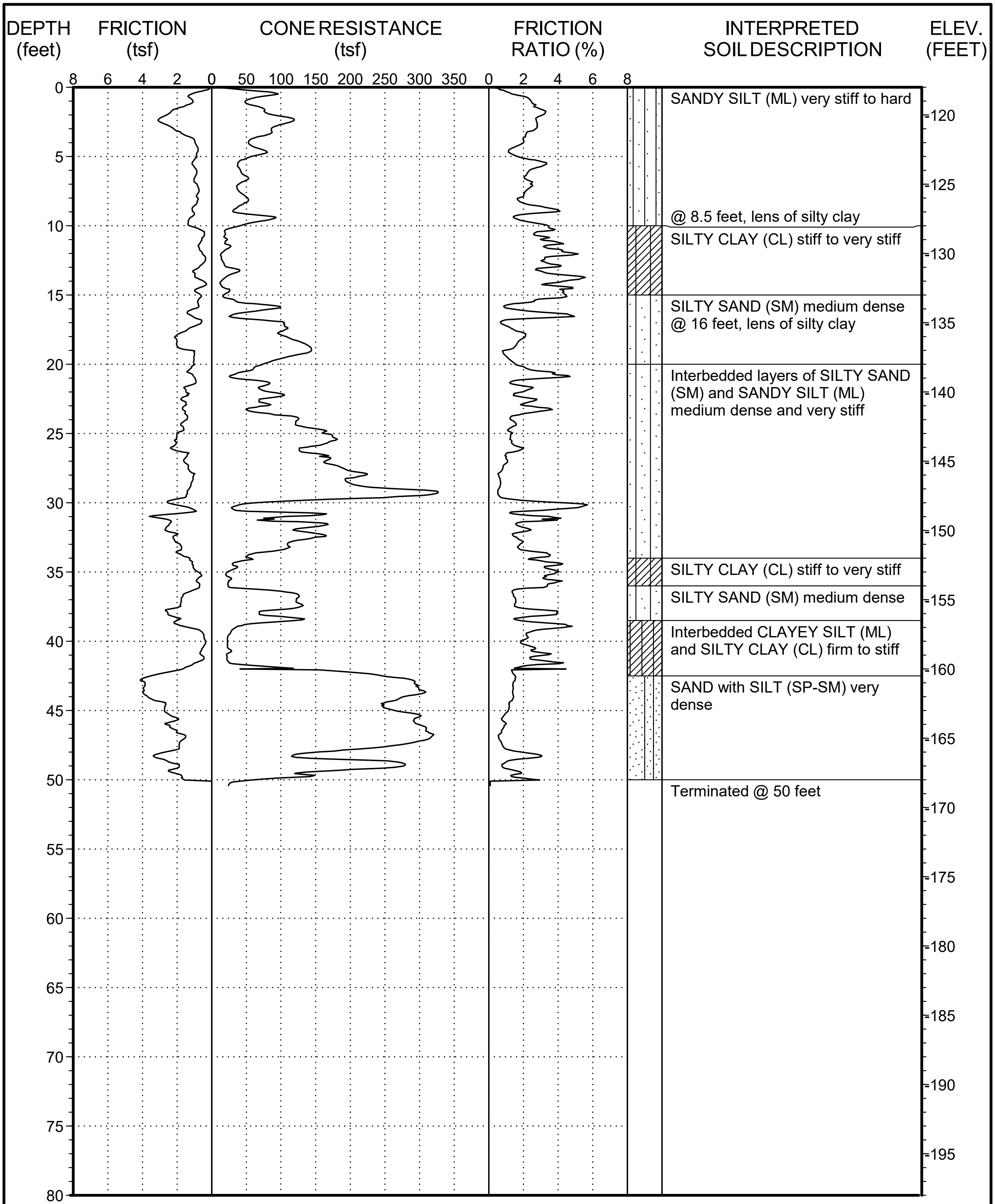
LOG OF CPT NO. C-15

FIGURE A-16



Date performed:7-19-18

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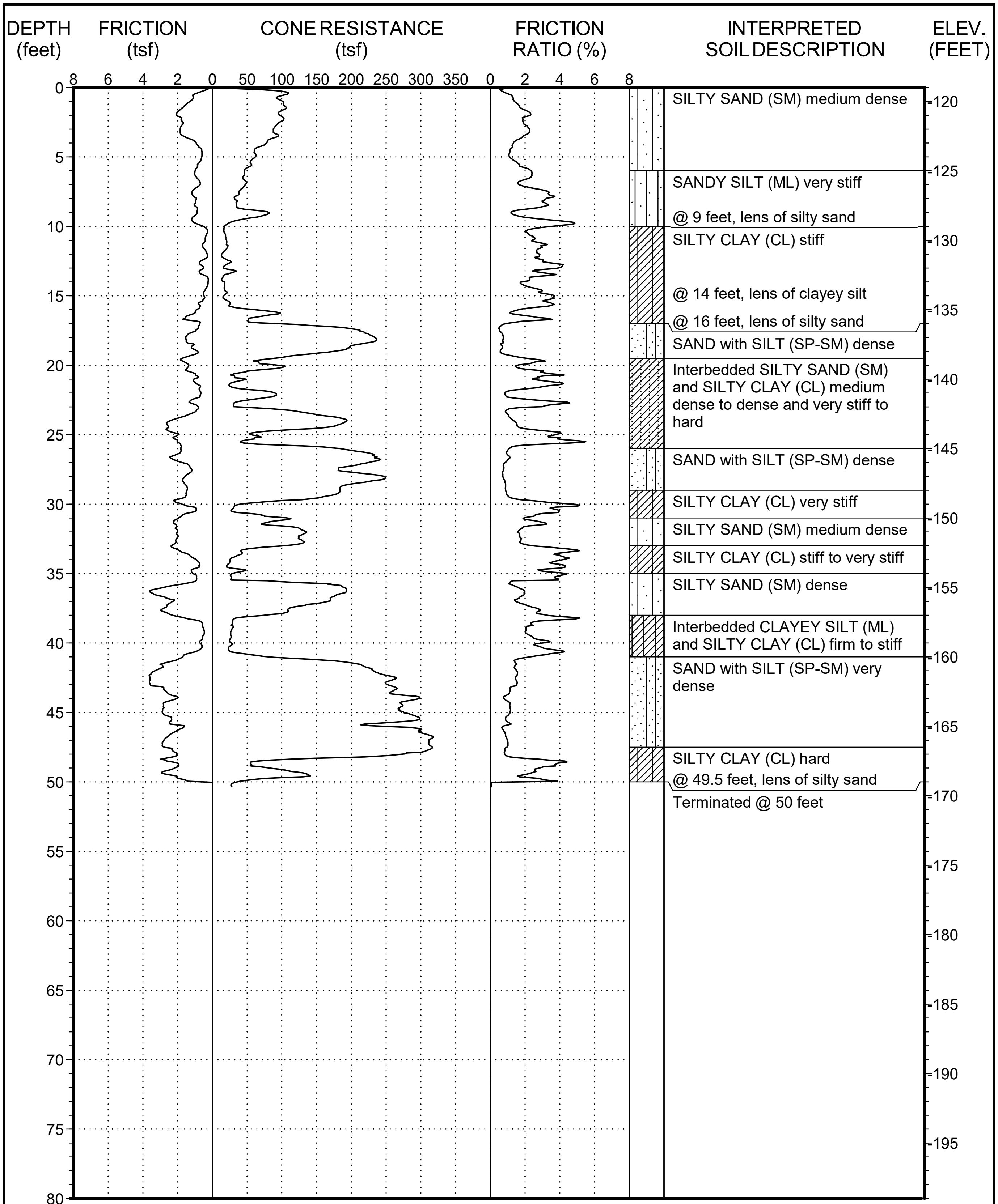
LOG OF CPT NO. C-16

FIGURE A-17



Date performed:7-19-18

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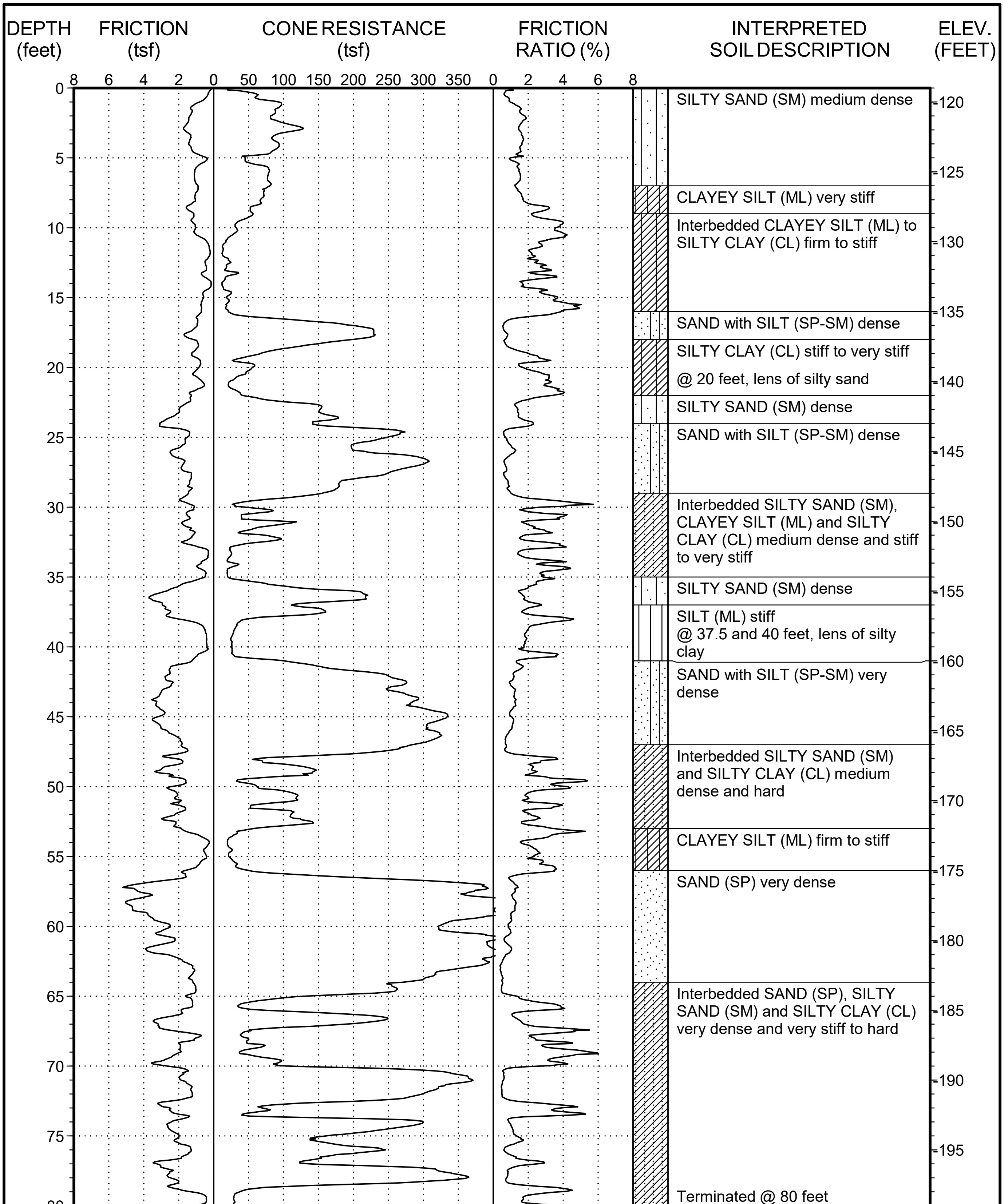
LOG OF CPT NO. C-17

FIGURE A-18



Date performed:7-20-18

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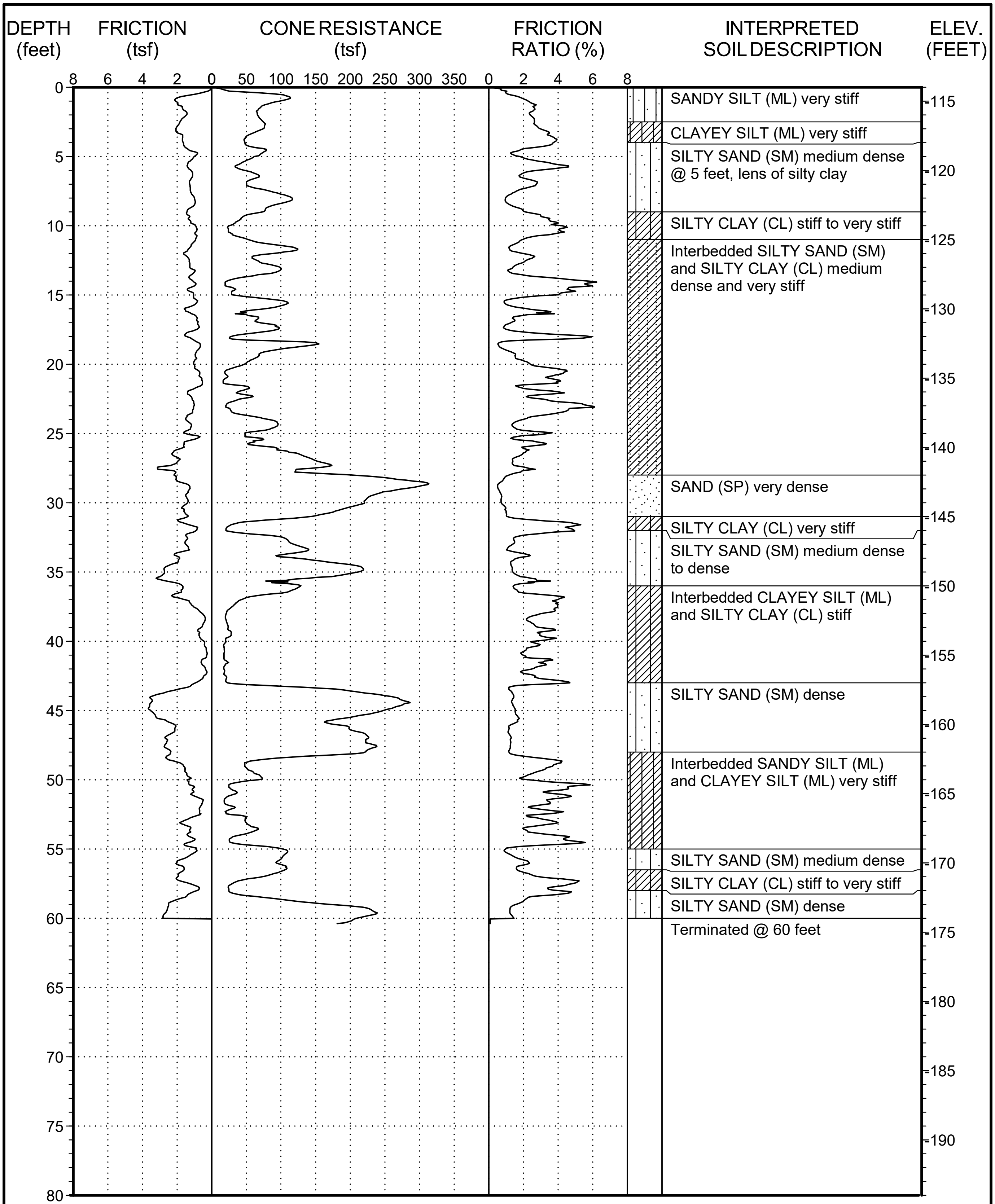
LOG OF CPT NO. C-18

FIGURE A-19



Date performed: 7-19-18

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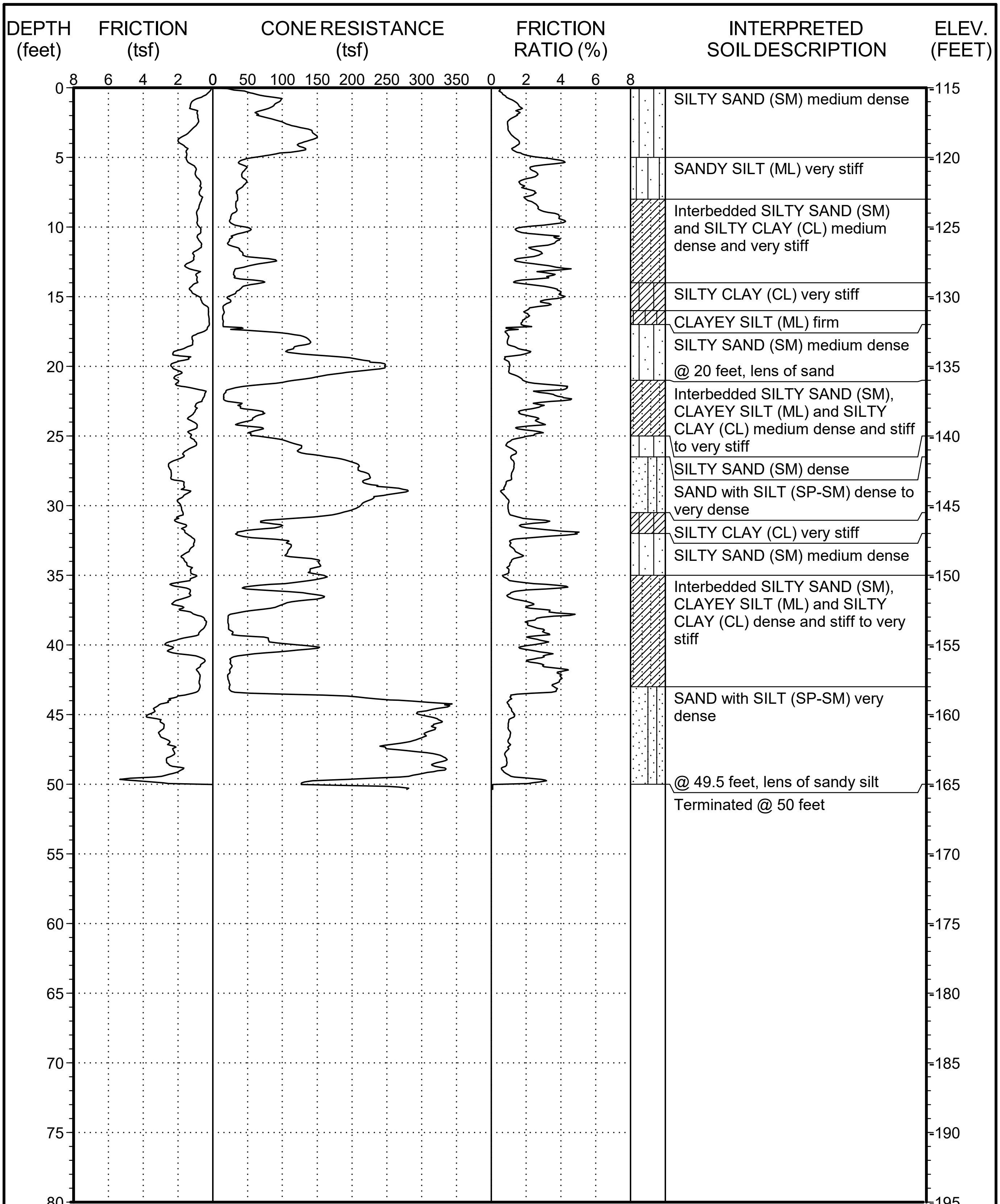
LOG OF CPT NO. C-19

FIGURE A-20



Date performed:7-23-18

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PROJECT NO.: 2884.I
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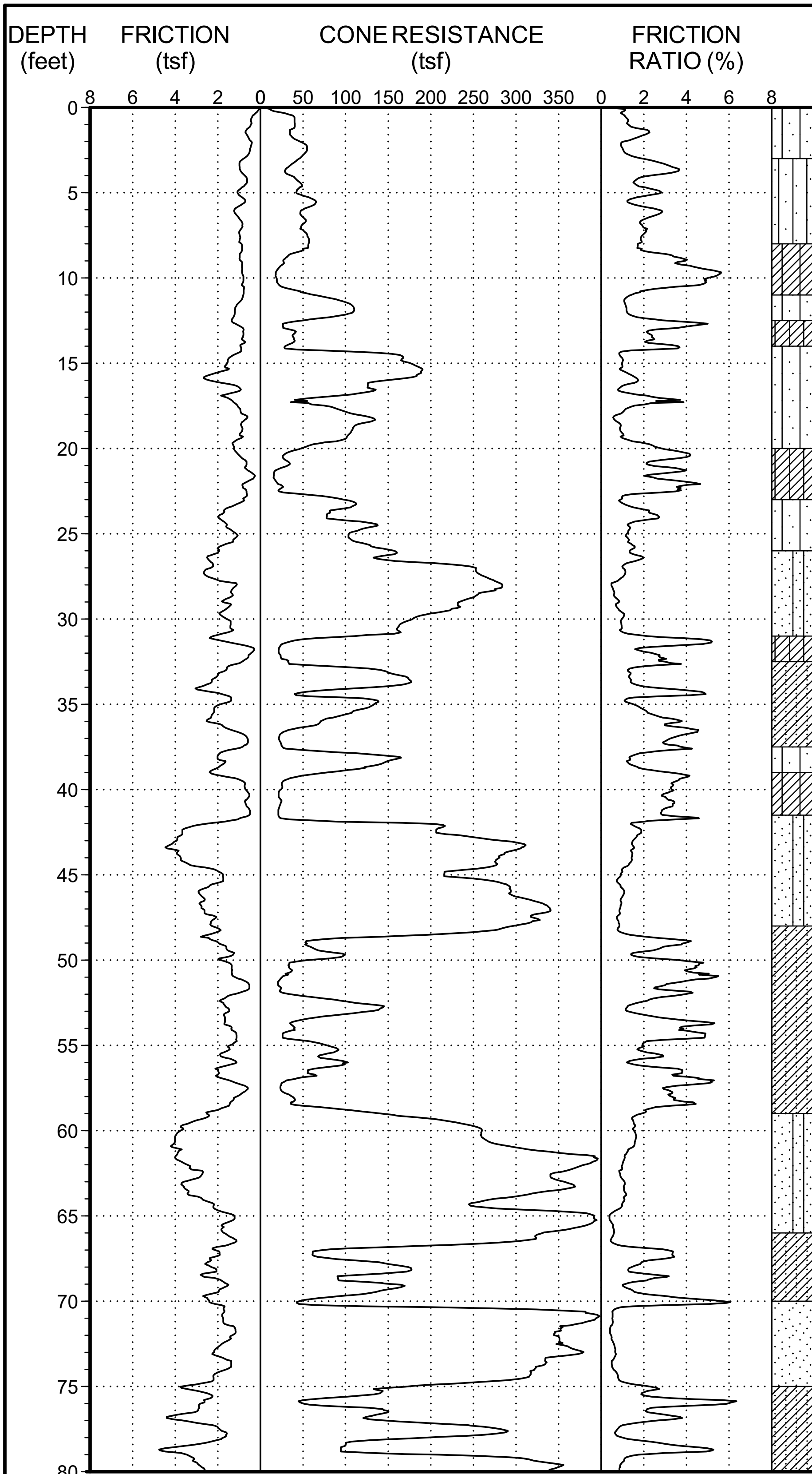
LOG OF CPT NO. C-20

FIGURE A-21



INTERPRETED SOIL DESCRIPTION

- SILTY SAND (SM) loose
- Interbedded SILTY SAND (SM) and SANDY SILT (ML) loose and stiff
- SILTY CLAY (CL) stiff
- SILTY SAND (SM) medium dense
- CLAYEY SILT (ML) stiff
- SILTY SAND (SM) medium dense to dense
- Interbedded CLAYEY SILT (ML) to SILTY CLAY (CL) firm to stiff
- SILTY SAND (SM) medium dense to dense
- SAND with SILT (SP-SM) very dense
- CLAYEY SILT (ML) stiff
- Interbedded SILTY SAND (SM) and SILTY CLAY (CL) medium dense to dense and very stiff
- SILTY SAND (SM) dense
- SILTY CLAY (CL) stiff
- SAND with SILT (SP-SM) very dense
- Interbedded SILTY SAND (SM) and SILTY CLAY (CL) medium dense and very stiff
- SAND with SILT (SP-SM) very dense
- Interbedded SILTY SAND (SM) and SILTY CLAY (CL) dense and hard
- SAND (SP) very dense
- Interbedded SILTY SAND (SM) and SILTY CLAY (CL) very dense and hard
  Terminated @ 80 feet

ELEV. (FEET): 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195

Date performed: 7-20-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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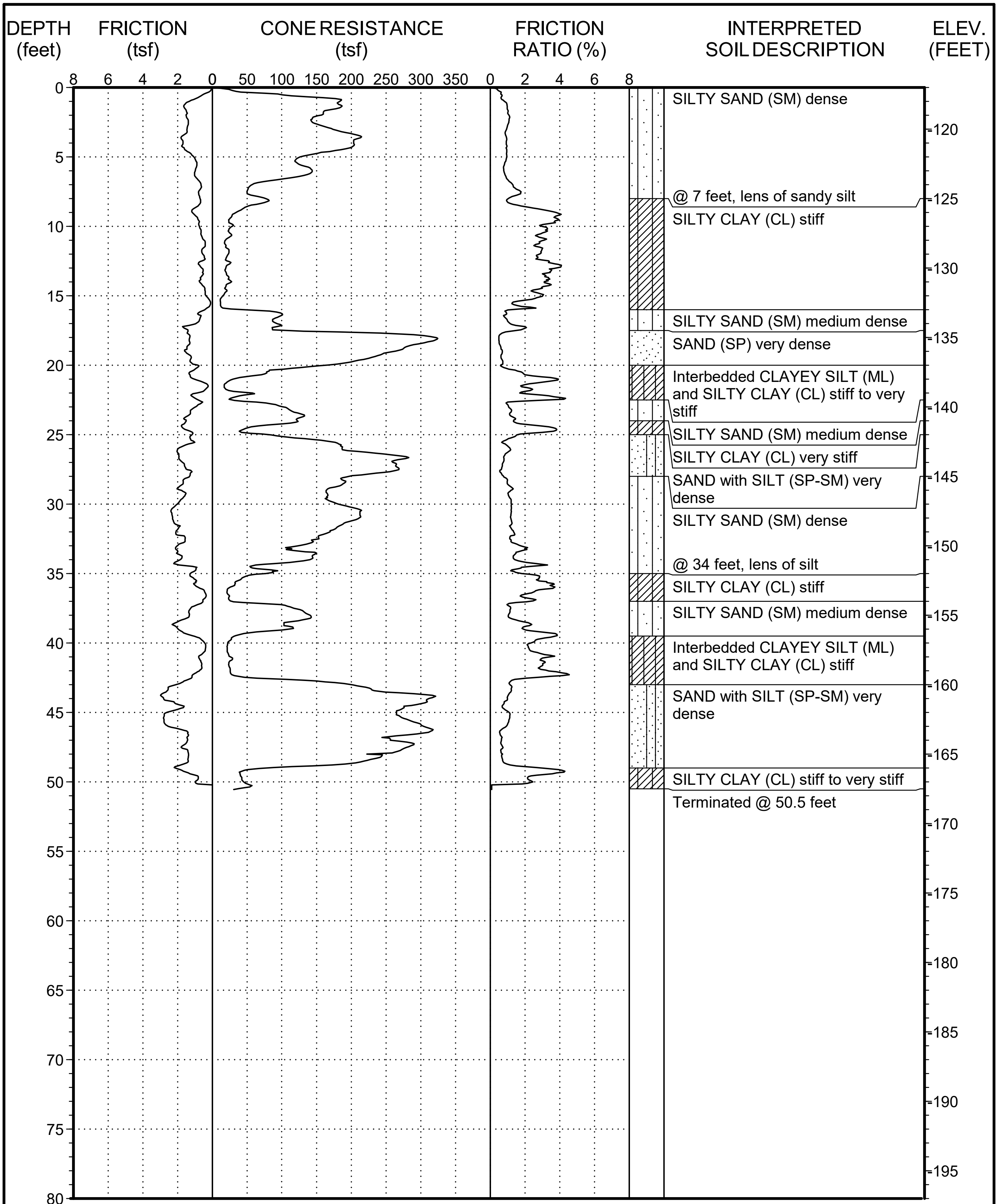
PROJECT NO.: 2884.I
COACHELLA

LOG OF CPT NO. C-21



Date performed: 7-24-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I

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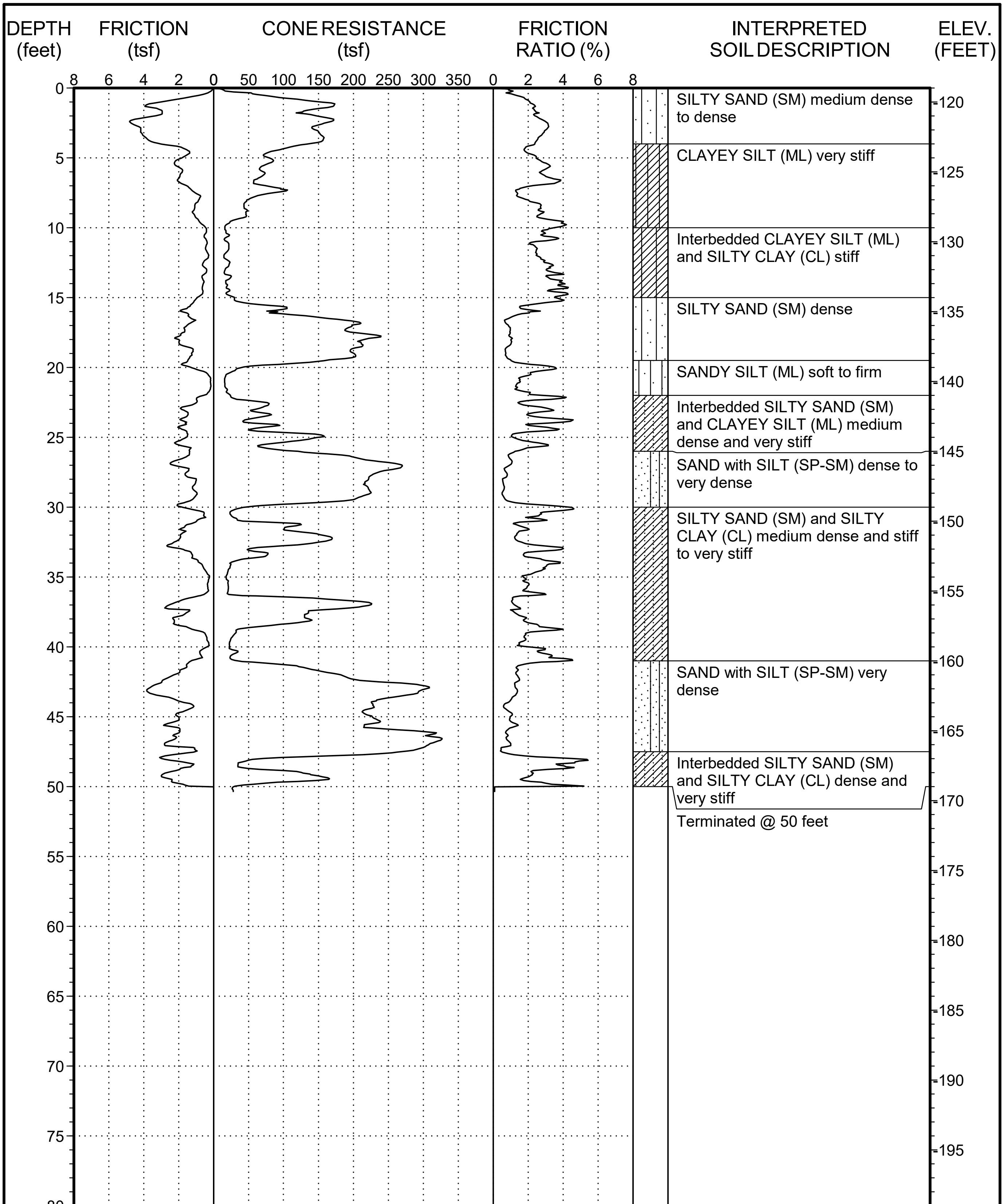
LOG OF CPT NO. C-22

FIGURE A-23



Date performed:7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

PROJECT NO.: 2884.I

COACHELLA

LOG OF CPT NO. C-24

FIGURE A-24

APPENDIX B

APPENDIX B

EXPLORATORY BORINGS

The subsurface conditions at the site were investigated by drilling and sampling eleven exploratory borings. The borings were advanced to depths of 6 to 81½ feet below the existing ground surface. The locations of the explorations are shown on the Site Plan, Figure 2.

The exploratory borings were drilled using truck-mounted hollow-stem auger drill equipment. Relatively undisturbed samples were obtained using a brass-ring lined sampler (ASTM D 3550). The brass-rings have an inside diameter of 2.42 inches. The ring samples were driven into the soil by a 140-pound hammer dropping 30 inches. The number of blows needed to drive the sampler into the soil was recorded as the penetration resistance.

At selected locations, disturbed samples were obtained using a split-spoon sampler by means of the Standard Penetration Test (SPT, ASTM D 6066). The spoon sampler was driven into the soil by a 140-pound hammer dropping 30 inches, employing the “free-fall” hammer described above. After an initial seating drive of 6 inches, the number of blows needed to drive the sampler into the soil a depth of 12 inches was recorded as the penetration resistance. These values are the raw uncorrected blowcounts.

The field explorations for the investigation were performed under the continuous technical supervision of GPI's representative, who visually inspected the site, maintained detailed logs of the borings, classified the soils encountered, and obtained relatively undisturbed samples for examination and laboratory testing. The soils encountered in the borings were classified in the field and through further examination in the laboratory in accordance with the Unified Soils Classification System. Detailed logs of the borings are presented in Figures B-1 to B-11 in this appendix.

The boring locations were laid out in the field by measuring from existing site features. Ground surface elevations at the boring locations were estimated from topographic map dated July 5, 2018 by The Altum Group using a project datum and should be considered approximate. The project datum is 500 feet greater than actual MSL elevations to avoid negative elevations.

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
			B	0	Natural: **SILTY SAND (SM)** light brown, dry, loose	
2.2	94	14	D			-115
8.6	105	15	D	5	**SILT (ML)** brown, slightly moist, stiff	
17.1	94	11	D		@ 7 feet, very moist, firm	-120
15.2	99	11	D	10	**SANDY SILT (ML)** grey, very moist, firm	
					CLAY (CL) grey, moist, firm	
					Total Depth 11 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

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PROJECT NO.: 2884.I

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LOG OF BORING NO. B-1

FIGURE B-1

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
				B	0	Natural: **SANDY SILT (ML)** light brown, dry to slightly moist, firm	
	9.7	89	12	D		**SILT (ML)** light brown, slightly moist, firm	-120
	6.7	92	10	D	5	**SILTY SAND (SM)** light brown, slightly moist, loose	
						Total Depth 6 feet	

SAMPLE TYPES
C Rock Core
S Standard Split Spoon
D Drive Sample
B Bulk Sample
T Tube Sample

DATE DRILLED:
7-25-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
Not Encountered

GPI

PROJECT NO.: 2884.I
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LOG OF BORING NO. B-2

FIGURE B-2

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
			B	0	Natural: **SANDY SILT (ML)** light brown, very dry	
5.4	84	14	D		**SANDY SILT (ML)** light brown, dry, stiff	-120
					SILT (ML) light brown / grey, dry to slightly moist, stiff, with gravel	
32.0	88	15	D	5	**SANDY SILT (ML)** light brown, wet, stiff	
						-125
4.0	101	7	D	10	**SILTY CLAY (CL)** light brown, dry, firm	
					CLAY (CL) light brown, dry, firm	
					Total Depth 11 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-3

FIGURE B-3

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
				0	Natural: **SANDY SILT (ML)** light brown, dry	-115
0.4	92	30	D		**SILTY SAND (SM)** light brown, dry, medium dense	
2.0	95	18	D	5		-120
					Total Depth 6 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
Not Encountered

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PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-4

FIGURE B-4

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
				B	0	Natural: **SANDY SILT (ML)** light brown, dry	
	2.3	95	16	D		@ 2 feet, stiff	-120
	14.8	88	16	D	5	**SILT (ML)** brown, moist, stiff	
						Total Depth 6 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

GPI

PROJECT NO.: 2884.I

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LOG OF BORING NO. B-5

FIGURE B-5

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
				0	Natural: **SANDY SILT (ML)** light brown, dry	-120
2.0	85	16	D		**SILT (ML)** light brown, dry, stiff	
2.8	88	15	D	5		-125
9.5		12	S		@ 7 feet, dry to slightly moist	
23.5	93	12	D	10	**CLAYEY SILT (ML)** brown, wet, stiff	-130
33.1	86	6	D	15	**SILTY SAND (SM)** brown, wet, loose	
					CLAYEY SILT (ML) brown, wet, firm, trace sand	-135
24.7	95	14	D	20	**SANDY SILT (ML)** grey brown, wet, stiff	-140
21.2		19	S	25	**SILTY SAND (SM)** grey brown, wet, medium dense	-145
				30		-150
39.2	82	16	D		**SILT (ML)** grey, wet, stiff, trace sand	
35.9	87	8	D	35	**CLAYEY SILT (ML)** brown grey, wet, firm	-155

This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED: 7-23-18
EQUIPMENT USED: 8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft): 14

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PROJECT NO.: 2884.I
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LOG OF BORING NO. B-6

FIGURE B-6

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
35.1	85	9	D	40	**SILTY CLAY (CL)** grey brown, wet, firm, with shells	-160
22.8		34	S	45	**SAND (SP)** grey, wet, dense, trace silt	-165
25.3	96	28	D	50	**SANDY SILT (ML)** grey, wet, very stiff, with clay lenses	-170
22.2	105	15	D	55	**SILT (ML)** grey and brown, wet, stiff, with porosity, trace sand	-175
21.5		52	S	60	**SILTY SAND (SM)** grey, wet, very dense	-180
				65		-185
19.8		60	S	70		-190
				75		-195

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-6

FIGURE B-6

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	28.3		65	S	80	**SANDY SILT (ML)** grey, wet, hard	-200
						Total Depth 81.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-6

FIGURE B-6

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
			B	0	Natural: **SANDY SILT (ML)** light brown, dry	
2.1	81	8	D		**SILT (ML)** light brown, dry, firm, trace sand	
						-120
1.4	93	16	D	5	@ 5 feet, stiff	
14.1	92	9	D		**SILTY SAND (SM)** light brown, very moist, loose	
						-125
8.1		10	S	10	@ 10 feet, moist, medium dense	
						-130
21.4	101	25	D	15	**SAND (SP)** grey, wet, medium dense, trace silt	
						-135
20.2		11	S	20	**SAND with SILT (SP-SM)** grey, wet, medium dense	
					SAND (SP) grey, wet, medium dense, trace silt	
						-140
28.2	95	18	D	25	**SILT (ML)** grey, wet, stiff, trace sand and shells	
						-145
17.5		15	S	30	**SAND with SILT (SP-SM)** grey, wet, medium dense	
						-150
26.2	96	19	D	35		
						-155

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED: 7-23-18
EQUIPMENT USED: 8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft): 14

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PROJECT NO.: 2884.I
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LOG OF BORING NO. B-7

FIGURE B-7

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	33.5	85	13	D	40	**CLAY (CL)** grey with brown, wet, stiff	
							-160
	26.7		17	S	45	**SANDY SILT (ML)** grey, wet, very stiff	
							-165
	23.1 29.7	97 92	17	D	50	**SILT (ML)** grey, wet, stiff	
							-170
	31.7	88	11	D	55	@ 55 feet, firm	
							-175
	31.8		28	S	60	**CLAYEY SILT (ML)** grey, wet, very stiff	
							-180
					65		
							-185
	15.8		51	S	70	**SILTY SAND (SM)** grey, wet, very dense	
							-190
					75		
							-195

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

PROJECT NO.: 2884.I

COALCHELLA

LOG OF BORING NO. B-7

FIGURE B-7

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)		*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	16.2		26	S	80		@ 80 feet, medium dense	
							Total Depth 81.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

GPI

PROJECT NO.: 2884.I

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LOG OF BORING NO. B-7

FIGURE B-7

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
						This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	
					0	Natural: **SANDY SILT (ML)** light brown, dry	
	3.6	89	14	D		**SILT (ML)** light brown grey, dry, stiff	-115
	3.7	100	15	D	5	**SILTY SAND (SM)** light brown, dry to slightly moist, loose	
	10.0	95	11	D		**SANDY SILT (ML)** light brown, slighty moist to moist, stiff, trace clay	-120
	27.3	91	6	D	10	**CLAYEY SILT (ML)** light brown grey, wet, firm	-125
	24.2		7	D	15	**SANDY SILT (ML)** grey, wet, very stiff	-130
	24.4		9	S	20		-135
			29	S	25		-140
	20.6		20	S	30	**SILTY SAND (SM)** grey, wet, medium dense	-145
					35		-150
	17.8	101	21	D		**SILTY CLAY (CL)** grey, wet, firm	

SAMPLE TYPES
C Rock Core
S Standard Split Spoon
D Drive Sample
B Bulk Sample
T Tube Sample

DATE DRILLED:
7-24-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-8

FIGURE B-8

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
					This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	
				40		
34.9		19	S		@ 42 feet, very stiff	-155
					CLAYEY SILT (ML) grey, wet, very stiff	
				45		
						-160
29.4	95	17	D	50		
					SANDY SILT (ML) grey, wet, stiff, trace clay	
						-165
				55		
						-170
28.9		19	S	60		
					SILT (ML) grey, wet, very stiff	
						-175
				65		
						-180
		32	S	70	@ 70 feet, no recovery	
						-185
				75		
						-190

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-8

FIGURE B-8

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)		DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
			26	S	80		@ 80 feet, no recovery	
							Total Depth 81.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-8

FIGURE B-8

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
				0	Natural: **SILT (ML)** light brown, very dry	-115
4.1	96	14	D		**SILT (ML)** light brown, dry, stiff, trace sand	
10.6	89	15	D	5	@ 5 feet, brown, moist	-120
14.9	98	11	D		@ 7 feet, firm, trace clay	
					SANDY SILT (ML) light brown grey, moist, firm	
29.5	92	6	D	10	**CLAY (CL)** grey, wet, firm	-125
30.1	89	7	D	15		-130
19.3		9	S	20	**SILTY SAND (SM)** light brown, grey, wet, loose	-135
25.2		29	S	25	@ 25 feet, medium dense	-140
12.7		20	S	30	**SAND (SP)** light brown, wet, medium dense	-145
28.7	93	21	D	35	**CLAYEY SILT (ML)** grey, wet, stiff	-150

This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-9

FIGURE B-9

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
					This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	
				40	**CLAYEY SILT (ML)** grey, very moist, stiff	-155
				45		-160
28.0	92	23	D		**SILT (ML)** grey, wet, very stiff	
				50		-165
26.9 28.8		12	S	55	@ 55 feet, wet, stiff, trace sand	
					CLAYEY SILT (ML) grey, wet, stiff	-170
18.7		32	S	60	**SILTY SAND (SM)** grey, very moist to wet, dense	-175
					Total Depth 61.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-9

FIGURE B-9

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
						This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	
					0	Natural: **SANDY SILT (ML)** light brown, dry	
	3.4	91	21	D		@ 2 feet, stiff	-115
	3.3	96	17	D	5		
	3.0	97	12	D		**SILTY SAND (SM)** light brown, dry, loose	-120
	29.9	91	12	D	10	**CLAY (CL)** grey with brown, wet, stiff	
	26.6	92	8	D			-125
	25.0	94	7	D	15	**CLAYEY SILT (ML)** grey, wet, firm, with shells	
							-130
	28.7		9	S	20	**SANDY SILT (ML)** grey, wet, trace clay	
							-135
	28.8		20	S	25	**SILT (ML)** grey, wet, very stiff	
							-140
	18.7	108	26	D	30	**SILTY SAND (SM)** grey, wet, medium dense	
							-145
	36.5	86	10	D	35	**SILT (ML)** light brown, wet, firm	
							-150

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-10

FIGURE B-10

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)		*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	33.0	88	9	D	40		@ 40 feet, with shells	
							Total Depth 41 feet	

SAMPLE TYPES
C Rock Core
S Standard Split Spoon
D Drive Sample
B Bulk Sample
T Tube Sample

DATE DRILLED:
7-24-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-10

FIGURE B-10

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
					0	Natural: **SANDY SILT (ML)** light brown, very dry	
	3.0	109	20	D		**SILT (ML)** light brown, dry, stiff	-120
	3.3	85	21	D	5	**SILTY SAND (SM)** light brown, dry, medium dense	
	1.1	95	22	D			-125
	30.5	82	10	D	10	**CLAY (CL)** brown, wet, firm, trace silt	
						@ 12 feet, stiff	
	30.7	87	16	D		**SILTY CLAY (CL)** light brown, wet, stiff	-130
	22.3		18	S	15	**SAND with SILT (SP-SM)** grey, wet, medium dense	
						SILTY CLAY (CL) grey, wet, very stiff	-135
					20		
						@ 22 feet, stiff	
	27.1	96	15	D		**SANDY SILT (ML)** grey, wet, stiff	-140
	28.9		19	S	25	**CLAY (CL)** grey brown, wet, very stiff, trace silt	
							-145
	19.4		24	S	30	**SILTY SAND (SM)** grey, wet, medium dense	
							-150
					35		
							-155

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
20

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-11

FIGURE B-11

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
	34.3	85	8	D	40	**SANDY CLAY (CL)** grey, wet, stiff	
							-160
	26.4		21	D	45	**SAND (SP)** grey, wet, medium dense, trace silt	
							-165
	33.3						
	41.8		7	S	50		
						CLAY (CL) grey, wet, stiff	
						Total Depth 51.5 feet	

This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED: 7-25-18
EQUIPMENT USED: 8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft): 20

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-11

FIGURE B-11

APPENDIX C

APPENDIX C

LABORATORY TESTS

INTRODUCTION

Representative undisturbed soil samples and bulk samples were carefully packaged in the field and sealed to prevent moisture loss. The samples were then transported to our Cypress office for examination and testing assignments. Laboratory tests were performed on selected representative samples as an aid in classifying the soils and to evaluate the physical properties of the soils affecting foundation design and construction procedures. Detailed descriptions of the laboratory tests are presented below under the appropriate test headings. Test results are presented in the figures that follow.

MOISTURE CONTENT AND DRY DENSITY

Moisture content and dry density were determined from a number of the ring samples. The samples were first trimmed to obtain volume and wet weight and then were dried in accordance with ASTM D 2216. After drying, the weight of each sample was measured, and moisture content and dry density were calculated. Moisture content and dry density values are presented on the boring logs in Appendix B.

GRAIN SIZE DISTRIBUTION

Soil samples were dried, weighed, soaked in water until individual soil particles were separated, and then washed on the No. 200 sieve. That portion of the material retained on the No. 200 sieve was oven-dried and weighed to determine the percentage of the material passing the No. 200 sieve. A summary of the percentages passing the No. 200 sieve is presented below.

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	PERCENT PASSING No. 200 SIEVE
B-1	2	Silty Sand (SM)	40
B-3	0-4	Sandy Silt (ML)	68
B-7	20	Sand w/Silt (SP-SM)	10
B-7	35	Silty Sand (SP-SM)	13
B-7	45	Sandy Silt (ML)	54
B-8	30	Silty Sand (SM)	26
B-8	50	Sandy Silt (ML)	59
B-10	15	Clayey Silt (ML)	91
B-10	30	Silty Sand (SM)	44
B-11	15	Sand w/Silt (SP-SM)	8
B-11	30	Silty Sand (SM)	20
B-11	45	Sand (SP)	5

ATTERBERG LIMITS

Liquid and plastic limits were determined for selected samples in accordance with ASTM D4318. Results of the Atterberg Limits test are summarized on Figure C-1.

DIRECT SHEAR

Direct shear tests were performed on relatively undisturbed and remolded bulk samples in accordance with ASTM D 3080. The bulk samples were remolded to approximately 90 percent of the maximum dry density. The test specimens were placed in the shear machine, and a normal load comparable to the in-situ overburden stress was applied. The samples were inundated, allowed to consolidate, and then were sheared to failure at a strain rate of 0.001 to 0.002 inches per minute. The tests were repeated on additional test specimens under increased normal loads. Shear stress and sample deformation were monitored throughout the test. The results of the direct shear tests are presented in Figures C-2 to C-6.

CONSOLIDATION

One-dimensional consolidation tests were performed on undisturbed samples in accordance with ASTM D 2435. After trimming the ends, the samples were placed in the consolidometer and loaded to up to 0.4 ksf. Thereafter, the samples were incrementally loaded to a maximum load of up to 25.6 ksf. The samples were inundated at 1.6 ksf. Sample deformation was measured to 0.0001 inch. Rebound behavior was investigated by unloading the sample back to 0.4 ksf. Results of the consolidation tests, in the form of percent consolidation versus log pressure are presented in Figures C-7 to C-9.

COLLAPSE

Collapse tests were performed on undisturbed samples in accordance with ASTM D 5333. After trimming the ends, the sample was placed in the consolidometer and loaded to 0.4 ksf. Thereafter, the samples were incrementally loaded to 1.6 ksf at the in-situ moisture content and then saturated. Sample deformation was measured to 0.0001 inch. The amount of collapse is shown below as percent compression of the sample.

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	IN-SITU MOISTURE CONTENT (%)	TOTAL COMPRESSION (%)	
				BEFORE SATURATION	AFTER SATURATION
B-6	15	Sandy Silt (SM)	33.1	5.1	5.2
B-9	7	Sandy Silt (SM)	14.9	1.5	1.5
B-10	7	Sand w/Silt (SP-SM)	3.0	1.4	2.2

COMPACTION TEST

A maximum dry density/optimum moisture tests were performed in accordance with ASTM D 1557 on representative bulk samples of the site soils. The test results are as follows:

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	OPIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)
B-1	0–4	Silty Sand (SM)	112	13.0
B-7	0–4	Sandy Silt (ML)	111	14.0

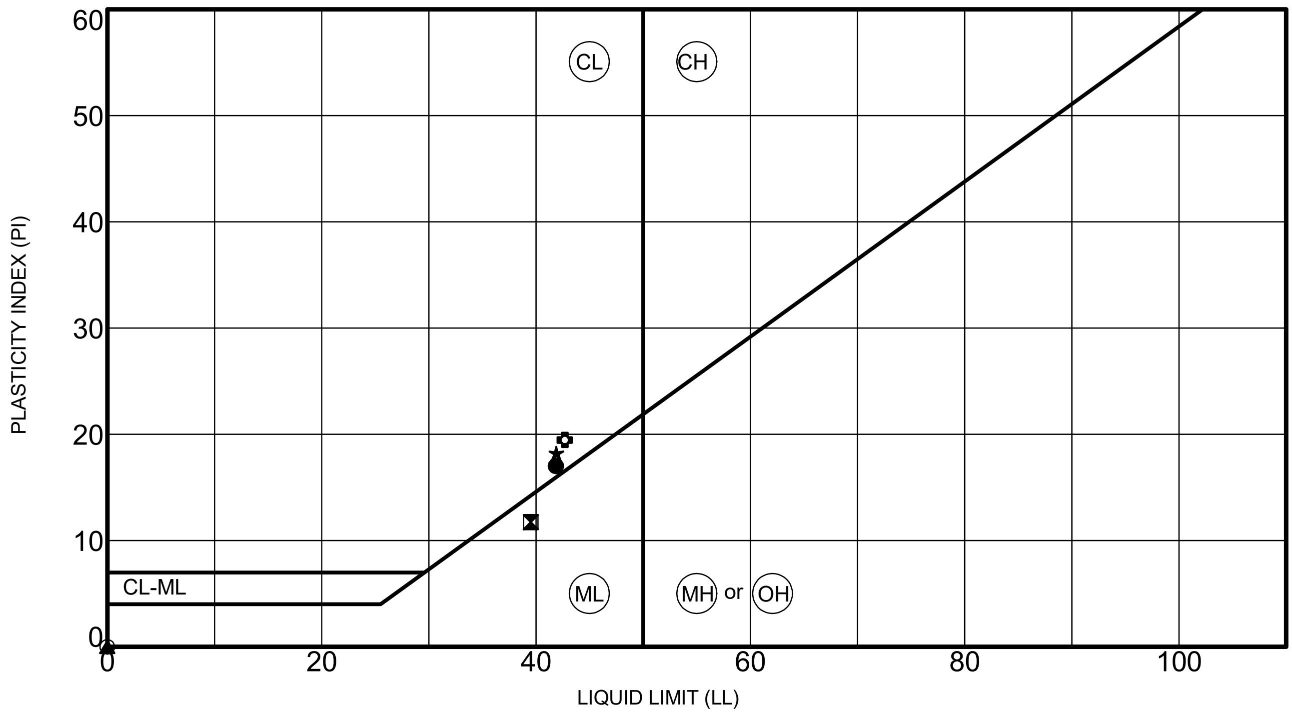
R-VALUE

Suitability of the near-surface soils for pavement was evaluated by conducting an R-value test. The test was performed in accordance with ASTM D 2844 by GeoLogic Associates (GLA) under subcontract to GPI. The result of the test is as follows:

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	R-VALUE
B-3	0 – 4	Silt w/Gravel (ML)	42

CORROSIVITY

Soil corrosivity testing was performed by HDR on soil samples provided by GPI. The test results are summarized in Table 1 of this Appendix.



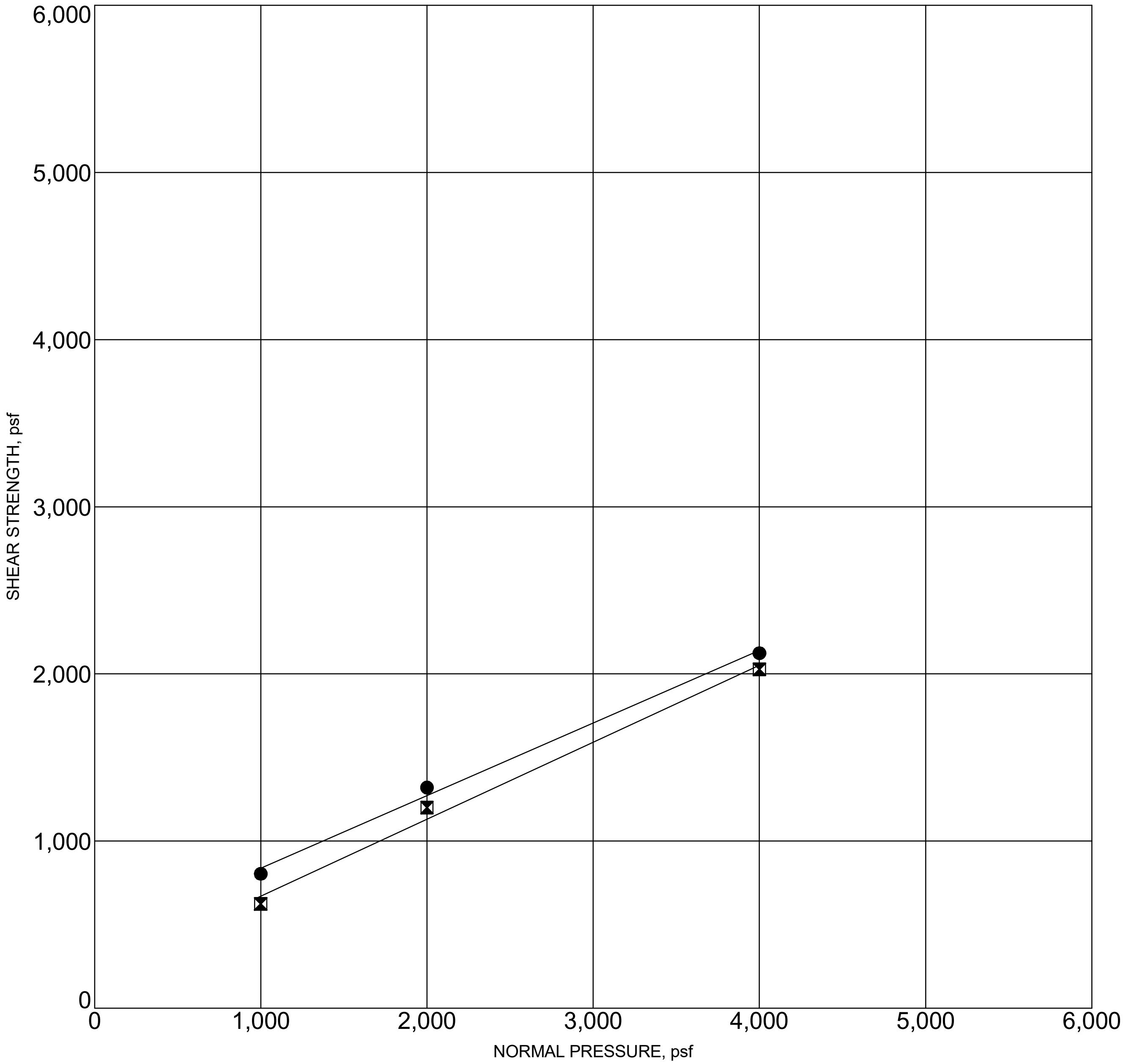
	SAMPLE LOCATION		LL	PL	PI	Fines, %	Classification
●	B-10	12.0	42	25	17		CLAY (CL)
⧗	B-10	35.0	40	28	12		SILT (ML)
▲	B-7	25.0	NP	NP	NP		SILT (ML)
★	B-7	40.0	42	24	18		CLAY (CL)
⊙	B-7	50.0	NP	NP	NP		SILT (ML)
✿	B-9	15.0	43	23	19		CLAY (CL)

PROJECT: COACHELLA PROJECT NO. 2884.I

GPI

ATTERBERG LIMITS TEST RESULTS

FIGURE C-1



● **PEAK STRENGTH**
Friction Angle= 23 degrees
Cohesion= 402 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 25 degrees
Cohesion= 210 psf

Sample Location		Classification	DD,pcf	MC,%
B-6	10.0	CLAYEY SILT (ML)	93	23.5

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PROJECT NO.: 2884.I

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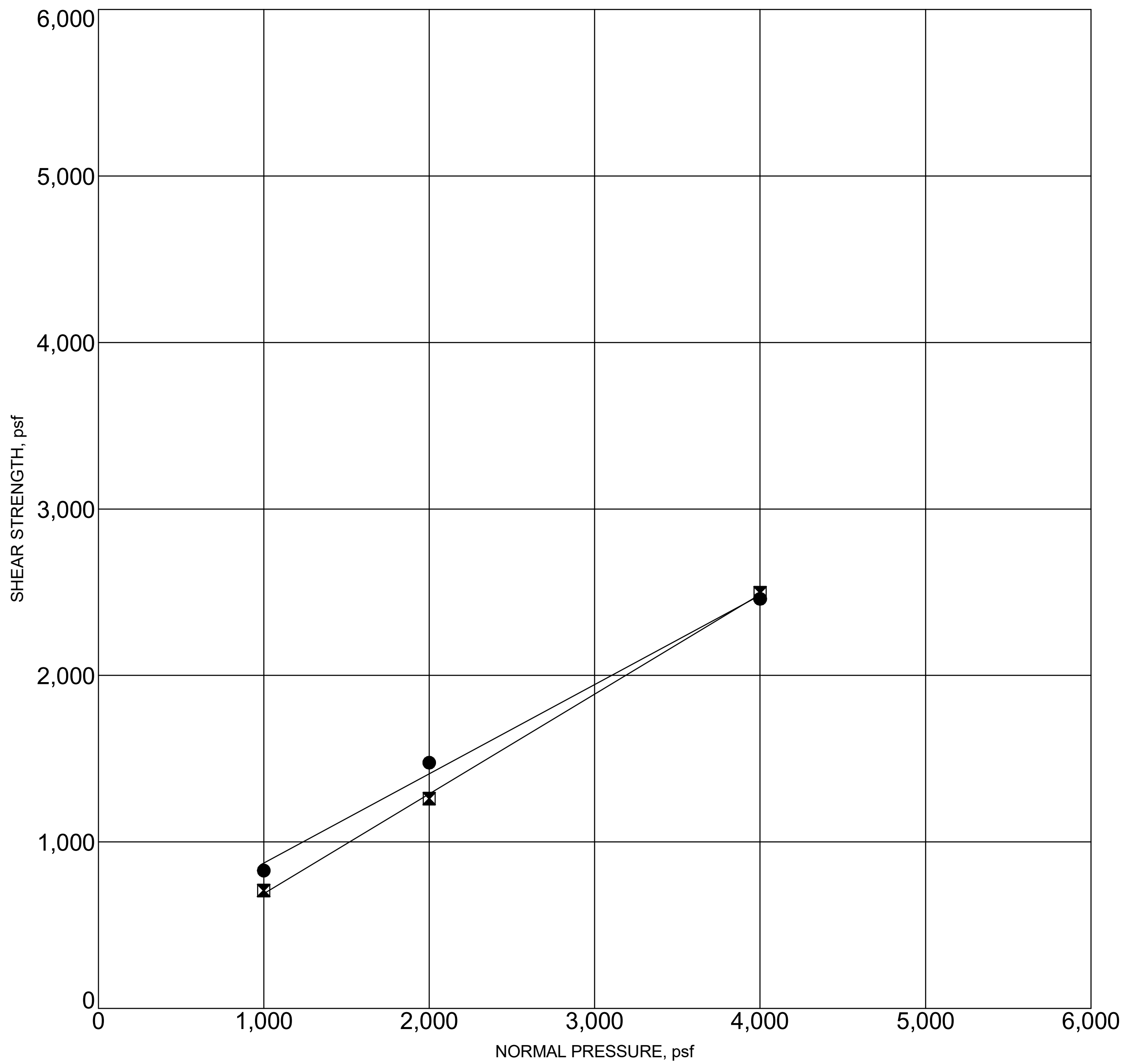
DIRECT SHEAR TEST RESULTS

FIGURE C-2



● **PEAK STRENGTH**
Friction Angle= 28 degrees
Cohesion= 336 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 31 degrees
Cohesion= 90 psf

Note: Samples remolded to 90% maximum dry density

Sample Location		Classification	DD,pcf	MC,%
B-7	0-4	SANDY SILT (ML)	100	14.0

PROJECT: COACHELLA

PROJECT NO.: 2884.I

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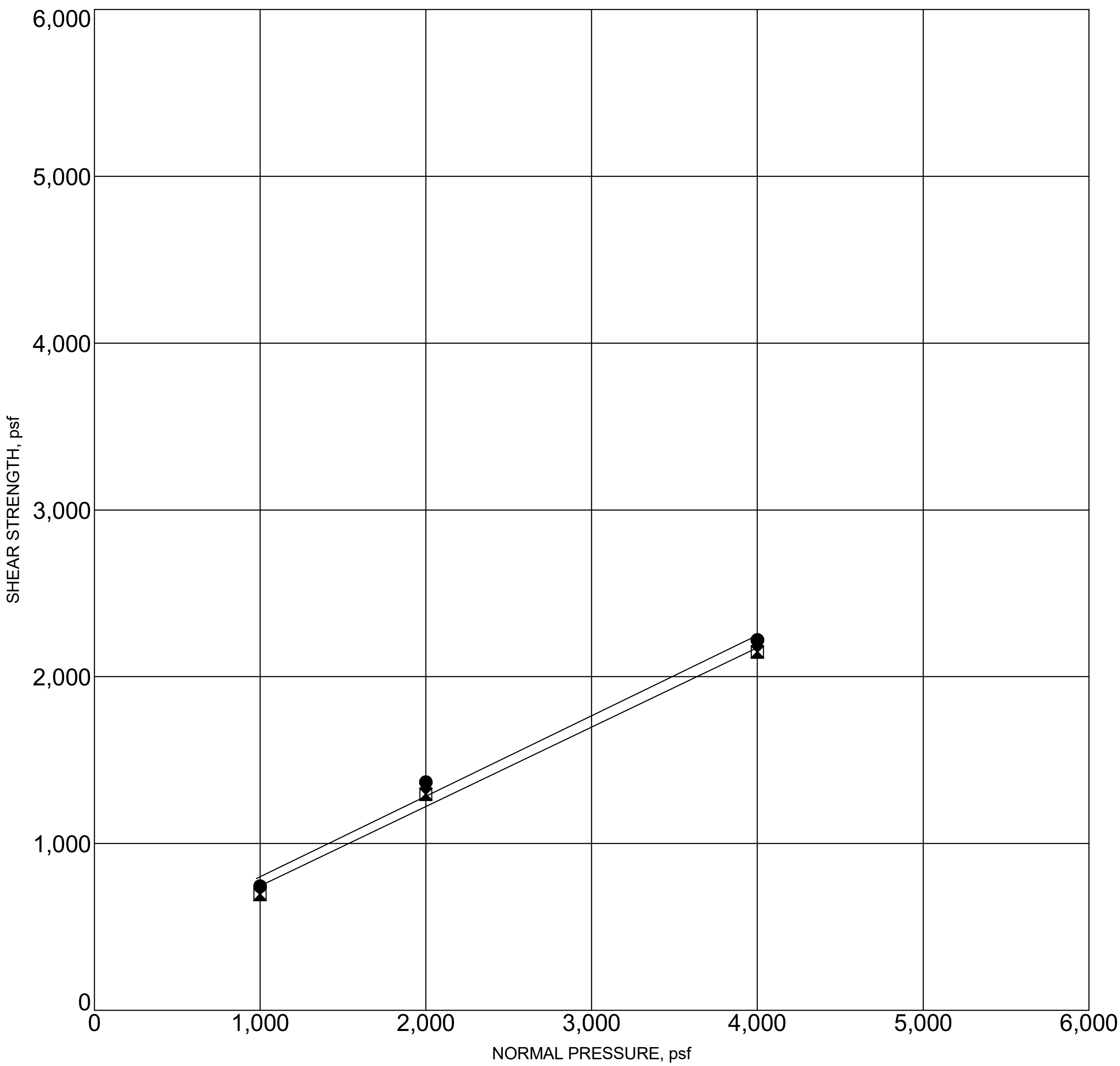
DIRECT SHEAR TEST RESULTS

FIGURE C-3



PEAK STRENGTH
Friction Angle= 26 degrees
Cohesion= 318 psf

ULTIMATE STRENGTH
Friction Angle= 25 degrees
Cohesion= 270 psf

Sample Location		Classification	DD,pcf	MC,%
B-7	7.0	SILTY SAND (SM)	92	14.1

PROJECT: COACHELLA

PROJECT NO.: 2884.I

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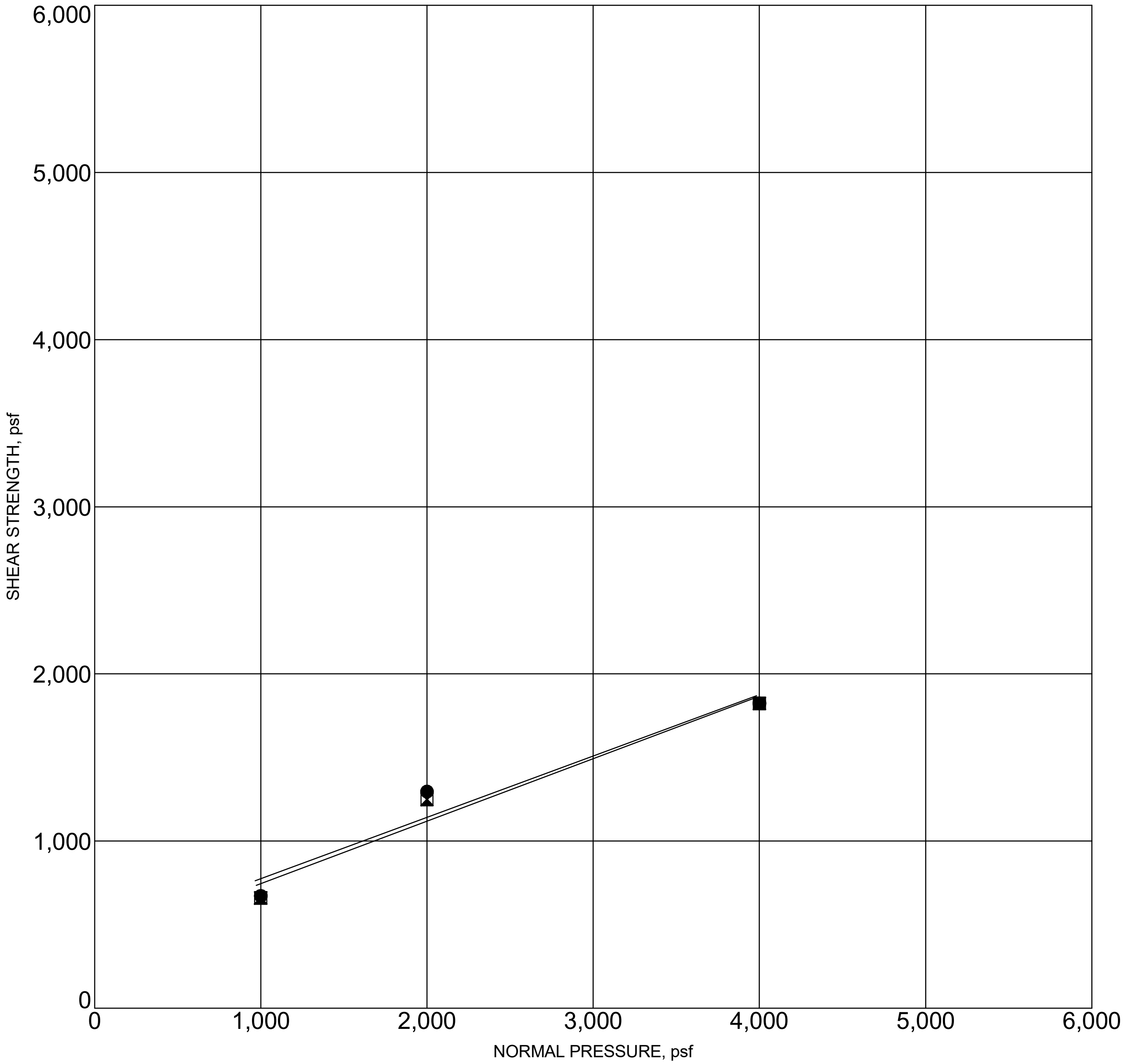
DIRECT SHEAR TEST RESULTS

FIGURE C-4



● **PEAK STRENGTH**
Friction Angle= 20 degrees
Cohesion= 408 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 20 degrees
Cohesion= 372 psf

Sample Location		Classification	DD,pcf	MC,%
B-10	5.0	SANDY SILT (ML)	96	3.3

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PROJECT NO.: 2884.I

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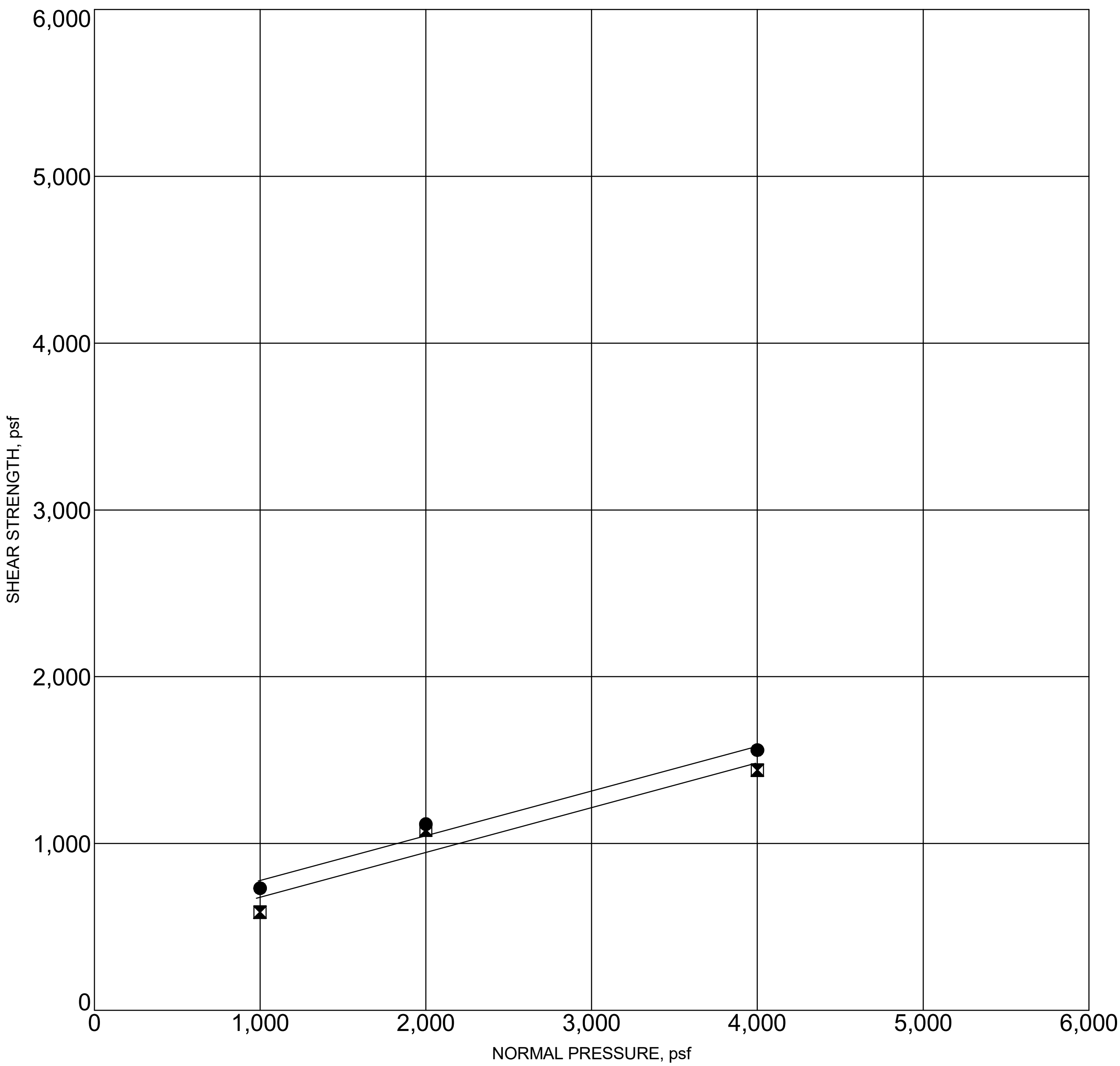
DIRECT SHEAR TEST RESULTS

FIGURE C-5



● **PEAK STRENGTH**
Friction Angle= 15 degrees
Cohesion= 510 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 15 degrees
Cohesion= 408 psf

Sample Location		Classification	DD,pcf	MC,%
B-11	10.0	CLAY (CL)	82	30.5

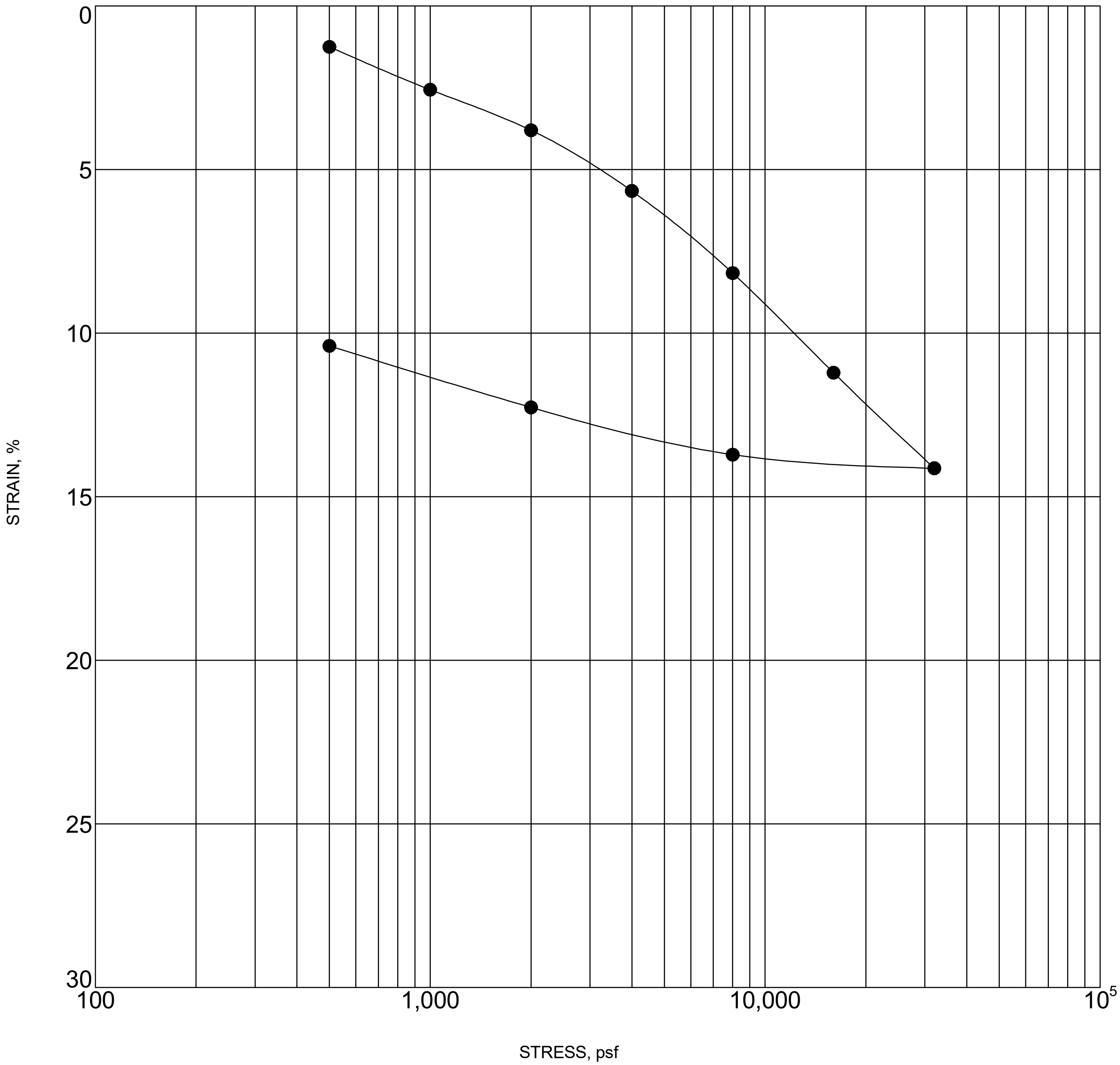
PROJECT: COACHELLA

PROJECT NO.: 2884.I

GPI

DIRECT SHEAR TEST RESULTS

FIGURE C-6



Sample inundated at 2000 psf

	Sample Location		Classification	DD,pcf	MC,%
●	B-6	32.0	SILT (ML)	82	39.2

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PROJECT NO.: 2884.I

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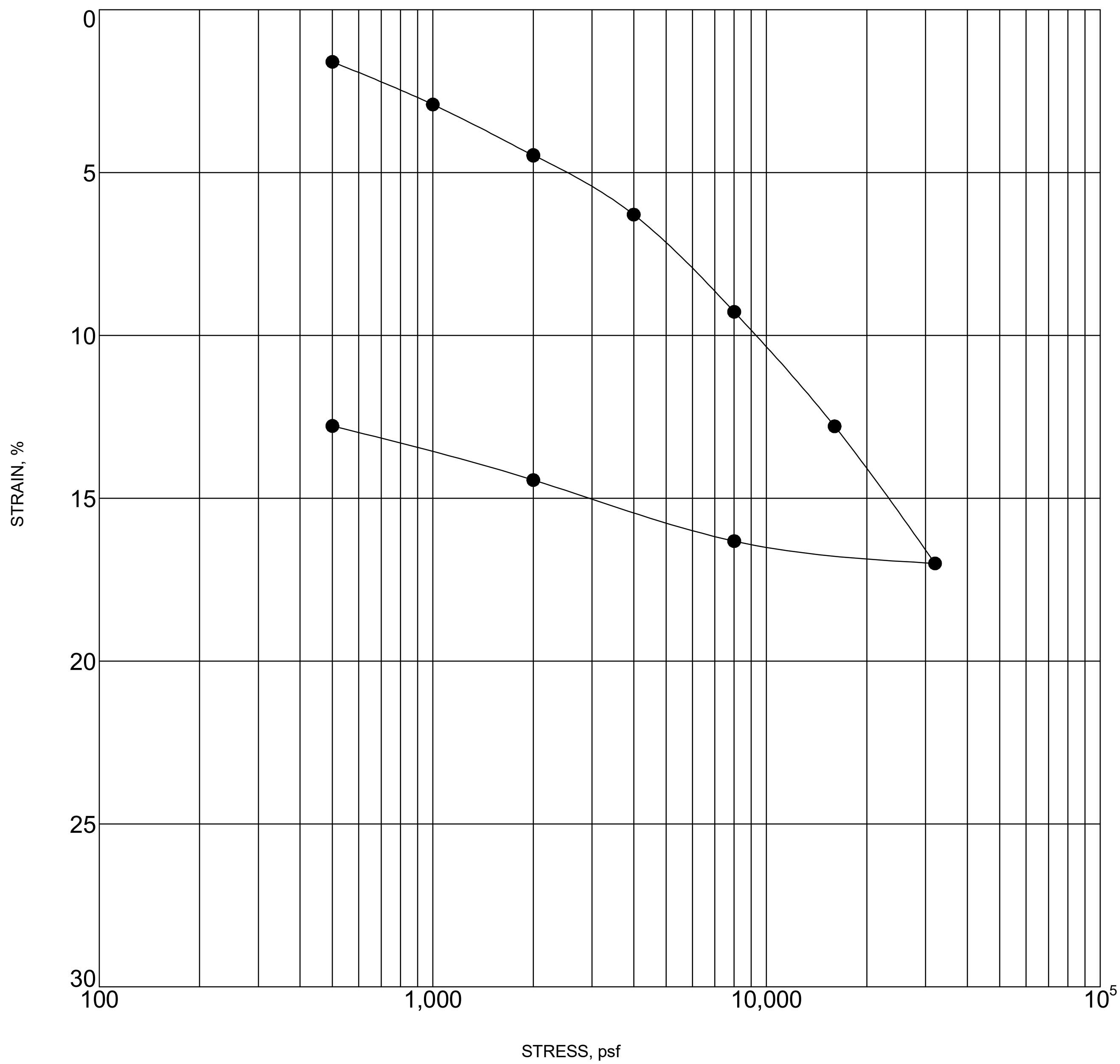
CONSOLIDATION TEST RESULTS

FIGURE C-7



Sample inundated at 2000 psf

	Sample Location		**Classification**	**DD,pcf**	**MC,%**
●	B-9	15.0	CLAY (CL)	89	30.1

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PROJECT NO.: 2884.I

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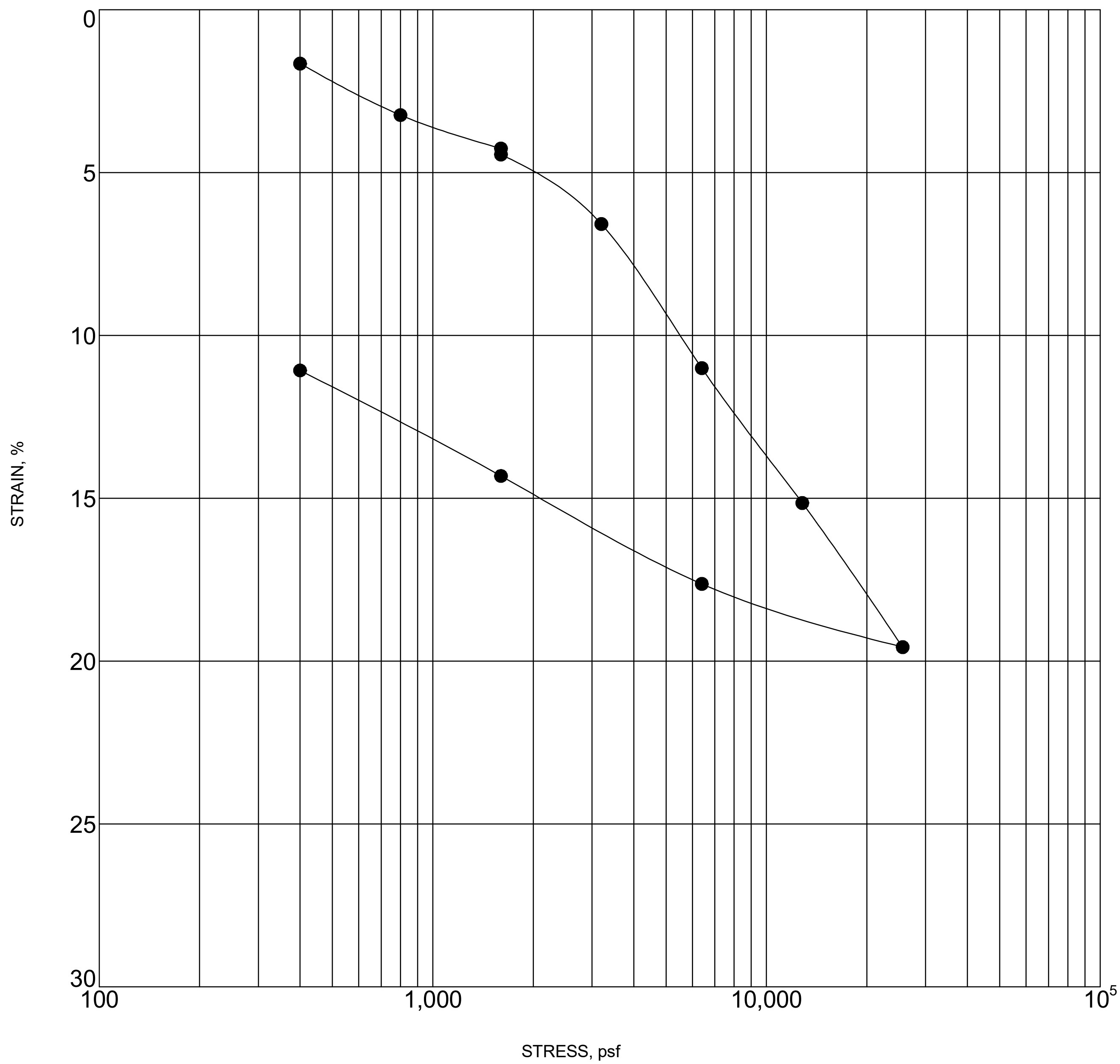
CONSOLIDATION TEST RESULTS

FIGURE C-8



Sample inundated at 1600 psf

	Sample Location		Classification	DD,pcf	MC,%
●	B-11	10.0	CLAY (CL)	82	30.5

PROJECT: COACHELLA

PROJECT NO.: 2884.I

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CONSOLIDATION TEST RESULTS

FIGURE C-9

Table 1 - Laboratory Tests on Soil Samples

Geotechnical Professionals, Inc.
Coachella Business Park
Your #2884.I, HDR Lab #18-0502LAB
9-Aug-18

Sample ID

			B-3 @ 0-4'	B-7 @ 0-4'
Resistivity		**Units**		
as-received		ohm-cm	2,480	600,000
saturated		ohm-cm	160	1,040
pH			7.7	7.7
Electrical Conductivity		mS/cm	3.04	0.27
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	1,220	100
magnesium	Mg^{2+}	mg/kg	232	16
sodium	Na^{1+}	mg/kg	2,290	128
potassium	K^{1+}	mg/kg	218	40
Anions				
carbonate	CO_3^{2-}	mg/kg	ND	ND
bicarbonate	HCO_3^{1-}	mg/kg	95	146
fluoride	F^{1-}	mg/kg	7.8	4.0
chloride	Cl^{1-}	mg/kg	2770	125
sulfate	SO_4^{2-}	mg/kg	4,080	163
phosphate	PO_4^{3-}	mg/kg	ND	ND
Other Tests				
ammonium	NH_4^{1+}	mg/kg	ND	ND
nitrate	NO_3^{1-}	mg/kg	861	174
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Resistivity per ASTM G187, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per APHA 2320-B.
Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

431 West Baseline Road · Claremont, CA 91711
Phone: 909.962.5485 · Fax: 909.626.3316

Appendix E

Paleontological Resource Assessment

PALEOWEST

T: 626.408.8006
F: 602.254.6280
info@paleowest.com

LOS ANGELES, CALIFORNIA
517 S. Ivy Avenue
Monrovia, CA 91016

May 5, 2020

Mr. Max Antono
Environmental Planner/GIS Analyst
The Altum Group
73-710 Fred Waring Drive, Ste. 219
Palm Desert, CA 92260
Transmitted via email to max.antono@thealtumgroup.com

RE: Paleontological Resource Assessment for the Coachella Airport Business Park Project in Coachella, Riverside County, California

Dear Mr. Antono:

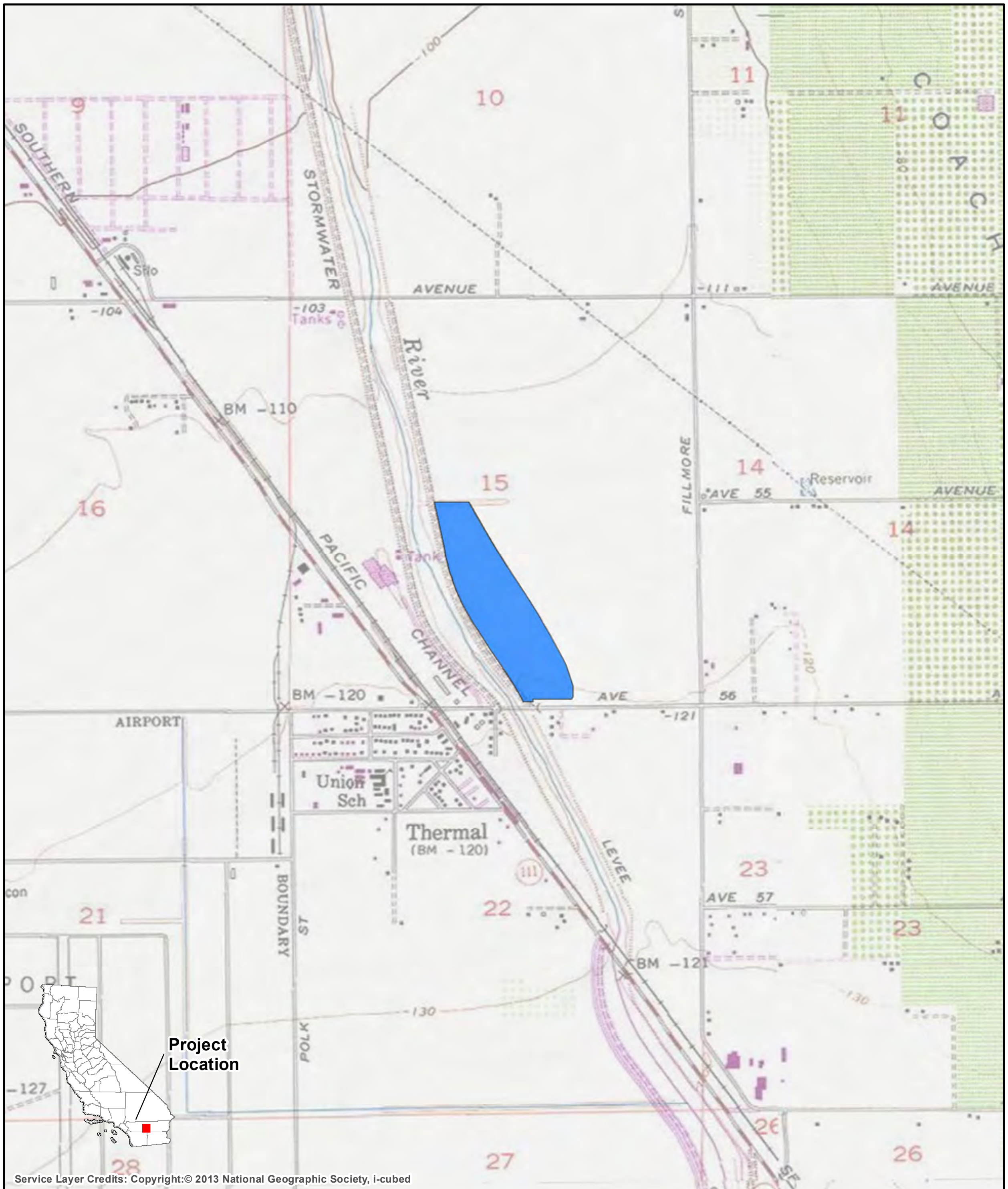
At the request of The Altum Group, PaleoWest conducted a paleontological resource assessment for the Coachella Airport Business Park Project in Coachella, Riverside County, California. The goal of the assessment is to identify the geologic units that may be impacted by development of the Project, determine the paleontological sensitivity of geologic units within the Project area, assess potential for impacts to paleontological resources from development of the Project, and recommend mitigation measures to avoid or mitigate impacts to scientifically significant paleontological resources, as necessary.

This paleontological resource assessment included a fossil locality records search conducted by the Natural History Museum of Los Angeles County (NHMLAC) and by the San Bernardino County Museum (SBCM), as well as a search of the University of California Museum of Paleontology's (UCMP) online database. The records search was supplemented by a review of existing geologic maps and primary literature regarding fossiliferous geologic units within the proposed Project vicinity and region. This technical memorandum, which was written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP) (2010), has been prepared to support environmental review under the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION

The proposed Project is located at the northwest corner of State Route (SR) 86 and Airport Boulevard and is comprised of three parcels totaling approximately 43 acres in size. The Assessor's Parcel Numbers (APNs) of the Project area are 763-330-013, 763-330-017, and 763-330-018. The Project area is bordered to the north by a vacant, undeveloped property; to the west, the Project area is bordered by the Whitewater River Storm Channel; to the east, bordered by State Route 86; and to the south, by Airport Boulevard (Figure 1). The Project area is situated within Section 15, Township 6 South, Range 18 East, San Bernardino Baseline and Meridian (SBBM), as depicted on the Indio, CA 7.5' U.S. Geological Survey (USGS) topographic quadrangle (Figure 2). The elevation of the Project area ranges between 110 and 120 feet below mean sea level (bmsl).

Figure 1
Project Vicinity Map
USGS 7.5' Quadrangle:
Riverside West, Ca (1981)
T3S R5W Sec 4
NAD 83 UTM Zone 11



0 feet 2,000

0 meters 500

1:24,000

Figure 2
Project Location Map
USGS 7.5' Quadrangle:
Indio, Ca (1977)
T6S R8W Sec 15
NAD 83 UTM Zone 11

Project Area

The service station/mini mart and drive-thru coffee shop are proposed to be developed at the southern end of the Project area near the Project's two primary access points along Airport Boulevard within close proximity to the SR 86 off ramp. North of these two retail buildings will be the small business sector that will be comprised of 18 leasable buildings for office and/or warehouse uses. Beyond the small business sector to the north will be the brick yard sector of the business park that will contain a total of four hangar type buildings with a centralized courtyard-type green space. The brick yard sector will be designed for storage of automobile models and motorsport vehicles. The self-storage sector will be located within the western portion of the center of the Project area and be comprised of 16 buildings ranging in size. The small warehouse sector will be located within the eastern portion of the center of the Project area and will consist of four warehouse buildings. The large warehouse sector will be located within the northern portion of the Project area and will consist of four to six warehouses. Both the large and small warehouse sectors will be built to accommodate both logistical/distribution-related uses (i.e., fulfillment centers) and for cannabis-related uses (i.e., cultivation, manufacturing, and distribution). Located at the northwest corner of State Highway 86 and Airport Boulevard, the Coachella Airport Business Park Project (Project) site consists of three parcels totaling approximately 43-acres. The Project will be completed in phases and will be utilized as a mixed-use business park with a focus on warehouse/commercial cannabis, small business and service station-related land uses including a Large Warehouse, Small Warehouse, Small Business, Brick Yard, Self-Storage, Service Station/Mini Mart and Drive-Thru Coffee Shop totaling 676,997 square feet of building space. The site can be found in Township 6S, Range 8E, and sections 9, 10, 11, 14, 15, 16, 21, 22, 23 and 25.

REGULATORY CONTEXT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that public agencies and private interests identify the potential environmental consequences of their Projects on any object or site of significance to the scientific annals of California (Division I, California Public Resources Code [PRC] Section 5020.1 [b]). Appendix G in Section 15023 provides an Environmental Checklist of questions (PRC 15023, Appendix G, Section VII, Part f) that includes the following: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?"

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has provided guidance specifically designed to support state and Federal environmental review. The SVP broadly defines significant paleontological resources as follows (SVP 2010, page 11):

> "Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)."

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered significant.

CALIFORNIA PUBLIC RESOURCES CODE

Section 5097.5 of the Public Resources Code (PRC) states:

> "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, 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 PRC 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. Consequently, public agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

LOCAL

The City of Coachella General Plan (2035) covers seven elements, one of which includes Sustainability and the Natural Environment. This element includes one goal and one associated policy related to paleontological resources, as follows:

> Goal 12. Cultural Resources and Sites. Preserved and protected cultural resources that provide the community with significant cultural, scientific, or educational value.
>
> Policy 12.7 Paleontological resources. Require any paleontological artifacts found within the City or Sphere of Influence be reported to the City and temporarily loaned to local museums like the Western Science Center for Archaeology and Paleontology, in Hemet, CA.

METHODOLOGY

Determining the probability that a given project site might yield paleontological resources requires a knowledge of the geology and stratigraphy of the project area, as well as researching any nearby fossil finds by: 1) reviewing published and unpublished maps and reports; 2) consulting on-line databases; 3) seeking any information regarding pertinent paleontological localities from local and regional museum repositories, and 4) if needed, conducting a reconnaissance site visit or paleontological resources field survey. The UCMP online paleontological database was used to document previously recorded paleontological findings in the Project vicinity. In addition, paleontological record searches documenting fossil localities in the Project area were obtained from the NHMLAC on April 1, 2020 (McLeod 2020) and SBCM on April 10, 2020 (Cortez 2020). Published geologic and paleontological literature of the Project area were also reviewed. Using this information, geologic units identified within the Project vicinity are categorized according to SVP (2010) guidelines as possessing high, low, undetermined, and no paleontological resource potential.

GEOLOGIC CONTEXT

The Project area is located in the Coachella Valley within the Colorado Desert geomorphic province of California. A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and diastrophic history. The Colorado Desert extends from the Mojave Desert to the north, the Colorado River on the east, the Peninsular Ranges on the west, and south into Mexico. Dominant features within the Colorado Desert include the Salton Trough, the Colorado River, and the Orocopia, Chocolate, Palo Verde, and Chuckwalla mountains (Norris and Webb 1976). Coachella Valley is within the Salton Trough—a large structural depression that extends from the San Gorgonio Pass in the north to the Gulf of Mexico in the south (Norris and Webb 1976). The Salton Trough formed due to tectonic activity associated with the San Andreas Fault Zone and the East Pacific Rise spreading ridge that opened the Gulf of California (Alles 2011). Since the late Quaternary, the freshwater Lake Cahuilla periodically occupied the Salton Trough. The lake formed, drained, and reformed between approximately 37,000 to 300 years before present (BP) due to the fluctuations in the course of the Colorado River, and the subsequent diversion of its mouth from the Gulf of California to the Salton Trough (Deméré 2002; Norris 1979). Lake Cahuilla reached a maximum depth of 300 ft, 105 mi long, and 35 mi across at its last high stand at approximately 45 ft above sea level in the Imperial Valley.

SITE SPECIFIC GEOLOGY AND PALEONTOLOGY

According to published geologic maps, the Project area is immediately underlain by Holocene age surficial alluvial sediments (Qa. Qg) (Dibblee and Minch 2008) (Figure 3). Based on previous stratigraphic, archaeological, paleontological, hydrogeological, and tectonic studies, Holocene-age Lake Cahuilla silt deposits are known to underlie surficial alluvial deposits at shallow depth (Alles 2011; Deméré 2002; Norris 1979; Waters 1983; Whistler et al. 1995). In turn, older Pleistocene-age “ancient” Lake Cahuilla deposits underlie the surficial lacustrine silt at depth. The depth of the contact between the Holocene-age and Pleistocene-age Lake Cahuilla deposits in the Project area is unknown; however, radiocarbon dating derived from an exposure of Lake Cahuilla deposits located approximately 5 miles south of Indio, indicates that lacustrine silt sediments at a depth of 20 feet below ground surface have an age of approximately 4,000 years BP (Waters 1983). Pleistocene-age ancient Lake Cahuilla sediments are likely present at a moderate depth below the Holocene deposits. The Pleistocene to Holocene-age Lake Cahuilla deposits are generally composed of weakly consolidated, shallow to moderately deep lacustrine sands, silts and clays, with tufa and travertine rock coatings, coarse alluvial deposits, and beach sands (Norris 1979; Waters 1983). The Lake Cahuilla sediments range from several feet deep at the margin of the Coachella Valley to as much as 300 feet thick in the center of the Salton Trough (Arnal 1961; Norris and Webb 1976).

Late Quaternary-age lacustrine deposits derived from ancient Lake Cahuilla have proven to yield scientifically significant mollusk shells within the Salton Trough (Whistler et al. 1995). Fossil specimens of diatoms, spores, pollen, land plants, sponges, ostracods, freshwater gastropods, fresher bivalves, fish, and small terrestrial vertebrate have been recovered from the Lake Cahuilla Beds (McLeod 2020). In addition, Holocene-age, non-mineralized, mollusk shells are also found in the Lake Cahuilla silt deposits, their recovery and subsequent dating have helped researchers with studies in archaeology, geology, and seismology (Norris and Webb 1976).

Figure 3
Geology Map
USGS 7.5' Quadrangle: Indio, Ca (1977) T6S, R8E; Sec15 NAD 83 UTM Zone 11

PALEONTOLOGICAL SENSITIVITY

Absent agency guidelines, paleontologists often follow guidelines set forth by the Society of Vertebrate Paleontology (2010) to assist in developing mitigation recommendations for a given project. These guidelines for assessment of the paleontological resource potential of affected geologic units also outline measures to mitigate potential adverse impacts from project development. Analyzing information gathered during a paleontological resource assessment, the paleontological resource potential of the geologic unit(s) underlying a project area can be assigned to one of four categories defined by SVP (2010). These categories include high, undetermined, low, and no paleontological resource potential.

- High Sensitivity: Vertebrate fossils, as well as the respective stratigraphic units in which these vertebrate fossils were discovered, are likely present, and likely have significant scientific value. In areas of high sensitivity, full-time monitoring is recommended during project-related ground disturbance.
- Low Sensitivity: Stratigraphic units that have yielded few fossils in the past, based upon review of available literature and museum collections records, are considered to possess low paleontological sensitivity. Monitoring is usually not recommended during excavation within a stratigraphic unit of low sensitivity, although spot monitoring may be recommended to confirm that disturbance remains restricted to low-sensitivity units.
- Undetermined Sensitivity: In certain instances, the lack of available literature on a particular geologic unit, or absence of exposures of that unit, make it difficult to determine a unit's likelihood of yielding fossiliferous remains. Under these circumstances, further studies may be recommended to assess the unit's paleontological resource potential (i.e., field survey). If a unit remains of "undetermined" paleontological sensitivity, then it is treated as possessing "high" sensitivity for purposes of initial monitoring and mitigation.
- No Sensitivity: This category includes geological strata that are either too young (<10,000 years old), too weathered, metamorphosed, or too coarse-grained to preserve significant fossilized remains. Metamorphic and plutonic igneous rocks normally do not contain fossils due to the high heat and pressure during their formation, and commonly possess no paleontological sensitivity.

MUSEUM RECORDS SEARCH RESULTS

The NHMLAC does not have on record any previously recorded vertebrate fossil localities directly within the proposed Project boundaries; however, several fossil localities from sedimentary deposits similar to those found at the Project site have been recorded somewhat nearby. Directly west-southwest of the Project site on both sides of Madison Street north of 58th Avenue, several fossil localities have been recognized from the Lake Cahuilla beds. During mitigation activities for the construction of the PGA West Tom Weiskopf Signature Golf Course, localities LACM 6252, 6253, and 6255 were collected form a single trench west of Madison Street consisting of a fauna of terrestrial and freshwater vertebrates as well as diatoms, land plants, clams, snails and crustaceans (McLeod 2020). In addition, LACM 6256 produced a single jaw of the bighorn sheep *Ovis canadensis*, east of Madison Street. A search of the UCMP database revealed two vertebrate fossil localities, each yielding fossil specimens of *Gopherus agassizii (*desert tortoise). Finally, the SBCM records search did not produce any paleontological resource localities within the Project area nor within a 3-mile buffer (Cortez 2020). The results of the museum records searches are presented in Table 1 below.

Table 1
Vertebrate Localities Reported near the Project Area

LOCALITY NO.	GEOLOGIC UNIT	AGE	TAXA
LACM 6252, 6253, 6255	Unspecified Quaternary-age deposits	Pleistocene	*Xyrauchen texanus* (razorback sucker), *Gila elegans* (bonytail), *Cyprinodon macularius* (desert pupfish), *Phrynosoma platyrhinos* (desert horned lizard), *Sceloporus magister* (desert spiny lizard), *Uma inornate* (Coachella Valley fringe-toed lizard), *Urosaurus graciosus* (long-tailed brush lizard), *Chionactis occipitalis* (western shovel-nosed snake), *Hypsiglena torquata* (night snake), *Pituophis melanoleucus* (gopher snake), *Sonora semiannulata* (western ground snake), *Crotalus cerastes* (sidewinder rattlesnake), *Passeriformes* (advanced land birds), *Sylvilagus* (cottontail rabbit), *Neotoma lepida* (desert wood rat), *Peromyscus* (white-footed mouse), *Dipodomys* (kangaroo rat), *Perognathus longimembris* (pocket mouse), *Ammospermophilus leucurus* (antelop ground squirrel)
LACM 6256	Unspecified Quaternary-age deposits	Pleistocene	*Ovis canadensis* (bighorn sheep)
UCMP 197573	Unspecified Quaternary-age deposits	Pleistocene	*Gopherus agassizii* (desert tortoise)

LOCALITY NO.	GEOLOGIC UNIT	AGE	TAXA
UCMP 197574	Unspecified Quaternary-age deposits	Pleistocene	*Gopherus agassizii* (desert tortoise)

Sources: UCMP 2020; McLeod 2020

FINDINGS

Shallow excavations in the Project area (approximately 10 feet in depth or less) are unlikely to yield any significant paleontological resources because younger Quaternary deposits are void of fossils and near-surface alluvium is usually too young to contain fossils, and therefore possesses low sensitivity. As a result, no effects to paleontological resources would occur from earth-moving activities at shallow depths at the Project site. However, deeper excavations that may extend down into older Quaternary (Pleistocene) Lake Cahuilla beds are more likely to unearth fossil vertebrate remains (McLeod 2020). Older Quaternary deposits underlying the Project area are considered to have a high paleontological sensitivity because they have proven to yield significant paleontological resources (i.e., identifiable vertebrate fossils). Generally, ground-disturbing activities exceeding depths beyond Holocene soils and younger Quaternary alluvium would encounter older Quaternary alluvium and, consequently, should be monitored by a qualified paleontological monitor to identify and effectively salvage any recovered resources while minimizing discovery-related delays.

RECOMMENDATIONS

In general, the potential for a given project to result in negative impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the project; thus, the higher the amount of ground disturbances within geological deposits with a known paleontological sensitivity, the greater the potential for negative impacts to paleontological resources. Since this Project entails grading and excavations, new ground disturbances are anticipated. Consequently, the likelihood of impacting scientifically significant fossils because of Project development is high. Therefore, a qualified paleontologist should be retained to develop and implement a Paleontological Resources Monitoring and Mitigation Plan (PRMMP). The following mitigation measures have been developed in accordance with SVP guidelines; if implemented, these measures will satisfy the requirements of CEQA. These measures have been used by professional paleontologists for many years and have proven to be effective in reducing or eliminating adverse impacts to fossil resources as a result of private and public development.

WORKER’S ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to the start of the proposed Project activities, all field personnel will receive a worker’s environmental awareness training on paleontological resources. The training will provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the Project area, the role of the paleontological monitor, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the Project Paleontologist. The training will be developed by the Project Paleontologist and can be delivered concurrent with other training including cultural, biological, safety, etc.

PALEONTOLOGICAL MITIGATION MONITORING

Prior to the commencement of ground-disturbing activities, a professional paleontologist will be retained to prepare and implement a PRMMP for the proposed Project. The PRMMP will describe the monitoring required during excavations that extend into older Quaternary (Pleistocene) age sediments, and the location of areas deemed to have a high paleontological resource potential. Part-time monitoring, or spot checking, may be required during shallow ground-disturbances (< 10 feet below ground surface) to confirm that sensitive geologic units are not being impacted. Monitoring will entail the visual inspection of excavated or graded areas and trench sidewalls.

FOSSIL DISCOVERIES

In the event that a paleontological resource is discovered, the monitor will have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the Project Paleontologist shall complete the following:

1. Salvage of Fossils. If fossils are discovered, all work in the immediate vicinity should be halted to allow the paleontological monitor, and/or Project Paleontologist to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the Project Paleontologist (or paleontological monitor) should recover them following standard field procedures for collecting paleontological as outlined in the PRMMP prepared for the project. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.

2. Fossil Preparation and Curation. The PRMMP will identify the museum that has agreed to accept fossils that may be discovered during project-related excavations. Upon completion of fieldwork, all significant fossils collected will be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossils specimens will be identified to the lowest taxonomic level practical prior to curation at an accredited museum. The fossil specimens must be delivered to the accredited museum or repository no later than 90 days after all fieldwork is completed. The cost of curation will be assessed by the repository and will be the responsibility of the client.

FINAL PALEONTOLOGICAL MITIGATION REPORT

Upon completion of ground disturbing activity (and curation of fossils if necessary) the Project Paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

It has been a pleasure working with you on this Project. If you have any questions, please do not hesitate to contact us.

Sincerely,

PALEOWEST

N Kottachchi

Jess DeBusk

Niranjala Kottachchi, MSc |
Senior Paleontologist

Jessica DeBusk, B.S., M.B.A. |
Principal Investigator/Program Manager

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Appendix F

Phase I Environmental Site Assessment

Phase I Environmental Site Assessment

Coachella Airport Business Park
42.36 Acres
APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029
Coachella, California 92274

Prepared for:
Haagen Company
12302 Exposition Boulevard
Los Angeles, California 90064

Prepared by:
Altec Testing & Engineering, Inc.
6035 Fremont Street
Riverside, California 92504

February 23, 2021
Project No. 464-2021105

Professional Certification/Declaration

In the Small Business Liability and Brownfields Revitalization Act (2002), Congress ordered the U.S. EPA to codify environmental site assessment rules to address each of the ten steps that must be satisfied prior to a property purchase to qualify an innocent landowner for liability protection under CERCLA. A property purchaser must comply with either the federal rule entitled “Standards and Practices for All Appropriate Inquiries” (*40 CFR Part 312*) or ASTM International (formerly American Society of Testing and Materials) (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Designation: E1527) to qualify for any of the three CERCLA liability protections before purchase, in addition to meeting a series of post-purchase obligations.

This Phase I ESA update was prepared by qualified environmental professionals (EPs) in general conformance with the scope and limitations of the current ASTM Practice E 1527 and the EPA’s federal “All Appropriate Inquiry” rule.

We declare that we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. We have the specific qualifications based on education, training, and experience to assess properties of the nature, history, and setting of the target property. We have developed and performed the of all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared by:

Signature	February 23, 2021 Date
Lynn Laborde	

Reviewed by:

Signature	February 23, 2021 Date
Patrick Adams	

TABLE OF CONTENTS

1.0 SUMMARY 4

2.0 SUMMARY OF RECOGNIZED ENVIRONMENTAL CONDITIONS 5

3.0 USER PROVIDED INFORMATION 6

4.0 EDR DATABASE REVIEW 8

5.0 AGENCY FILES 18

6.0 AERIAL PHOTOGRAPHS & MAPS 30

7.0 LOCATION/GEOLOGY/HYDROGEOLOGY 47

8.0 TARGET PROPERTY RECONNAISSANCE 50

9.0 ADJOINING & SURROUNDING PROPERTIES 55

10.0 PRIOR ASSESSMENTS/EVALUATIONS 57

11.0 EVALUATION/CONCLUSIONS 58

12.0 DEVIATIONS 59

13.0 REFERENCES 61

Attachments

Appendix A	Figures/Maps
Appendix B	Site Photographs
Appendix C	Historical Resources
Appendix D	Agency Records
Appendix E	Phase I ESA Scope of Work

1.0 SUMMARY

In February 2021, Haagen Company hired Altec Testing & Engineering, Inc. (Altec) to perform a Phase I Environmental Site Assessment (ESA) of the Coachella Airport Business Park property; a 42.36-acre vacant property consisting of three parcels of land located in Coachella, California. The Coachella Airport Business Park property is referred to as the "property", "target property" or "TP" throughout this report. The target property is located to the north of Airport Road (also known as 56th Street), west of Highway 86 and east of the Whitewater River riverbed/stormwater channel. There are no structures present onsite. The property is owned by Empire Airport LLC.

The target property Riverside County Assessor's Parcel Numbers are:

(1) APN 763-33-0013
(2) APN 763-33-0018
(3) APN 763-33-0029

No previously used street addresses were identified so Altec used the "approximate" address of 87630 Airport Road for the environmental database search in order to obtain applicable database information for the site location and surrounding area.

The following sections of the Phase I ESA report provide the information obtained through this assessment:

Section 2.0 is a summary of the recognized environmental concerns and environmental concerns associated with the target property.
Section 3.0 is a summary of the user provided information, interviews and environmental liens.
Section 4.0 presents information obtained from Environmental Data Resources, Inc. (EDR) regarding public records for the target property and surrounding sites that have been associated with chemical storage, use, disposal, release, contamination, etc.
Section 5.0 contains descriptions of other records obtained directly from state, county and local agencies.
Section 6.0 contains descriptions from aerial photographs, historical maps and telephone directory listings.
Section 7.0 provides a description of local geology and hydrogeology.
Section 8.0 provides a description of the site observations made during the target property reconnaissance.
Section 9.0 provides a summary of adjoining and surrounding property observations.
Section 10.0 describes the prior site assessments performed for the target property, if any.
Section 11.0 provides an evaluation of the environmental concerns and makes conclusions regarding whether the identified concerns are RECs.
Section 12.0 summarizes the deviations, if any, from the ASTM scope of work.
Section 13.0 lists the notable references used for the Phase I ESA.

2.0 SUMMARY OF RECOGNIZED ENVIRONMENTAL CONDITIONS

The following Recognized Environmental Conditions (RECs) were identified. Further evaluation/assessment and removal actions are necessary to address each identified REC.

REC 1 - Former agricultural use on all three parcels
From approximately 1953 to 1984, the three target property parcels contained agricultural crops (row crops or hay). The potential exists for residues of organophosphate pesticides (OPP), organochlorine pesticides (OCPs) and chlorinated herbicides (CHs) to be present in the soils in association with this agricultural usage. The potential presence of pesticides/herbicides at the target property would be identified as a recognized environmental condition (REC) if the detected concentrations exceed regulatory agency screening levels.

A soils investigation is warranted.

Historical Recognized Environmental Conditions (HRECs)
No HRECs were revealed during this assessment.

Controlled Recognized Environmental Conditions (CRECs)
No CRECs were revealed during this assessment.

3.0 USER PROVIDED INFORMATION

The target property Assessor Parcel Numbers (APNs) are:
APN 763-33-0013
APN 763-33-0018
APN 763-33-0029

Since no previously used street addresses were identified for the target property, Altec used the "approximate" address of 87630 Airport Road to perform the environmental database searches so that the obtained records would be appropriate for the site location. This address was derived from the address of 87629 Airport Road which is assigned to the Desert View residential mobile home park located directly across Airport Road to the south.

3.1 Title Records

Chain of title documents/title summary information was not obtained or provided for our review. Professional services for obtaining chain of title documents were not included in this assessment scope of work and are not part of our expertise. As part of the environmental liens and activities and use limitations, the most current Grant Deeds were obtained for each parcel.

Empire Airport LLC owns the three target property parcels (APN #s 13, 18 & 29). Empire Airport LLC is managed by Haagen Company LLC.

APN 763-33-0013 was acquired on 11/15/2017 by Empire Airport LLC from the State of California
APN 763-33-0018 was acquired on 6/21/2007 by Empire Airport LLC from Empire II LLC.
APN 763-33-0029 was acquired on 11/15/2017 by Empire Airport LLC from St. of California.

When Empire Airport LLC acquired the two parcels of land represented by APN 763-33-0013 and -0029 in 2017, parcel number 763-33-0029 did not exist. The parcel was identified then as 763-33-0017 and at the time of acquisition it was divided into two smaller parcels; APN 763-33-0029 which Empire Airport LLC purchased/acquired and a small remnant parcel (#30) which the State of California retained.

3.2 Environmental Liens or Activity and Use Limitations (AULs)

The client is not aware of any environmental cleanup liens against the target property that are filed or recorded under federal, tribal, state or local law. The client is not aware of any activity and use limitations (AULs), such as engineering controls, land use restrictions or institutional controls in place at the target property.

Environmental lien research was performed for all three parcels. The search revealed no AULs or environmental liens. The lien and AUL search information/report is provided in the appendix section of this report.

3.3 Specialized Knowledge

The client does not have any specialized knowledge or experience related to the target property.

3.4 Commonly Known or Reasonably Ascertainable Information

The client is not aware of the past uses of the target property. All provided applicable information has been included in this report.

3.5 Valuation Reduction for Environmental Issues

The client believes that the target property purchase price is reasonably reflective of the fair market value.

3.6 Owner, Property Manager and Occupant Information

The current owner is Empire Airport LLC (763-33-0013, 763-33-0018 & 763-33-0029). Conducting interviews with former owners/operators was deemed impractical.

3.7 Reason for Performing Phase I ESA

Altec performed this Phase I ESA to provide the client with a current understanding of the potential environmental liabilities (associated with RECs, HRECs and CRECs) at the target property.

3.8 Planned Development

The development plan for at least a portion of these parcels is a commercial business park.

4.0 EDR DATABASE REVIEW

This section presents information collected from reasonably ascertainable and practically reviewable sources. For this Phase I ESA, records were obtained from Environmental Data Resources, Inc. (EDR). EDR's complete report is included as an appendix of this report.

Some records reviewed pertain not only to the target property, but also to properties within the vicinity. This is beneficial in assessing the likelihood of impacts from migrating hazardous substances or petroleum products and other conditions in the area. Altec researched nearby properties by viewing available records on websites such as the State of California EPA DTSC's EnviroStor Data Management System (Envirostor) and the State of California Water Resources Control Board (SWRCB)'s GeoTracker data management system.

The DTSC's EnviroStor system provides detailed information on inspections and enforcement actions of permitted hazardous waste facilities. It provides all existing information on permits and corrective action at hazardous waste facilities, as well as site cleanup projects and allows searches for information on completed facility inspection and enforcement actions, in addition to site investigation, site cleanup, permitting, and planned, current or completed corrective actions under DTSC's oversight.

The GeoTracker system is used for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense, Site Cleanup Program) as well as permitted facilities such as operating USTs and land disposal sites. GeoTracker provides most of the public records for a target property to the public through its Document Manager Module of over 350,000 documents, including regulatory communication with responsible parties, regulatory actions such as records of decision documents, and all data and documents submitted by the responsible party using Business to Government Reporting Module for Electronic Submission of Information (ESI).

Unless other distances are noted, the approximate minimum search distances were as specified in ASTM 1527-13.

4.1 Standard Environmental Records

The data provided by EDR is updated at least every 90 days or within 90 days of the date that the governing agency makes the information available to the public. The EDR report lists each of the sources that were used even if that source revealed no findings. Some federal, state, regional and local lists were reviewed for known and potential sources of off-site contamination that might adversely affect the target property. Each identified listing was analyzed for its potential impact to the target property.

Altec has found that locations identified within the database or boundaries may not be plotted accurately. Location discrepancies for nearby sites are usually noted during the vicinity reconnaissance if they appear to have a potential for impacting the target property. These general location discrepancies usually do not change whether an REC, HREC or CREC is identified at the target property.

Occasionally, boundary discrepancies for federal or state National Priority List site (usually for impacted groundwater) or flood zones occur as well. If a federal or state NPL site is present within the ASTM minimum search distance, a more thorough file review would be required to determine specific contaminant boundaries. Additionally, NPL sites located outside of the ASTM minimum search distance can present a difficult situation because, occasionally, their boundaries are inaccurately plotted. On more than one occasion (for previous projects), Altec has identified a groundwater contamination NPL boundary that has been inaccurately identified outside the ASTM minimum search distance, when in fact the contaminant boundaries extended onto and beyond the target property. EDR has explained that the data in their report is derived directly from information provided by the reporting agencies and they have asserted that if the agency plotting data is inaccurate, it will be inaccurate in the EDR report.

In addition, due to location discrepancies in the databases, some sites may be listed as unmappable. These unmappable sites are evaluated independently to determine if they area within an approximate minimum search distance from the TP. Of the listed unmappable facilities, none were observed to be within the ASTM minimum search distance (for the referenced databases) of the TP.

4.1.1 Summary of Onsite Database Listings
EDR showed no businesses/entities for/at the target property:

4.1.2 Summary of Nearby Database Listings
The following sites located in the vicinity of the target property were reviewed by Altec.

After the review, a determination was made as to whether the site/former uses at the site pose a high, medium or low risk of environmental impact to the target property based on the nature of the business and the distance or direction or the extent of contamination (if any).

No high-risk or medium-risk sites were identified.

Low Risk/Low Potential for Impact - Based on a review of readily available information from the RWQCB GeoTracker website, Cal/EPA DTSC EnviroStor website and the EDR database information, the following surrounding sites identified within a ¼ mile radius appear to pose a low risk of adverse environmental impact to the target property.

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID No.
1 **South** **< 1/8** **0.108 mi.** **569 ft.**	**RVSD CO ROAD YARD THERMAL** **87495 AIRPORT BLVD** **THERMAL, CA 92274**	**LUST** **Cortese** **HIST CORTESE** **CERS**	**S101300632** **N/A**
Relative: **Lower** **Actual:** **-121 ft.**	LUST REG 7: Region: 7 Status: 9 - Case Closed Case Num: 7T2274007		

This site is located to the west of the TP, across the Whitewater River channel and across the railroad tracks. It is a former leaking UST site which is currently closed. The leak was reported in 1988. Groundwater was affected by the gasoline release, soil and groundwater assessment and remediation were performed, and the case was closed in 1997. RWQCB and a RCDEH both maintain files for the site but Altec did not review the files in person. This site appears to pose a low risk of impact to the target property based on the available information.

A2	**CALIFORNIA REDIDATE L L C**	**RCRA-SQG**	**1001967605**
WSW	**87500 AVE 56**	**FINDS**	**CAR000071035**
1/8-1/4	**THERMAL, CA 92274**	**ECHO**	
0.126 mi.			
667 ft.	**Site 1 of 2 in cluster A**		

Relative: Higher
Actual: -116 ft.

RCRA-SQG:
Date Form Received by Agency: 2000-04-19 00:00:00.0
Handler Name: CALIFORNIA REDIDATE L L C
Handler Address: 87500 AVE 56

A3	**THERMAL CA INDUSTRIAL**	**RCRA NonGen / NLR**	**1025881548**
WSW	**87500 AIRPORT BLVD**		**CAP000244053**
1/8-1/4	**THERMAL, CA 92274**		
0.126 mi.			
667 ft.	**Site 2 of 2 in cluster A**		

Relative: Higher
Actual: -116 ft.

RCRA NonGen / NLR:
Date Form Received by Agency: 2014-05-25 00:00:00.0
Handler Name: THERMAL CA INDUSTRIAL
Handler Address: 87500 AIRPORT BLVD

This site is located to the west of the TP, southwest of the target property across the Whitewater River channel and across the railroad tracks. The business is/was a small quantity generator which generated ignitable and corrosive wastes that were associated with post-harvest crop activities. No RCRA violations were found. This site appears to pose a low risk of impact to the target property based on the available information.

4	**C V ORGANIC FERTILIZERS CO**	**HIST UST**	**U001574192**
SW	**55-591 HIGHWAY 111**		**N/A**
1/8-1/4	**THERMAL, CA 92274**		
0.214 mi.			
1130 ft.			

Relative: Higher
Actual: -116 ft.

HIST UST:
Name: C V ORGANIC FERTILIZERS CO
Address: 55-591 HIGHWAY 111
City,State,Zip: THERMAL, CA 92274

This site is located to the southwest of the TP, across the Whitewater River channel and across the railroad tracks. This business operated two gasoline underground storage tanks and one diesel underground storage tank. No leaks were reported. This site appears to pose a low risk of impact to the target property based on the available information.

B5	**GTE THERMAL**	**LUST**	**S101590002**
SSW	**56189 HIGHWAY 111**	**SWEEPS UST**	**N/A**
1/8-1/4	**THERMAL, CA 92274**	**CA FID UST**	
0.216 mi.		**Cortese**	
1138 ft.	**Site 1 of 2 in cluster B**		

Relative: Higher
Actual: -116 ft.

LUST REG 7:
Region: 7
Status: 9 - Case Closed
Case Num: 7T2274001

B6	**GTE - THERMAL**	**LUST**	**S105027064**
SSW	**56189 111**	**HIST CORTESE**	**N/A**
1/8-1/4	**THERMAL, CA 92274**	**CERS**	
0.216 mi.			
1138 ft.	**Site 2 of 2 in cluster B**		

Relative:	LUST:	
Higher	Name:	GTE THERMAL
Actual:	Address:	56189 HIGHWAY 111
-116 ft.	City,State,Zip:	THERMAL, CA 92274

This site is located to the south, southwest of the TP, across the Whitewater River channel and across the railroad tracks. The leaking UST case is currently closed. Groundwater was affected by the release of diesel fuel. The leak was reported in 1987, soil and groundwater assessment was performed, and the case was closed in 1988. This site appears to pose a low risk of impact to the target property based on the available information.

C7	**JOE'S TUNE UP**	**LUST**	**S101300638**
SW	**55951 HIGHWAY 111**	**Cortese**	**N/A**
1/8-1/4	**THERMAL, CA 92274**	**HIST CORTESE**	
0.236 mi.			
1245 ft.	**Site 1 of 2 in cluster C**		

Relative:	RIVERSIDE CO. LUST:	
Higher	Name:	JOE'S TUNE UP
Actual:	Address:	55951 HWY 111
-116 ft.	City,State,Zip:	THERMAL, CA

C8	**OE S TUNE UP**	**LUST**	**S106152931**
SW	**55951 HIGHWAY 111**		**N/A**
1/8-1/4	**THERMAL, CA**		
0.236 mi.			
1245 ft.	**Site 2 of 2 in cluster C**		

Relative:	LUST REG 7:	
Higher	Region:	7
Actual:	Status:	5C - Pollution Characterization
-116 ft.	Case Num:	7T2274010

This site is located at the northwest corner of Highway 111 and Airport Road (55-951 Highway 111, Thermal, CA), to the west of the Whitewater River channel, west of the railroad tracks and west of Highway 111. The site boundaries currently include Highway 111 to the northeast, Airport Boulevard to the south and a commercial building (post office) approximately 400 feet to the west. The estimated elevation at the site is approximately 120 feet below mean sea level (msl), and the local topography slopes toward the southeast (USGS, 1978).

Site and groundwater assessment has been performed. Remediation by vapor extraction and air sparging was performed beginning in 2013. Rebound testing was performed in 2014. Post-remediation confirmation sampling was performed in in 2014.

The former fueling system at Joe's Tune Up consisted of two 10,000-gallon single walled steel gasoline USTs, one 6,000-gallon single walled steel gasoline UST, and one 250-gallon single walled steel waste oil UST. In 1989, the USTs, piping and dispensers were removed. Soil samples from the tank cavity, two soil samples collected from the underlying soil, the stockpiles and groundwater grab samples from the tank cavities; they were analyzed for total volatile petroleum hydrocarbons, total lead and volatile aromatics. TPH and VOCs were detected in soil and groundwater.

Groundwater depths were gauged between 8 to 12 feet below the ground surface (bgs). Groundwater flow direction under the site was estimated to the southeast at a gradient of 0.002 to 0.003 feet per foot (Frey, 2000). After site assessment was completed, Frey completed a conceptual site model (CSM) and concluded the following:

1. Contaminants existed in vadose zone soils at the site and workers could come into direct contact with impacted soils during excavation of soils and vapors as part of construction work.

2. The Whitewater River located approximately 1,100 feet east of the site and commercial structures located between 120 and 270 feet south and southeast of the site would not be affected by the remaining petroleum hydrocarbons in soil, soil vapor and groundwater present beneath the site. Potential migration pathways to these nearest sensitive receptors are incomplete.

3. The nearest down gradient groundwater supply well, Well No. 06S08E22C01S located approximately 1,000 feet hydrogeologically downgradient of the site and screened from 467 to 527 feet bgs, would not be affected by the petroleum hydrocarbons in soil, soil vapor and groundwater present beneath the site. It is highly unlikely that the groundwater pumped from Well No. 06S08E22C01S and the first-encountered shallow groundwater beneath the site are in direct hydrogeologic continuity. The groundwater exposure pathway was found to be incomplete to the nearest human or ecological sensitive receptors.

4. Given the relatively low concentrations of the remaining residual petroleum hydrocarbons in soil and soil vapor beneath the Site, the estimated minimal mass of volatile organic compounds, the former secondary source area of petroleum hydrocarbons appears to have been adequately remediated. As such, there is a very low likelihood that the presence of residual petroleum hydrocarbons in the subsurface will further impact groundwater beneath the Site. Furthermore, it is likely that the residual petroleum hydrocarbons in soil beneath the Site will decrease by natural attenuation.

5. The results of groundwater monitoring and sampling demonstrates that petroleum hydrocarbons in groundwater have been reduced to concentrations that meets the SWRCB low threat cleanup, water quality objectives.

6. The CSM indicates that migration pathways and exposure routes for all identified potential sensitive receptors are incomplete with the exception of construction workers excavating soils at the site.

Site closure was requested by Frey in 2014. This site appears to pose a low risk of impact to the target property based on the available information.

D9	**APPLE MARKET ONE**	**LUST**	**S103618799**
South	**56491 HIGHWAY 111**	**CERS HAZ WASTE**	**N/A**
1/8-1/4	**THERMAL, CA 92274**	**CERS TANKS**	
0.242 mi.		**Cortese**	
1277 ft.	**Site 1 of 5 in cluster D**	**CERS**	

Relative: **Higher**
Actual: **-120 ft.**

LUST REG 7:

Region:	7
Status:	5C - Pollution Characterization
Case Num:	7T2274019

D10 **South** **1/8-1/4** **0.242 mi.** **1277 ft.**	**APPLE MARKETS INC DBA APPLE MARKET ONE** **56491 HIGHWAY 111** **THERMAL, CA 92274** **Site 2 of 5 in cluster D**	**RCRA NonGen / NLR**	**1024810213** **CAL000288530**
Relative: **Higher** **Actual:** **-120 ft.**	RCRA NonGen / NLR: Date Form Received by Agency: 2004-11-29 00:00:00.0 Handler Name: APPLE MARKETS INC DBA APPLE MARKET ONE Handler Address: 56491 HIGHWAY 111		
D11 **South** **1/8-1/4** **0.242 mi.** **1277 ft.**	**APPLE MARKET** **56491 HIGHWAY 111** **THERMAL, CA 92274** **Site 3 of 5 in cluster D**	**SWEEPS UST** **CA FID UST**	**U002095224** **N/A**
Relative: **Higher** **Actual:** **-120 ft.**	SWEEPS UST: Name: APPLE MARKET Address: 56491 HIGHWAY 111 City: THERMAL		
D12 **South** **1/8-1/4** **0.242 mi.** **1277 ft.**	**APPLE MARKET ONE** **56491 HWY 111** **THERMAL, CA 92274** **Site 4 of 5 in cluster D**	**UST**	**U004282412** **N/A**
Relative: **Higher** **Actual:** **-120 ft.**	UST: Name: APPLE MARKET ONE Address: 56491 HWY 111 City,State,Zip: THERMAL, CA 92274		
D13 **South** **1/8-1/4** **0.242 mi.** **1277 ft.**	**APPLE MARKET ONE** **56491 US HIGHWAY 111** **THERMAL, CA 92274** **Site 5 of 5 in cluster D**	**UST**	**U004282449** **N/A**
Relative: **Higher** **Actual:** **-120 ft.**	UST: Name: APPLE MARKET ONE Address: 56491 US HIGHWAY 111 City,State,Zip: THERMAL, CA 92274		

This site is located to the southwest of the target property, west of Whitewater River and west of the railroad tracks. It is located on the northwest corner of the intersection of Highway 111 and Church Street. It is a triangular shaped parcel previously and currently used as a gasoline fueling facility with a mini market. The estimated elevation at the site is approximately 120 feet below mean sea level (msl), and the local topography slopes toward the southeast (USGS, 1978).

One UST was abandoned in place and two USTs were removed and replaced with two new USTs in 1998. Subsurface soil assessment and groundwater investigations were previously conducted between 1998 and 2017. Groundwater monitoring and sampling began in March 2003. Additional assessment was performed, and a remediation well installed, by Frey Environmental in May and June, 2011. Vapor extraction feasibility testing was conducted in October 2011. Air sparge feasibility testing was conducted in May 2012. More subsurface soil and groundwater assessment and remediation/monitoring wells were installed in 2014. A vapor extraction system was installed, and operation began in December 2014. They system was shut down in December 2015. Air sparge remediation started in December 2014 and was shut down in December 2015. Vapor extraction remediation rebound testing was performed in March 2016. Post remediation soil confirmation borings and downgradient groundwater assessment was conducted in August 2016.

The general contamination assessment and remediation findings are shown below:

- o Subsurface materials encountered during drilling operations consisted predominantly of poorly graded sands and silty sands from just below the ground surface to 7 feet bgs. Subsurface materials between approximately 7 to 17 feet bgs consisted of silts and clays. Subsurface materials encountered between 17 and 25 feet bgs consisted primarily of clayey sands, silty sands and poorly graded sands.

- o Groundwater was first encountered at approximately 16 feet bgs during drilling operations. Groundwater depth was recorded at 16.33 feet below the top of the casing during groundwater development activities in July 2014.

- o Soil and groundwater have been affected both onsite and offsite.

- o The direction of groundwater flow during the 3rd quarter 2017 sampling event was estimated to be approximately 123º southeast at an approximate gradient of 0.003 feet/foot. The groundwater flow direction is generally consistent with the historical groundwater flow directions at the site.

- o Concentrations of petroleum hydrocarbons have decreased significantly since groundwater sampling was initiated at the site in March 2003 and since the completion of vapor extraction and air sparge remediation at the site between 2014 and 2016.

- o No significant rebound of dissolved phase petroleum hydrocarbons in groundwater samples collected from site wells MW1 through MW11 was observed in groundwater samples collected during the current quarter when compared to the first quarter 2017 groundwater sampling results.

- o Concentrations of petroleum hydrocarbons in groundwater have been adequately assessed in all directions.

The following table shows the highest concentrations detected in groundwater (pre-remediation 2003-2015) versus the post-remediation concentrations found (2017).

Maximum Current GW Concentrations	**Maximum Historic GW Concentrations**
Concentration, Well ID, Date	**Concentration, Well ID, Date**
TPPH: 45,000 ug/l, VE3, 8/17/2017	**TPHg:** 130,000 ug/l, MW1, 9/24/2003
Benzene: 17 ug/l, VE3, 8/17/2017	**Benzene:** 18,000 ug/l, MW1, 9/24/2003 and 12/05/2003
Toluene: All non-detect	**Toluene:** 22,000 ug/l, MW1, 9/24/2003
Xylenes: 9,010 ug/l, VE4, 8/17/2017	**Xylenes:** 27,300 ug/l, VE3, 3/21/2014
Ethylbenzene: 2,200 ug/l, VE3, 8/17/2017	**Ethylbenzene:** 4,700 ug/l, VE3, 5/28/2015
MTBE: 120 ug/l, VE4, 8/17/2017	**MTBE:** 63,000 ug/l, MW1, 12/05/2003
TBA: 5,600 ug/l, VE1, 8/17/2017	**TBA:** 21,000 ug/l, MW1, 6/23/2004
TAME: All non-detect	**TAME:** 680 ug/l, MW1, 12/16/2008
1,2,4-TMB: 1,700 ug/l, VE3, 8/17/2017	**1,2,4-TMB:** 4,200 ug/l, MW1, 12/16/2008
1,3,5-TMB: 480 ug/l, VE3, 8/17/2017	**1,3,5-TMB:** 2,500 ug/l, VE3, 3/20/2012
n-butylbenzene: 35 ug/l, VE3, 8/17/2017	**n-butylbenzene:** 53 ug/l, VE3, 3/03/2017
sec-butylbenzene: 12 ug/l, MW1, 8/16/2017	**sec-butylbenzene:** 490 ug/l, MW1, 12/08/2005
tert-butylbenzene: 30 ug/l, VE3, 8/17/2017	**tert-butylbenzene:** 130 ug/l, MW1, 3/17/2010
isopropylbenzene: 65 ug/l, VE1, 8/17/2017	**isopropylbenzene:** 140 ug/l, MW1, 12/16/2008
naphthalene: 580 ug/l, VE3, 8/17/2017	**naphthalene:** 1,100 ug/l, MW1, 12/16/2008
n-propylbenzene: 150 ug/l, VE1, 8/17/2017	**n-propylbenzene:** 490 ug/l, MW1, 12/16/2008

TPPH was detected in 8 of the 14 wells sampled on August 16 and 17, 2017, at concentrations ranging from 51 ug/l (MW5) to 45,000 ug/l (VE3).

Benzene was detected in 4 of the 14 groundwater samples collected and analyzed on August 16 and 17, 2017, at concentrations ranging from 2.1 ug/l (MW1) to 17 ug/l (VE3) (Figure 6).

MTBE was detected in 8 of the 14 wells sampled on August 16 and 17, 2017, at concentrations ranging from 2.1 ug/l (MW3) to 120 ug/l (VE4).

TBA was detected in 7 of the 14 wells sampled on August 16 and 17, 2017, at concentrations ranging from 55 ug/l (MW3) to 5,600 ug/l (VE1).

With the exception of a significant decrease in TPPH concentrations in well MW3, concentrations of petroleum hydrocarbons detected in groundwater samples collected from wells MW1 through MW11 did not show significant changes from the previous sampling event conducted in the first quarter of 2017.

Concentrations of petroleum hydrocarbons detected in groundwater samples collected from wells VE1 showed increased and while VE3 and VE4 showed decreased in concentrations of TPPH/TPHg, benzene, MTBE, TBA, 1,2,4-TMB, and 1,2,5-TMB when compared to the previous sampling event conducted in the first quarter of 2017.

Risk/Sensitive Receptors
Constituent(s) of Concern: Gasoline.

Current & Previous Site Use: The site is currently and has historically been a gasoline fueling facility with a convenience store.

Site & Vicinity Land Use: The site is bound by a residential property to the northwest, by Highway 111 to the northeast and by Church Street to the South.

Current and Potential GW Use: Beneficial uses of groundwater within the Coachella Hydrologic Unit include: 1) municipal and domestic water supply for community, military, or individual water supply including drinking water; 2) agriculture supply for farming, horticulture, or ranching, and 3) industrial service supply for industrial activities that do not depend primarily on water quality (RWQCB, 2006).

Number of Water Wells within ½ Mile of site: (33 within 1 mile) Distances From Site: 33 Wells are located at distances ranging from approximately 800 feet northwest (CVWD well #06S08E22C07S) to one mile southeast (CVWD well #06S08E23M01S) (CVWD, 2009).

GW Basin/Shallow Aquifer Names: The site is located in the Indio Subbasin of the Coachella Valley Groundwater Basin which is part of the Colorado River Hydrologic Region.

The Indio Subbasin is located northwest of the Salton Sea and receives low precipitation, averaging about 6 inches per year, and a wide range of temperatures. The Banning fault bounds the subbasin on the north and the semi-permeable rocks of the Indio Hills mark the northeast boundary. Impermeable rocks of the San Jacinto and Santa Rosa Mountains bound the subbasin on the south.

A bedrock constriction separates the Indio Subbasin from the San Gorgonio Pass Subbasin on the northwest. The Salton Sea is the eastern boundary and the subbasin's primary discharge area. A low drainage divide forms a short boundary with the West Salton Sea Groundwater Basin in the southeast (DWR, 2004).

Name of Nearest Surface Water within ½ mile radius of Site: None

Distance from Site: N/A (The nearest surface water body to the Site is the Salton Sea located approximately 10 miles south-southeast of the Site).

Other Sensitive Receptors (i.e. schools, hospitals, utilities, etc.) within 1/2 mile: John Kelly Elementary School, La Familia Continuation High School, and the Coachella Valley Unified School District office are located approximately 1,200 feet west of the site.

Sensitive Receptors Likely to be Impacted: Based on the 2017 groundwater monitoring event and the results of soil vapor extraction and air sparge remediation completed at the site and the results of confirmation soil sampling activities conducted at the site, nearby sensitive receptors are not likely to be impacted.

Site closure was requested by Frey Environmental in 2017.

This site appears to pose a low risk of impact to the target property based on the available information.

E14 **West** **1/4-1/2** **0.287 mi.** **1513 ft.**	**COACHELLA VALLEY ORGANIC FERTI** **55591 HIGHWAY 111** **THERMAL, CA 92274** **Site 1 of 2 in cluster E**	**LUST** **Cortese** **CERS**	**S102428160** **N/A**
Relative: **Higher** **Actual:** **-114 ft.**	LUST REG 7: Region: 7 Status: 9 - Case Closed Case Num: 7T2274013		
E15 **West** **1/4-1/2** **0.287 mi.** **1513 ft.**	**COACHELLA VALLEY ORGANIC FERTI** **55591 HIGHWAY 111** **THERMAL, CA 92274** **Site 2 of 2 in cluster E**	**LUST** **HIST CORTESE**	**S105027063** **N/A**
Relative: **Higher** **Actual:** **-114 ft.**	LUST: Name: COACHELLA VALLEY ORGANIC FERTI Address: 55591 HIGHWAY 111 City,State,Zip: THERMAL, CA 92274		

This site is located to the west of the target property along Highway 111; west of Whitewater River and west of the railroad tracks. The leaking UST case is listed as closed. Soil and groundwater were affected by the gasoline release. The leak was reported in 1988, assessment was performed, and the case was closed in 1992. This site appears to pose a low risk of impact to the target property based on the available information.

16 **SSW** **1/4-1/2** **0.424 mi.** **2237 ft.**	**CVUSD - BUS BARN** **87-150 CHURCH ST** **THERMAL, CA 92274**	**LUST** **Cortese** **ENF** **CERS**	**S101300633** **N/A**
Relative: **Higher** **Actual:** **-119 ft.**	LUST REG 7: Region: 7 Status: 9 - Case Closed Case Num: 7T2274002		

This site is located to the south, southwest of the target property, west of Whitewater River and west of the railroad tracks. The leaking UST case is listed as closed. Soil and groundwater were affected by the gasoline release. The leak was reported in 1987, assessment was performed, and the case was closed in 1996. This site appears to pose a low risk of impact to the target property based on the available information.

The remaining database listings (not listed above) are located further than ¼ mile from the target property. These further sites may be associated with significant media contamination (soil, soil gas, groundwater). Altec found no reason to suspect that the sites located beyond a ¼ mile radius from the target property have a significant potential for adverse impact to the target property, (to the extent beyond that to which it has equally affected other adjacent or nearby sites), resulting from contaminant migration through the soil, soil gas, or groundwater.

The target property is located near an identified special flood zone, the Whitewater River storm channel.

The complete environmental database can be found in the appendix section of this report. It is possible that the groundwater underlying the target property and the surrounding land area is impacted with contaminants from some identified or unidentified offsite leak sources.

5.0 AGENCY FILES

ASTM Practice E 1527 indicates that requested information must be reasonably ascertainable. Information that is reasonably ascertainable per ASTM means that information will be provided by the source within 20 calendar days of receiving a written, telephone, or in-person request. Where agency files are not available online, local and state agencies were contacted via phone, letter or in person to determine whether files were available for review.

Agency/ Information Obtained

California Environmental Protection Agency Department of Toxic Substances Control (DTSC)

Altec searched the Cal/EPA DTSC's ENVIROSTOR website/database for any records associated with the target property. Since no development has been reported or identified, and there have been no identified street addresses, Altec selected an address number close to the address associated with the residential trailer park across the street (Airport Road). No files were identified for the target property or any adjacent property.

The following listings were found in the area surrounding the target property:

Thermal Ground Air Station Base/Naval Air Facility at Thermal - Thermal, CA 92274
Approximately 6 miles south of the Highway 86 & Highway 111 Intersection

Property Description - The Thermal Ground Air Support Base was located on an approx. 2,555-acre site. Parcel by parcel, the site was acquired by the War Department between 1943 and 1948 via fee from various public and private owners to construct an airport and support facilities. The site was transferred to the WAA on January 23, 1947, including all leases, licenses, and permits except for the permanent non-transferable easement associated with tract 2-A (0.003 acres). Approximately 2,473 acres, "more or less," of the facility were transferred on December 21, 1948 to the County of Riverside via Quitclaim Deed for use as a municipal airport. Approximately 40 acres were deeded on September 2, 1947 to Coachella Valley County Water District. Approximately 39 acres were deeded on June 20, 1947 to United Date Growers of California.

Property History - The site was constructed in 1942 for an airfield. It was called Thermal Army Airfield and was originally used as an air support command base under jurisdiction of the 4th Air Force, San Francisco, California. It was later occupied by the 11th Naval District by virtue of a permit drawn by the Division Engineer, South Pacific Division, dated December 7, 1944. This permit expired March 15, 1946. The 11th Naval District reports an estimated expenditure of $109,000 for alterations and additions during their period of occupancy, but descriptions of the alterations and additions are not specified. In addition to the $109,000 of alterations and additions, the SPB-5 specifically lists miscellaneous buildings, sheds, and Quonset huts as Navy improvements, totaling an estimated cost of $24,932. The airfield had a maximum capacity of 2,424 enlisted men and 264 officers. A 119-patient hospital was located at the facility and had a maximum capacity. In total, the airfield was improved with approximately 250 buildings, heating, lighting, telephone, sewer, water and power systems. There were approximately 237 military buildings built by Department of Defense and 17 non-military buildings.

Consultant Parsons submitted a Final Technical Project Planning Memorandum to the US Army Corps of Engineers on January 20, 2010. The report provided the following information:

The former Thermal Ground ASB was originally used as an air support command base as part of the Desert Training Center. The primary function of the tactical units at this station was to provide air support

Agency/ Information Obtained

for the ground units of the Desert Training Center, which were preparing for Operation Torch, the invasion of North Africa. In December 1943, the Thermal Ground ASB was reassigned to the California-Arizona Maneuver Area (CAMA) under control of the Third Air Force. In December 1944, the Army made provisions for Navy use of the site on a temporary basis without transfer of the command jurisdiction or transfer of the real estate. According to the California State Military Museum website, elements of Combat Application Group (CAG) 98 arrived in late December 1944, and flight operations began. In addition to flying operations, the station served as a pre-embarkation training center for Aviation, Construction, Ordnance, Repairs, Navy (ACORN), Carrier Aircraft Service Units (CASUs), and Seabee units. The Navy officially commissioned Thermal on February 1, 1945 and closed the base on November 1, 1945. On November 16, 1945, the site was declared surplus, then transferred to the War Assets Administration on April 7, 1947. The site was officially deeded to the County of Riverside, California, on December 21, 1948.

During its occupation by the Army and the Navy, the site has been known by several aliases. During Army occupancy, the former Thermal Ground ASB was also known as the Thermal Army Airfield; the Thermal Air Support Command Base; and the Indio Airdrome. While under Naval control, the site was known as the Naval Air Facility at Thermal as well as the Naval Air Bases Detachment, Thermal.

The airfield at the Thermal Ground ASB included a runway, hangar facilities, a motor park and utility yard, a hospital area, and living quarters. Currently, the former Thermal Ground ASB is operated as the Jacqueline Cochran Regional Airport, formerly known as the Desert Resorts Regional Airport, which serves the greater Palm Springs and desert resort area.

The 2004 INPR Supplement identifies two munitions response sites (MRSs) associated with the Thermal Ground ASB FUDS: **the 26-acre Skeet Range MRS** and **the 1-acre Burial Pits MRS**.

The **Skeet Range MRS** is located northwest of the original northwest/southeast trending runway. A 1942/1944 facility map updated identified the Skeet Range MRS near the western boundary of the former Thermal Ground ASB. The map showed the firing arc of this range as 90 degrees instead of the normal 180 degrees. For a normal skeet range, the safety fan consists of a semicircle with a 900-foot radius and normally occupies 30 acres. However, because of the reduced firing arc shown on historic maps, the total acreage is reduced to **26 acres**.

The **Burial Pits MRS** is is southwest of the of the original northwest/southeast runway. The INPR indicates that the exact location of the Burial Pits MRS is not known. Historical documents do not mention a burial pit; its existence is inferred from an interview during the 1993 INPR with the then-current maintenance supervisor, who indicated that in the past, <u>airport staff have found practice and live bombs at the site</u>. The interview provides no details about the location where the bombs were found. The INPR Supplement indicates that according to standard practice, the bombs would either have been dropped on the airfield during practice bombing, or they would have been discarded and buried in the airfield. The 1942 facility map, updated in 1944, shows the location of the ordnance storage facilities in the southwestern portion of the site. The buildings in the ordnance area are referenced as a small arms and ammunition warehouse, a pyrotechnic storage, an ammunition assembly, and maintenance shop, and 10 fuse storage units. Although the location of the ordnance storage facility is known, the location(s) at which ordnance was found is not known. Accordingly, the location of the Burial Pits MRS is assumed to be in the general location of the former ordnance storage area. The exact acreage of the Burial Pits MRS is unknown but is estimated at 1 acre. Both MRSs are within the former Thermal Ground ASB FUDS boundary, as indicated by the INPR Supplement and depicted in Figure 3A. The INPR Supplement reports a risk assessment code (RAC) score of 5 for the Skeet Range MRS based on a hazard severity of

Agency/ Information Obtained

none and a hazard probability of frequent and a RAC score of 4 for the Burial Pits MRS based on a hazard severity of marginal and a hazard probability of occasional.

No munitions debris or other explosive hazards have been observed on site; therefore, the site investigation was to proceed as an anticipated No Department of Defense Action Indicated (NDAI) site.

A geophysical investigation was performed in 2011 for the 1-acre Burial Pit MRS. The data collected from the investigation did not the presence of surface and subsurface metallic anomalies at the site that might indicate buried munitions. The geophysical data help to determine the potential presence or absence of a burial pit in this area. The investigation was conducted by the site visit team using a Geonics EM61, walking transects with 5-meter spacing along a horizontal grid to cover the overall area of the MRS.

In addition to the determinations stated above, the following specific issues and resolutions are noted:

- The TPP Team concurred with the technical approach (developed to aid the presumptive NDAI outcome) as presented and revised at the TPP meeting on November 17, 2010.

- The TPP Team determined that since the Skeet Range MRS has been developed and graded, there is no need to sample surface soil at the former Thermal Ground ASB.

- The TPP Team agreed that groundwater sampling was not warranted during the SI, based on the absence of groundwater wells within the MRSs.

- The Riverside County Economic Development Agency will provide Parsons with a cultural study that was performed by Riverside County at the location of the Skeet Range at the former Thermal Ground ASB.

- The TPP Team agreed that Parsons will try to collect more historical information to help verify the location of the Burial Pits MRS.

A site-specific work plan was referenced for the site investigation but was not available on the Envirostor site. DTSC accepted the workplan with no comments on May 2, 2011.

Parsons Site Inspection Report, September 2011

The objective of this site inspection (SI) was to determine whether the former Thermal Ground Air Support Base (ASB) in Riverside County, California, warrants further investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The former Thermal Ground ASB was used from 1942 to 1945 as an air support command base. The SI at the former Thermal Ground ASB was performed to confirm the munitions response site (MRS) location and to evaluate evidence for the presence of munitions and explosives of concern (MEC) and munitions debris at the Formerly Used Defense Site (FUDS). To accomplish this objective, qualitative reconnaissance (QR) and a digital geophysical mapping (DGM) investigation were performed by Parsons on May 21 and 22, 2011, within the Burial Pits MRS at the FUDS (Thermal Ground ASB).

Outcomes for the MRS could include MEC response actions or no Department of Defense (DoD) action indicated (NDAI), among others. If NDAI status is recommended and approved after evaluation of the SI data, the process to close out the former Thermal Ground ASB will be initiated. If an imminent threat is identified to the public or the environment, a time-critical removal action (TCRA) may be performed as

Agency/ Information Obtained

an interim action, or a remedial investigation and feasibility study (RI/FS) may be initiated to evaluate feasible MEC response actions.

The technical project planning (TPP) process determined that no soil sampling would be proposed to meet the SI project objectives because the Skeet Range MRS has been graded and developed at the former Thermal Ground ASB. However, approximately 4.8 miles of QR and a DGM investigation were conducted at the Burial Pits MRS. Due to the surface grading that has occurred, the original DoD-era ground surface is no longer present at either MRS.

No MEC or munitions debris was observed at the former Thermal Ground ASB during the Inventory Project Report (INPR) field visit; however, an interview during the INPR with the then-current maintenance supervisor indicated that in the past, airport staff found “both dummy and real bombs” at the site. The location of the bombs was not discussed in the 1994 INPR and these findings were not substantiated. During the SI, the site visit team observed no MEC or munitions debris at the site. No evidence of a burial pit was found in the Burial Pits MRS during the geophysical investigation. The qualitative MEC risk evaluation concludes that there is no potential for an explosive safety risk to exist at the Skeet Range MRS or the Burial Pits MRS.

An MC exposure pathway is not considered complete unless all four of the following elements are present (United States Environmental Protection Agency, 1989):

- A source and mechanism for chemical release
- An environmental transport and/or exposure medium
- A receptor exposure point
- A receptor and a likely route of exposure at the exposure point

Surface soil could have been directly affected by activities at the Skeet Range MRS. The TPP team determined that because the Skeet Range MRS has been graded and developed and the original DoD-era ground surface is no longer present, there is no need to sample surface soil at the former Thermal Ground ASB. Therefore, soil sampling was not conducted during the SI to evaluate MC contamination in the surface soil at the MRS. Subsurface soil could have been directly affected by activities at the Burial Pits MRS. no evidence of a burial pit was found in the Burial Pits MRS during the geophysical investigation. Due to the grading that has occurred at the MRSs since DoD use of the property, it is highly unlikely that MC contamination remains in the surface soil. No change in land use is expected for the MRSs. For these reasons, the soil exposure pathways for human receptors are incomplete for the Skeet Range MRS and the Burial Pits MRS, and unacceptable risks to human receptors resulting from MC are not expected.

The qualitative MEC risk evaluation concludes that there is no potential for an explosive safety risk at the Skeet Range MRS. Furthermore, although an evaluation of the potential for MC contamination in surface soil at the Skeet Range MRS could not be conducted, it is unlikely that MC contamination remains in the surface soil because the original ground surface is no longer present. Based on the current land use at the Skeet Range MRS, all MC exposure pathways are considered incomplete for all receptors, and unacceptable risks to human receptors resulting from MC are not expected. Therefore, the Skeet Range MRS should proceed to NDAI status.

Although an evaluation of the potential for MC contamination in surface soil at the Burial Pits MRS could not be conducted, it is unlikely that MC contamination remains in the surface soil because the original ground surface is no longer present. Based on the current land use at the Burial Pits MRS, all MC exposure pathways are considered incomplete for all receptors, and unacceptable risks to human receptors

Agency/ Information Obtained

resulting from MC are not expected. The qualitative MEC risk evaluation concludes that there is no potential for an explosive safety risk at the Burial Pits MRS. Based on this information, it is recommended that the Burial Pits MRS proceed to NDAI. Table ES.1 and Figure ES.1 summarize the results of the SI and historical documentation of munitions use.

DTSC issued a final letter dated September 21, 2011 that they concurred with Parsons that no further action is needed.

Thermal Army Airfield - Thermal, CA 92274
Approximately 7.5 miles South of Indio, CA
No contaminant or site assessment information is available on the Envirostor database.

Thermal Landfill - Thermal, CA 92274
South of 59th Avenue between Polk and Filmore Street
This site consists of approximately 10.85 acres of land located within Assessor's Parcel Numbers (APNs) 757-210-026 and 757-210-027, in the unincorporated community of Thermal, Riverside County, California. The landfill is divided into two disposal areas. Approximately 7.63 acres of the landfill was utilized as a County of Riverside landfill disposal burn site and the remaining 3.22 acres of landfill area was utilized as a concrete/construction material disposal area. The Site was undeveloped prior to 1938. Landfill operations were conducted between 1948 and October 1972. There has been no operation at the Site since 1972.

The site is proposed to be developed as a portion of a 23-acre community park.

A Voluntary Cleanup Agreement between DTSC and Brookfield California Land Holdings, LLC (Brookfield), Project Proponent for Thermal Landfill, was executed on October 29, 2004. Brookfield conducted site characterization based on a DTSC-approved workplan. According to the Report of Site Characterization, onsite soil is contaminated with volatile organic compounds, semi-volatile organic compounds, organochlorine pesticides, polynuclear aromatic hydrocarbons, total petroleum hydrocarbons, metals, and dioxins/furans. Hexavalent chromium and zinc are the contaminants detected in groundwater underneath the site.

On July 27, 2016, DTSC approved the Removal Action Workplan (RAW). The selected remedy in the RAW included:

a) Annual placement of the Dust Soil Stabilizer Suppressant "Envirotac 11;"
b) Implementation of Deed Restrictions;
c) Relocation of West Perimeter Landfill Fence;
d) Annual Groundwater Monitoring of Existing Groundwater Monitoring Wells MW-1 through MW-5 and MW-8;
e) Quarterly Inspection by both the County of Riverside Local Enforcement Agency (LEA) and a Certified Engineering Geologist;
f) Periodic Landfill Maintenance as Indicated by the Above Quarterly Inspections;
g) Yearly review of DTSC Deed Restriction; and
h) 5 Year Site Reviews by DTSC.

With the exception of the Deed Restriction, the above tasks were either on-going for this Site or were completed between December 2016 and January 2017. The RACR includes a Maintenance Plan (MP) for the maintenance of the Ste. The purpose of the MP is to provide operation procedures and safeguards for site security and dust and erosion control measures, and to present the proposed

Agency/ Information Obtained

groundwater monitoring at the Site. The RACR further stated that a land use covenant (LUC) would be signed by the current property owner and DTSC and recorded with the County of Riverside. Moreover, the RAW stated that the LUC would include an Operation and Maintenance Agreement to be signed by the property owner and DTSC and a financial assurance mechanism would be presented to DTSC by the owner prior to signing the LUC.

On June 23, 2017, DTSC approved the RACR provided a LUC and O&M Agreement are executed for the Site. On 10/1/2018, DTSC signed the Operation and Maintenance Agreement with the Brookfield. An LUC was executed by both Brookfield and DTSC on 12/27/2018 and was recorded with the County of Riverside on 1/8/2019. On 5/15/2019, Financial Assurance mechanism was approved by DTSC. Consequently, the Site was certified and as clean. DTSC determined that all appropriated removal/remedial actions have been completed and that all acceptable engineering practices were implemented; however, the site requires ongoing operation and maintenance (O&M) and monitoring efforts.

California, Regional Water Quality Control Board (RWQCB)

Altec searched the RWQCB's GEOTRACKER website/database for any records associated with the target property. Since no development has been reported or identified, and there have been no identified street addresses, Altec selected an address number close to the address associated with the residential trailer park across the street (Airport Road). No files were identified for the target property or any adjacent property.

The following listings were found for six nearby sites (listed in order of distance from the target property):

Riverside County Road Yard Thermal (T0606501079)
87495 Airport Blvd
Thermal, CA 92274
Closed Leaking UST site
This site is located west of the target property and was describe in detail under Section 4.0 of this report (EDR database Review). There were three gasoline USTs and one diesel UST were removed in 1988. Upon removal water was observed in the excavation and there was a gasoline sheen observed on the top of the water. The primary contamination was determined to be TPH gasoline and fuel-related VOCs. Soil remediation by excavation was performed to approx. 16 feet below grade in the impacted areas. Approx. 600 cubic yards of impacted soil was excavated in 1988 and 270 cubic yards was excavated in 1991. Groundwater was impacted and the remediation method was listed as bioremediation. A total of 7 groundwater monitoring wells were installed. They were monitored quarterly from 1994 to 1997. They were decommissioned after the assessment was completed. Case closure was granted in 1997.

GTE Thermal (T0606501074)
56189 Highway 111
Thermal, CA 92274
Closed Leaking UST Cleanup site
This site is located southwest of the target property and was describe in detail under Section 4.0 of this report (EDR database Review). No reports or other details site-specific information was available on Geotracker. A leak was reported in 1987 when USTs were removed from the site. The source of the leak was product piping and the substance was diesel fuel. Remediation was not performed. The case was closed.

Agency/ Information Obtained

Joe's Tune Up (T0606501080)
55951 Highway 111
Thermal, CA 92274
Closed Leaking UST Cleanup Site
This site is located west of the target property and was describe in detail under Section 4.0 of this report (EDR database Review).
In May 1989, two 10,000-gallon gasoline underground storage tanks (USTs) and one 6,000 gasoline UST were removed from the site. During the excavation soil and water samples were collected from beneath the tank locations. Results of this sampling indicated soil and groundwater contamination above regulatory limits. Soil and ground water was remediated using air sparge and/or soil vapor extraction from February 2013 to May 2014. Borings were advanced to confirm cleanup. The case was close June 17, 2014. The source area of petroleum hydrocarbons appears to be adequately remediated. There appears to be low likelihood that the presence of residual petroleum hydrocarbons in the subsurface will further impact groundwater beneath the site. It is likely that the residual petroleum hydrocarbons in soil beneath the site will decrease by natural attenuation. The results of groundwater monitoring and sampling demonstrates that petroleum hydrocarbons in groundwater have been reduced to concentrations that mostly meet SWRCB low threat cleanup, water quality objectives. The remaining plume of petroleum hydrocarbons in the groundwater is neither expanding, nor migrating and is considered stable. The site is going to be the location of a railway overpass. No buildings are planned to be constructed at the site now or in the future. A risk management plan is to be in place for construction/utility work.

Apple Market One (T0606501089)
56491 Highway 111
Thermal, CA 92274
Closed Leaking UST Cleanup Site
Data prior to 2005 does not appear in GeoTracker. Consult agency file for all site data.
This site is located southwest of the target property and was describe in detail under Section 4.0 of this report (EDR database Review).
On October 20, 2998 two gasoline tanks were removed. TPHg ranged from ND to 3000 ppm. MTBE ranged from ND to 8,400 ppb.
Three wells were installed on March 18, 2003 and sampled April 10, 2003. Groundwater at 10 fbg. MW-1 had highest TPHg in soil at 940 ppm at 10 fbg, 12 ppm benzene, and 7.1 ppm MTBE. Wells sampled 4/9/03. Well 1 had 69 ppm TPHg, 15 ppm benzene, 8.9 ppm TBA and 33 ppm MTBE. Well 2 had 12 ppm TPHg, 0.49 ppm benzene, 1.1 ppm TBA and 4 ppm MTBE. Well 3 had 5.5 ppm TPHg, 0.23 ppm TBA and 1 ppm MTBE.

Well MW-3 had up to 0.77 feet of free product starting in December 2003 until September 2007. Well 1 had up to 0.64 feet of free product from June 2006 until September 2007. A skimmer was installed in each well in April 2004 and changed quarterly or as needed until free product was no longer detected.

On May 31 through June 2, 2011, soil borings MW-4 through MW9, VE1 through VE3 and AS1 and AS2 were drilled to depths ranging from 14.5 to 24.5 fbg. Soil samples were taken every 5 feet within the monitoring and vapor extraction wells. Groundwater was encountered between 15 and 20 fbg. Soil samples were taken every 5 feet from 5 to 15 fbg and then continuously to the bottom of the air sparge wells. The monitoring wells were screened from 5 to 25 fbg, the vapor wells were screened from 3 to 13 fbg and the air sparge wells were screened from 17 to 22 fbg. TPHg was detected in the soil of all the vapor and air sparge wells, ranging from 9.6 to 1200 ppm. BTEX was detected in the vapor and air sparge wells with the majority of the concentrations between 5 and 15 fbg. MTBE was detected up to 2.1 ppm.

Agency/ Information Obtained

A vapor extraction test was conducted October 26, 2011. The ROI for determined to be between 55 and 75 fbg. TPHg and BTEX increased throughout the test. SVE was determined to be feasible.

2-two step air sparge tests were conducted May 5 and 6, 2012. The pressure zone of influence was estimated to be 25 feet. The air sparge zone on influence is ~51 feet. Based on the test results, air sparge combined with soil vapor extraction was recommended. Additional air sparge wells with a maximum spacing of 30 feet are recommended.

A CAP written in December 2012 recommended SVE and air sparge.

On September 23 and 24, 2013, groundwater monitoring wells MW10 and MW11, vapor well VE4, and air sparge wells AS3 through AS5 were drilled. MW10 and MW11 were drilled to 25 feet and screened from 5 to 25 fbg. VE4 was drilled to 13 fbg and screened from 4 to 13 fbg. AS3 through AS5 were drilled to 25 fbg and screened from 20 to 25 fbg. Groundwater was encountered at 15 fbg. Soil samples from VE4 and AS3 through AS5 were taken every 5 feet and analyzed. VE4 had 14 ppm TPHg, 0.013 ppm benzene, 0.043 ppm toluene, 0.1 ppm ethylbenzene and 0.73 ppm xylenes at 10 fbg. Up to 230 TPHg, 0.17 benzene, 2.8 ppm toluene, 4.6 ppm ethylbenzene, and 24 ppm xylenes were detected in the air sparge wells with the highest of all the constituents at 10 feet in AS5.

On December 2, 2014, VES was started using all four extraction wells and monitoring wells MW1, MW2 and MW3. Influent SVE TPHg vapor samples ranged from 340 to 1100 ppmv. Benzene ranged from 4.2 to 4.4 ppmv. MTBE ranged from 4.2 to 5.3 ppmv. TBA ranged from 14 to 19 ppmv. MW3 had the highest vapor levels with 1800 ppmv TPHg, 5.6 ppmv benzene, 56 ppmv toluene, 32 ppmv ethylbenzene, 160 ppmv xylenes, 8.3 ppmv MTBE and 56 ppmv TBA. The system was operated until December 2, 2015 when TPHg vapor samples ranged from <5 to 100 ppmv. Benzene ranged from <0.005 to 0.29 ppmv. MTBE was <0.01 ppmv. TBA ranged from <0.1 to 0.054 ppmv. The SVE systems was shut down October 2, 2015. All individual wells were <5 ppmv for TPHg except for VE1 which had 27 ppmv and MW2 which had 100 ppmv. Only 2 well had benzene at 0.013, and 0.29 ppmv. No MTBE was detected in the individual wells. TBA was detected in 2 wells at 0.028 and 0.054 ppmv. A total of 2259 lbs. of hydrocarbons were removed.

On December 30, 2014, the AS system was started using all five air sparge wells and operated until December 2, 2015.

Rebound testing was completed between March 14 and 25, 2016. Total influent TPHg went from 17 ppmv before the rebound testing to <5ppmv up to 19 ppmv and ended at <5 ppmv. Benzene went from 0.04 ppmv before the rebound testing to <0.005 then to 0.03 and ended at <0.005 ppmv. MTBE went from <0.01 before the rebound testing to <0.005, up to 0.0082 and ended at 0.0054 ppmv. None of the individual wells had any rebound.

On August 31, 2016, confirmation soil borings PR1 through PR4 were advanced to depths ranging from approximately 15 feet to 20 feet bgs. Soil samples were collected in borings PR1 through PR3 at five-foot depth intervals from approximately 5 feet bgs to 15 feet bgs. Boring PR4 was advanced without sampling to a final depth of 20 fbg where a grab water sample was taken. TPPH was detected in soil sampled in borings PR1 and PR3 at 10 fbg at 0.63 and 71 ppm. TBA was detected in soil samples from PR1, PR2 and PR3 at 15 fbg at 0.26, 0.16 and 5.6 ppm. No other VOCs were detected. MTBE was detected in the groundwater of PR4 at 1.9 ppb. No other hydrocarbons were detected.

Agency/ Information Obtained
CVSD - Surplus Yard (T0606501075) 87-150 Church Street Thermal, CA 92274 Closed Leaking UST Cleanup Site This site is located west, southwest of the target property. No reports or other details site-specific information was available on Geotracker. A leak was reported in 1987 when USTs were removed from the site. The source of the leak was not listed. The case was closed in 1996. SSA Management (T0606501085) 86911 Airport Blvd Thermal, CA 92274 Closed Leaking UST Cleanup Site This site is located west, southwest of the target property. No site-specific information was available on Geotracker. A leak was reported in 1990 when USTs were removed from the site. The source of the leak was not listed. The case was closed in 1991. Coachella Valley Organic Fertilizer (T0606501083) 55591 Highway 111 Thermal, CA 92274 Closed Leaking UST Cleanup Site This site is located northwest of the target property. No site-specific information was available on Geotracker. A leak was reported in 1988 when USTs were removed from the site. The source of the leak was not listed. The case was closed in 1992.
Coachella Valley Water District (CVWD) Altec obtained a list of 33 wells located within a one-mile radius of the target property. This list was previously cited in an assessment report reviewed for the site located to the west called Joe's Tune Up; it was provided by CVWD. The majority of these wells are located down-gradient (southeast) from the TP. The wells were reportedly listed as private wells used for agricultural, industrial and residential use (CVWD, 2009b). There are five groundwater supply wells located within 2,000 feet down gradient from the Joe's Tune Up site. A portion of a figure that shows the locations of the reported private wells (Frey, 2014) is inserted below. The well numbers can be seen in blue text. None of the wells are identified on the target property parcels.

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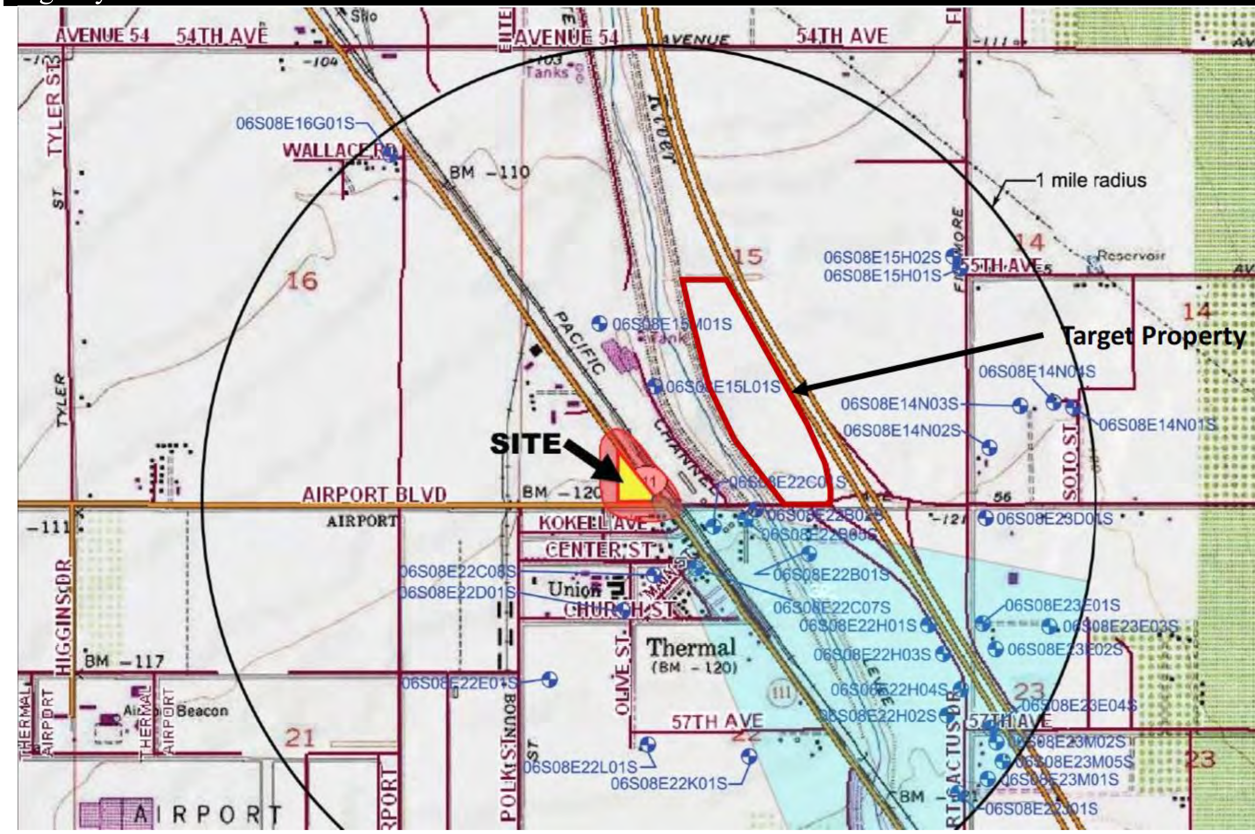


*"**SITE**" on the map above denotes the former Joe's Tune Up site at 55951 Highway 111.*
*"**TARGET PROPERTY**" on the map above denotes APNs 763-33-0013, 763-33-0018 & 763-33-0029.*

Riverside County Department of Environmental Health

Altec submitted a request for a record search for the target property to Riverside County Department of Health. The request was made for the APN because the target property does not have any identified street addresses. RCDEH has not responded to the request.

South Coast Air Quality Management District (SCAQMD)

The South Coast Air Quality Management District has a searchable web tool with information about SCAQMD-regulated facilities (facilities that are required to have a permit to operate equipment that releases pollutants into the air). The system is called F.I.N.D. (Facility INformation Detail). There are several existing web-based applications on SCAQMD's website that provide information about specific subject matter, however, F.I.N.D. makes the data available in a more consolidated way to provide a "one-stop" location for finding facility information. The information in F.I.N.D. comes from SCAQMD enterprise database. Regularly scheduled updates are made to this data at least once per week. In the interactive map, the South Coast AQMD data is supplemented with baseline map data that includes streets and school locations, and aerial imagery from the U.S. Geological Service.

SCAQMD's FIND database was reviewed to identify sites of concern at or in the area surrounding the target property. The target property was not listed in the FIND database.

Agency/ Information Obtained

The FIND database information showed the following information from nearby businesses/former businesses:

Jones Bros Construction
87997 Airport Blvd., Thermal, Ca 92274
Facility ID: 166329
This site is located to the east of the target property, at the intersection of Highway 86 and Airport Road. The documentation is dated in 2010 and related to Rule 403 Compliance.

County of Riverside (TR5309)
86655 Airport Blvd., Thermal, CA 92274
Facility ID: 167706
This site is located to the west of the target property. In 20211 they permitted two boilers (<2MMBTU/HR) R-222). In 2011, 2017 and 2020 they filed Rule 1415 Plan Notifications. Rule 1415 also contains requirements for any person who installs, repairs, maintains, services, relocates, or disposes of any air conditioning system, and for any person who recycles, recovers, reclaims, distributes or sells high GWP refrigerants.

Downing Construction Inc
Polk St. Thermal CA
Facility ID: 171554
This site is located to the west of the target property. In 2012, they submitted a Rule 403 Compliance Plan.

None of the listed FIND sites appear to pose a high risk of contamination to the target property.

City of Coachella Building and Fire Departments

Altec did not review City of Coachella Building Department or Fire Department permits/records for this site assessment because the target property has not been structurally developed or used (other than for agricultural purposes) and there are no known street addresses. No permits are expected.

Department of Conservation, Division of Oil, Gas & Geothermal Resources

Altec reviewed online oil and gas maps and found no oil and gas wells at the site. No oil/gas wells were observed in the surrounding area, within 1000 feet of the target property. The closest well was identified north of Indio on Avenue 42 east of Monroe Street and west of Spectrum Street. Information for that well is shown below:

API: 0406500073
Lease Name: Bobbie
Well Number: 1
Status: Plugged
Type: Dry Hole
Operator: C. H. S. Co., Ltd.

Munger Map Book - California and Alaska Oil & Gas Fields

No oil and gas wells were identified at the target property or in the immediate area.

Gas and Liquid Petroleum Pipelines - U.S. Department of Transportation, Pipeline and Hazardous Material Safety Administration (PHMSA)

PHMSA online mapping system for gas transmission pipelines and hazardous liquid pipelines was reviewed (https://www.npms.phmsa.dot.gov/PublicViewer/). No pipelines were identified on the target property or on adjacent properties.

There is a hazardous liquid pipeline located to the west of the target property that traverses along Highway 111. It appears to start in the area south of Mecca and runs north on Highway 111, and then north along the west side of Interstate 10.

Two gas transmission pipelines are positioned to the east of Interstate 10 in the foothills leading to the San Bernardino mountains, towards Joshua Tree National Park. The gas lines run southeast to the northwest. There is section of gas transmission pipeline depicted traversing north to south along Monroe Street, north of Highway 111 and ending just north of Highway 10 and Fred Waring Drive in Indio.

6.0 AERIAL PHOTOGRAPHS & MAPS

6.1 Historical Aerial Photograph Review

Historical aerial photographs dated from 1949 to 2020 were obtained from EDR and Google. The following observations were made from these photographs:

Aerial Photograph Summary

2020

APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 do not appear to be in use. Limited vegetation is present and there are no visible structures or paving. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Active agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

2018

APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 do not appear to be in use. Only limited vegetation is present and there are no visible structures or paving. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Active agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

2016

APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 do not appear to be in use. Vegetation is present and there are no visible structures or paving. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Former agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

2012

APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 do not appear to be in use. Vegetation is present and there are no visible structures or paving. There may be a small square or rectangular structure on APN 763-33-0013, along the east side, adjacent to Highway 86. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. The land area to the east of Highway 86 is cleared of vegetation. Industrial development is seen to the west of the Whitewater River channel.

2006

APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 do not appear to be in use. APN 763-33-0018 is graded and cleared of vegetation, but no structures or paving are present. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

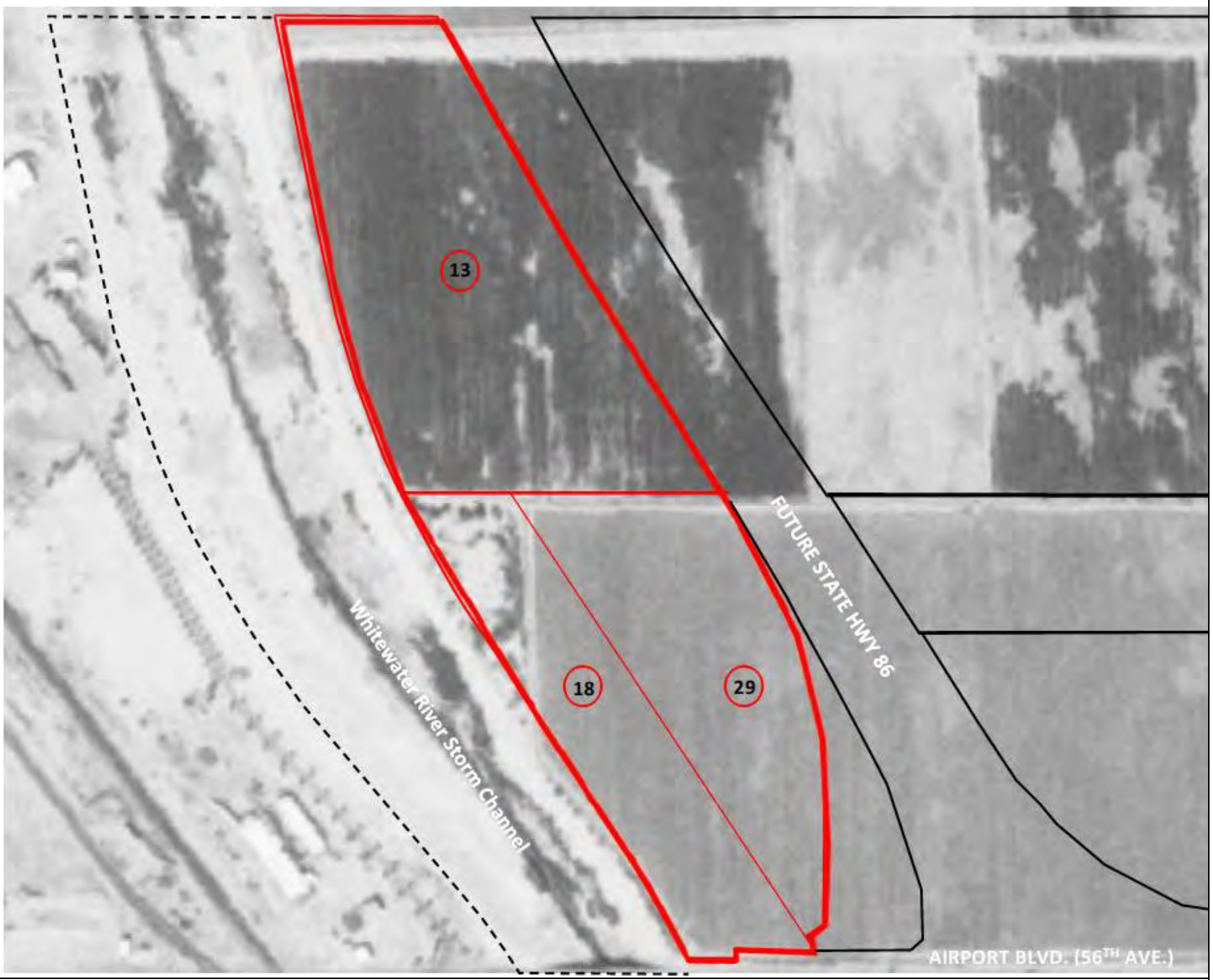
1996

APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 do not appear to be in use. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Former agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

1984

APN 763-33-0013 appears to be developed agriculturally with row crops. APN 763-33-0018 and APN 763-33-0029 appear to be formerly agricultural but not currently used. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

1975



All of APN 763-33-0013, over half of APN 763-33-0018 and all of APN 763-33-0029 appear to be developed agriculturally with either hay or row crops. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

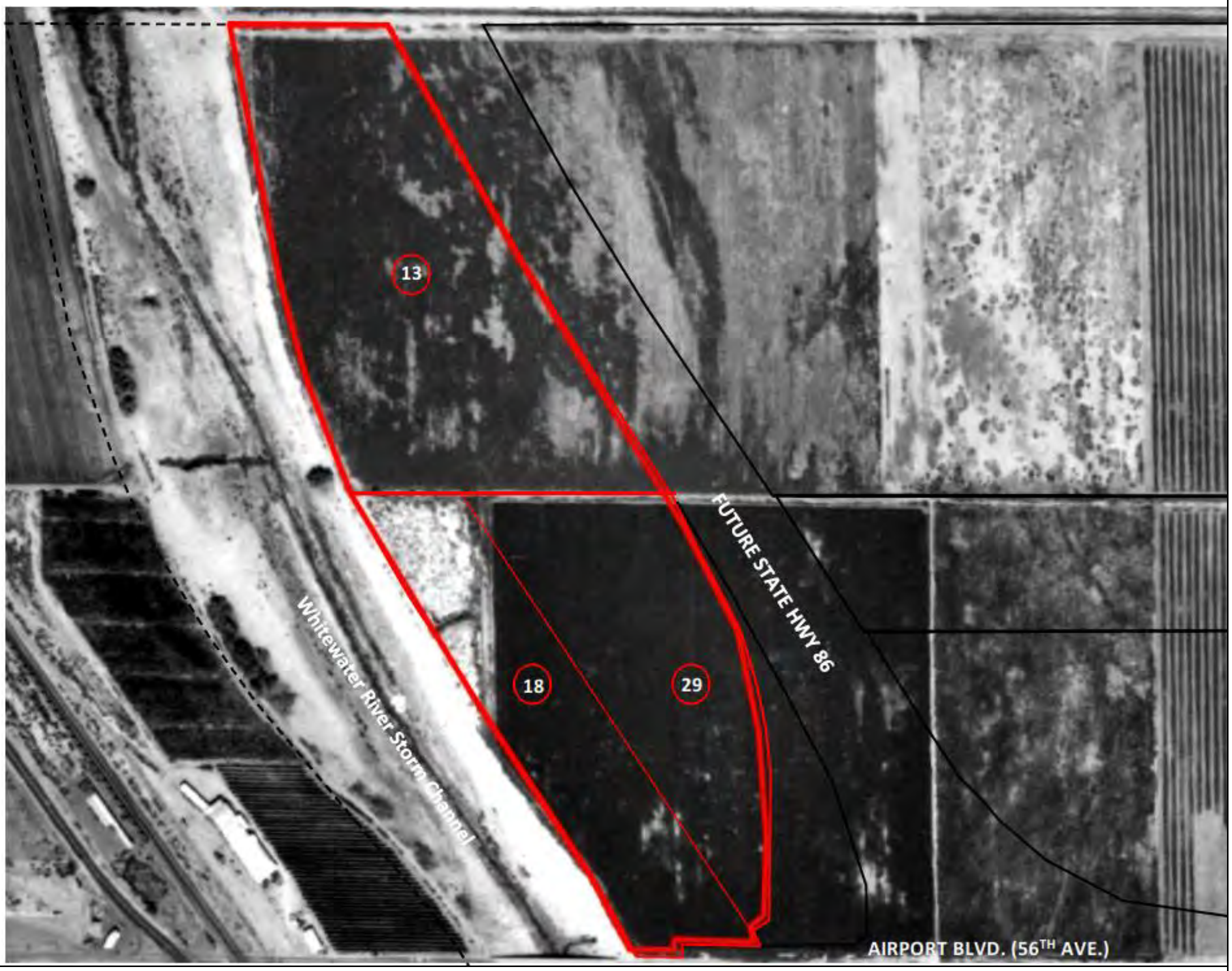
1972

All of APN 763-33-0013, over half of APN 763-33-0018 and all of APN 763-33-0029 appear to be developed agriculturally with row crops. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

1965

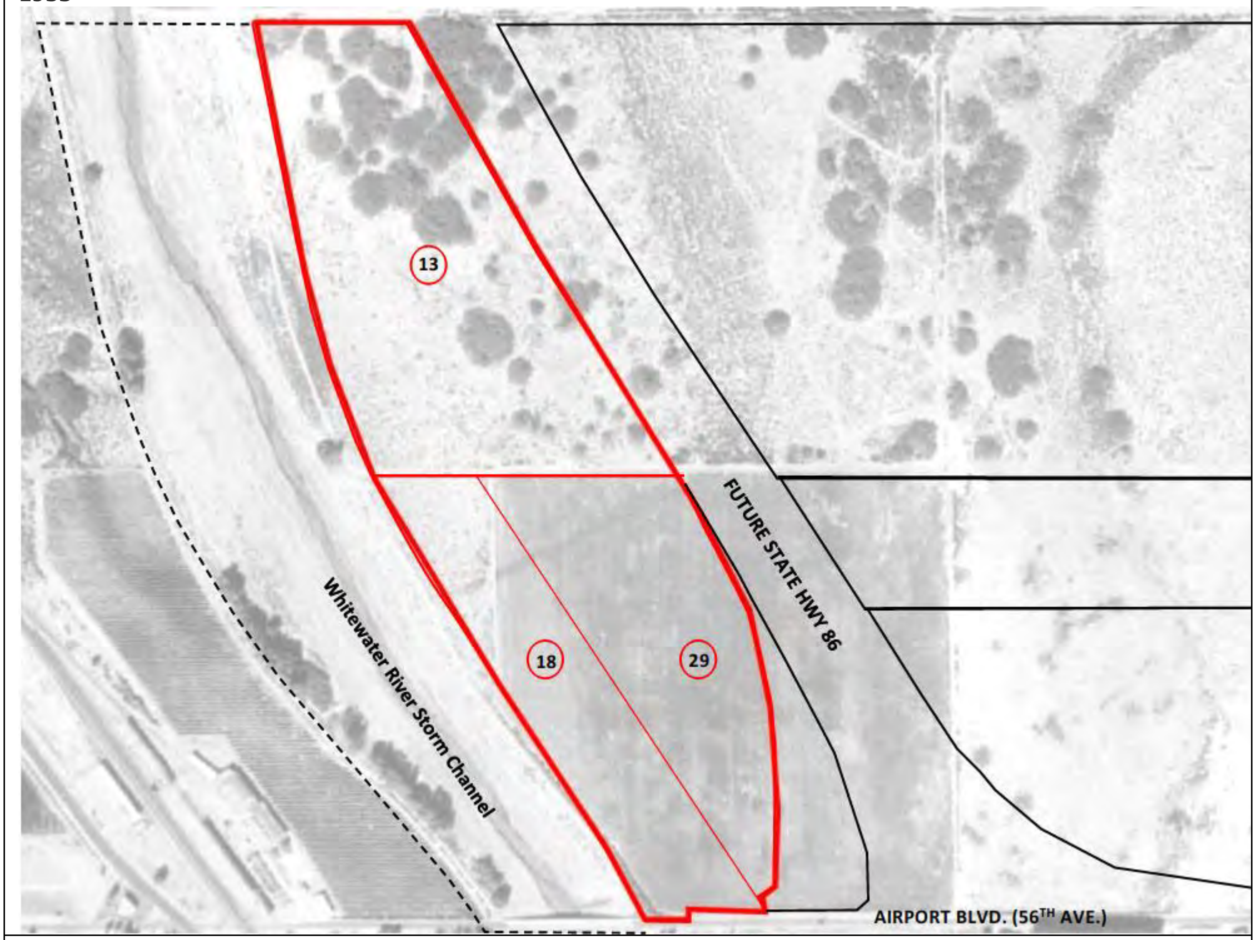
All of APN 763-33-0013, over half of APN 763-33-0018 and all of APN 763-33-0029 appear to be developed agriculturally with either hay or row crops. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

1959



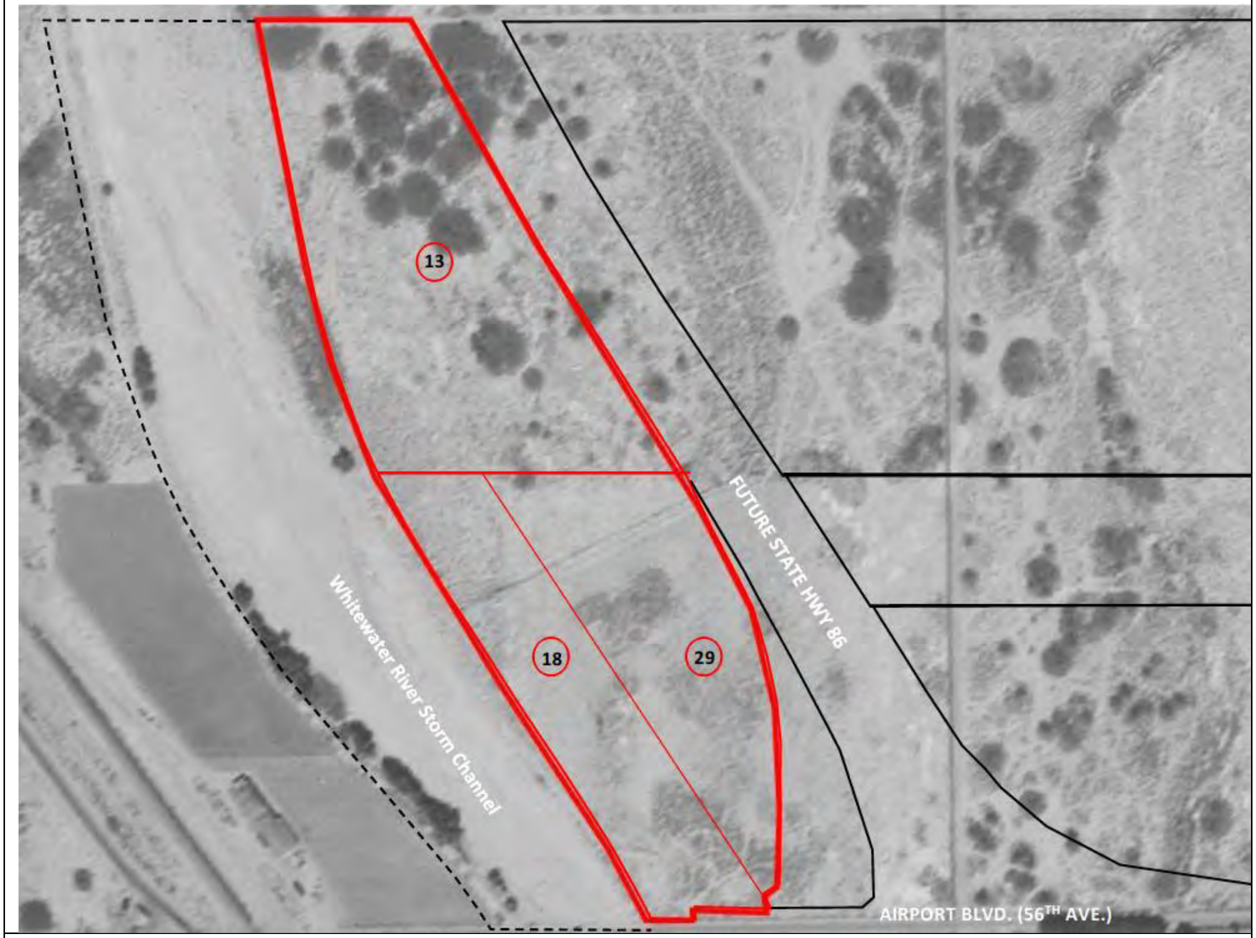
All of APN 763-33-0013, over half of APN 763-33-0018 and all of APN 763-33-0029 appear to be developed agriculturally with either hay or row crops. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. Agricultural fields are located to the east of Highway 86. Industrial development is seen to the west of the Whitewater River channel.

1953



The north portion of the target property (APN 763-33-0013) appears to be undeveloped with natural vegetation. Over half of APN 763-33-0018 and all of APN 763-33-0029 appear to be developed agriculturally with either hay or row crops. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. An agricultural field is located to the east of Highway 86 across from APN 763-33-0029. Industrial development is seen to the west of the Whitewater River channel.

1949



The target property parcels appear to be undeveloped with natural vegetation. State Highway 86 is located directly east, and the Whitewater River channel (CVWD) is located to the west. Airport Blvd. (56th Avenue) is located directly south. There is no development directly north. No development is seen to the east of Highway 86. One industrial site is present to the west of the Whitewater River channel.

6.2 Historical Map Review (Sanborn Maps and Topographic Maps)

A search of the Sanborn Company Fire Insurance Maps for the target property area was conducted to obtain additional information regarding previous land use. Sanborn maps for the target property area were not available in EDR's collection.

Topographic maps dated 2012, 1972, 1956, 1944, 1947, 1943, 1941 and 1904 were obtained and reviewed. No development was depicted on the target property parcels.

1904 - The 1904 map shows the railroad and the stormwater channel present and the site elevation of approx. -121 feet below sea level. The area was shown as Thermal. Highway 86 and Airport Road are not in place yet.

1941, 1943, 1947 - The 1941 to 1947 maps show the area as Thermal. The railroad tracks were in place along with the stormwater channel. The area is depicted within Section 15 (SE Quadrant) with an elevation of approx. -120 below sea level. Airport Road is in place, but Highway 86 is not. The topo map shows dense residential development to the southwest of the Airport Road and railroad track area.

1955, 1956 - These maps show similar land use as the 1940s maps.

1972 - This map shows similar land use as the 1950s maps.

2012 - This map shows the presence of Highway 86 to the east of the target property. No site use is depicted.

6.3 City Directories

The following table summarizes historical use information obtained from a review of business directories including city, cross-reference and telephone directories. These directories were searched, as available, for five-year intervals between 1980 and 2017. This research was performed by EDR and is detailed in their EDR-City Directory Abstract in the appendix section of this report.

There were no city directories listings for the target property.

There were numerous residential and commercial listings for street addresses in the surrounding area. The following table show the commercial listings.

Address/Year	Listing/Uses
80367 Airport Blvd.	
1980	Spencer D. Floor Covering
81599 Airport Blvd.	
1992	Agricultural Commodity
81750 Airport Blvd.	
1995	Foster Turf Products Sod Farm
1992	Foster Turf Products Sod Farm
82225 Airport Blvd.	
2014	Westside Elementary School
2010	Westside Head Start, Westside School
2005	Westside Elementary School
2000	Westside Head Start, Westside School
1995	Westside Head Start, Westside School
1992	Westside Head Start
1985	Westside Head Start, Westside School
1980	Westside School
1974	Westside School
82261 Airport Blvd.	
1995	Custom Classics
82540 Airport Blvd.	
2010	Desert Balloon Charters
2005	Desert Balloon Charters
82550 Airport Blvd.	
2000	Desert Balloon Charters
1995	Balloon Ranch, Ostrich Pacific
82560 Airport Blvd.	
2005	Clements Palm Service
82775 Airport Blvd.	
2005	Westside Patios
2000	Westside Patios

83555 Airport Blvd.	
2014	Hadley's Date Garden
2010	Alamo Ranch Co.
2005	Hadley's Date Gardens
1995	Hadley's Date Gardens
1992	Hadley's Date Gardens
1985	Hadley's Date Gardens
1980	Hadley's Date Gardens
83800 Airport Blvd.	
2017	Borrego Community Health Foundation
2014	Borrego Community Health Foundation
2010	Coachella Valley High School
2005	Coachella Valley High School
1995	Coachella Valley High School
1990	Coachella Valley High School
1985	Coachella Valley High School
1980	Coachella Valley High School
1974	Coachella Valley High School
84091 Airport Blvd.	
1992	Tooey Development Corp.
84101 Airport Blvd.	
2014	Jevovah's Witneses
2010	Jevovah's Witneses
1995	Jevovah's Witneses
1990	Jevovah's Witneses
84155 Airport Blvd.	
1995	La Chuparosa Nursery
85086 Airport Blvd.	
1992	The Mattress Corner
85188 Airport Blvd.	
2005	Franco Construction Company
85420 Airport Blvd.	
1985	Reed Rewind
1980	Reed Rewind
1974	Reed Rewind
85555 Airport Blvd.	
2014	Derdau HITS Thermal
2010	HITS Thermal
86199 Airport Blvd.	
2017	County of Riverside
87200 Airport Blvd.	
1995	US Post Office
1992	US Post Office
1985	US Post Office
1980	US Post Office
87251 Airport Blvd.	
2000	Pete's Barber Shop
1995	Pete's Barber Shop

1992	Pete's Barber Shop
1985	Pete's Barber Shop
1980	Pete's Barber Shop
1974	Pete's Barber Shop
87263 Airport Blvd.	
2000	Limon's Food Market
1995	Limon's Food Market
1985	Limon's Food Market
1980	Limon's Food Market
1974	Limon's Food Market
87275 Airport Blvd.	
2005	Church of God ES El Cami
2000	Adam Valencia Auto Sales
1995	Adam Valencia Auto Sales
87301 Airport Blvd.	
1990	Gayler Dow Welding
1985	Gayler Dow Welding
87316 Airport Blvd.	
2010	Jewel Date Co.
87400 Airport Blvd.	
2010	California AG Property
2005	RDO Equipment
87425 Airport Blvd.	
2005	Ayala's Auto Repair, Santa Fe Welding & Steel Supply
1992	Produce Express
1985	Produce Express
87629 Airport Blvd.	
2017	EG Enterprises Corporation
2014	EG Enterprises Corporation
87200 Airport Blvd.	
2010	US Post Office
87495 Airport Blvd.	
1980	County Riverside Road Maintenance
1974	County Riverside Road Maintenance
87500 Airport Blvd.	
1992	Dole Dried Fruit
89425 Airport Blvd.	
1985	Tenneco W. Mel Pak
1974	Mel Pak Labor Camp
89450 Airport Blvd.	
1974	Larsen KK Vineyards
89950 Airport Blvd.	
1995	Desert Diamond Sales
1992	Desert Diamond Sales
1985	Desert Diamond Sales
1980	Desert Diamond Sales, Larsen KK Vineyards
92500 Airport Blvd.	
2005	West Coast Aggregate

2000	Valley Rock & Sand
1995	Dial Steel, Johnson Engineering, Valley Rock & Sand
1992	Crown Minerals, Inc., Grayrock Concrete Products, Sunwest Transport, Valley Rock & Sand
1985	Coachella Valley Concrete, Valley Rock & Sand
1980	Vans Rock Sand Quarry

6.4 Historical Site Use Summary
Use information for the target property or surrounding area prior to 1904 was not obtained.

Prior to approx. 1953 the target property parcels were undeveloped. Starting around 1953, the target property was used for agricultural purposes and this use continued through at least 1984. After 1984, no site use was identified, with exception of grading or weed clearance on APN 763-33-0018 around 1996.

7.0 LOCATION/GEOLOGY/HYDROGEOLOGY

6035 Fremont Street, Riverside, CA 92504 Tel 951.352.6510 Fax 951.352.6514	**Regional Location Map** 87630 Airport Road *(56th Avenue)* APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 Coachella, CA	Project No: 464-2021105 Date: February 2021 Not To Scale	**Figure 1**

7.1 Physical Setting

The elevation of the target property is approximately 120 feet below sea level (USGS Indio, California 7.5-minute topographic quadrangle) at 33.6456450 north latitude and 116.1377410-west longitude.

It is located in the south half of Section 15, Township 6 South, Range 8 East of the San Bernardino Base and Meridian.

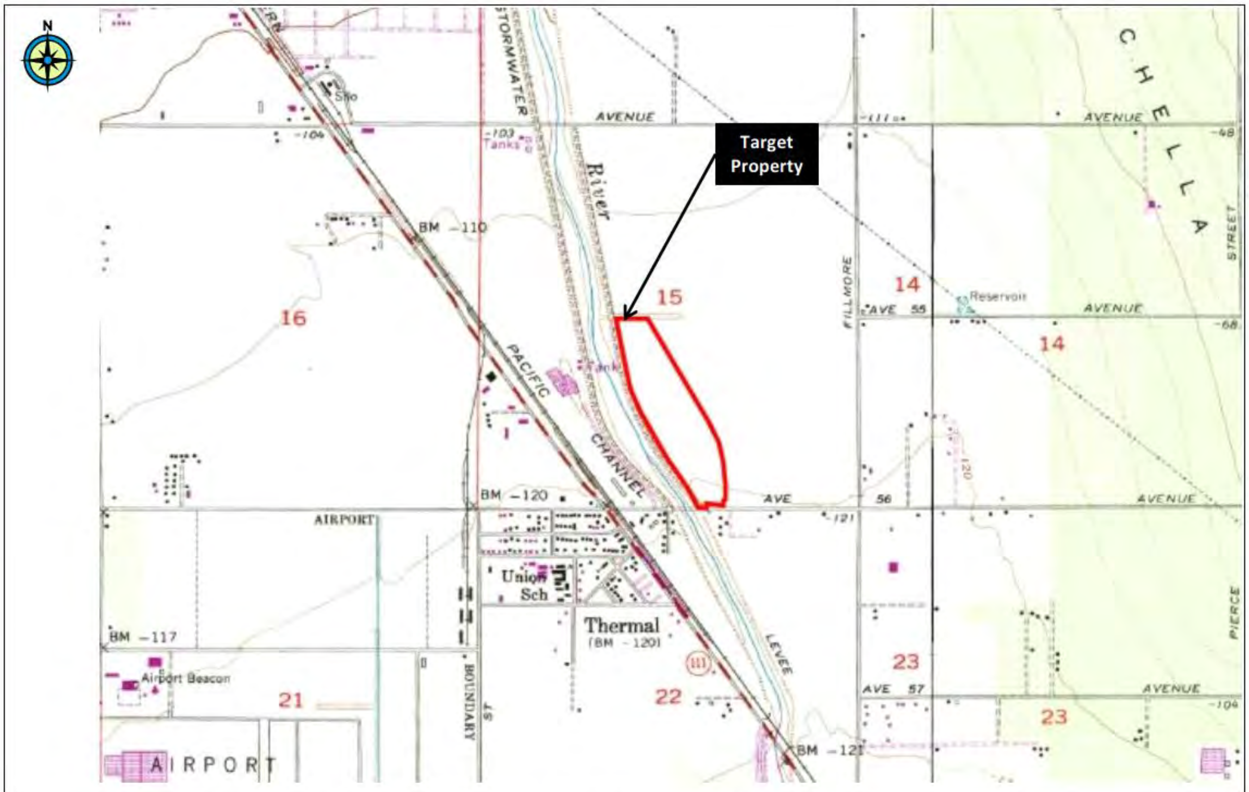
Based on our review of the GeoCheck Section of the EDR Radius report, the target property is situated adjacent to a special flood hazard zone. No wetlands were observed or identified at the target property or adjoining/immediately surrounding properties.

The nearest surface water body to the target property is the Whitewater River (storm channel), located adjacent/west of the target property. The Whitewater River is a permanent stream which drains the San Bernardino Mountains to the northwest of the site and receives imported water from Colorado River Aqueduct. During rare floods, the river drains to the Salton Sea, which is located approximately 10 miles southeast.

8.2 Geology

The target property is located in the Coachella Valley of the Peninsular Ranges geologic province of Southern California. Coachella Valley is part of the tectonically active Salton Trough, which is a closed, internally draining basin bounded by the San Jacinto and Santa Rosa Mountains t the west and southwest, the San Bernardino Mountains to the north and northwest and the Little San Bernardino Mountains and Orocopia Mountains to the northeast and north. These mountain ranges and the basement rock underlying the Coachella Valley, are primarily composed of granitic and metamorphic rocks. Within the Coachella Valle, the basement complex is overlain by a series of unconsolidated and semi-consolidated, terrestrial, clastic sediments eroded from the surrounding mountain ranges, lacustrine deposits of ancient Lake Coahuila, and wind-blown sand deposits (DWR, 2003). The target property is immediately underlain by the lacustrine deposits of ancient Lake Coahuila (CDMG, 1965).

The target property is located southwest of the northwest trending San Andres Fault Zone. The right lateral strike-slip San Andres Fault Zone has been termed to be an active fault zone under the Alquist-Priolo (AP) Special Studies Zones Act of 1972. An active fault zone, under the AP study, is defined as a fault that has had surface displacement within the past 10,000 years (CDMG, 1988).



Altec 6035 Fremont Street, Riverside, CA 92504 Tel 951.352.6510 Fax 951.352.6514	**Topographic Map** 87630 Airport Road (*56th Avenue*) APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 Coachella, CA	Project No: 464-2021105 Date: February 2021 Not To Scale	**Figure 2**

7.2 Hydrogeology

The target property is located in the Indio Subbasin of the Coachella Valley Groundwater Basin, which is part of the Colorado Rover Hydrologic Region. The Indio Subbasin is located northwest of the Salton Sea and receives low precipitation, averaging about 6 inches per year, and a wide range of temperature. The Banning Fault bounds the subbasin on the north and the semi-permeable rocks of the Indio Hills mark the northeast boundary. Impermeable rocks of the San Jacinto and Santa Rosa Mountains bound the subbasin on the south. A bedrock constriction separates the Indio Subbasin from the San Gorgonio Pass Subbasin on the northwest. The Salton Sea is the eastern boundary and the subbasin's primary discharge area. A low drainage divide forms a short boundary with the West Salton Sea Groundwater Basin in the southeast (DWR, 2004).

The Indio Subbasin (now identified as the Whitewater River Subbasin) is drained by the Whitewater River and its tributaries (located adjacent to the target property. The Whitewater River rarely flows throughout the year and flow in tributaries such as San Gorgonio River is intermittent. Surface flow is southeastward to the Salton Sea. The Colorado River Aqueduct and the Coachella Branch of the All-American Canal convey imported water into the Coachella Valley which overlies the subbasin (DWR, 2004).

In the Whitewater River Subbasin, groundwater typically flows from the forebay areas along the surrounding mountain-fronts toward the valley floor and then southeast toward the distal portions of the Basin near the Salton Sea. The aquifer system is unconfined in the forebay areas. In the southeast portion of the Subbasin, the predominance of fine-grained sediments at depth has created three distinct aquifer systems:

i. A semi-perched aquifer up to 100 ft thick that is persistent across much of the area southeast of the City of Indio. The fine-grain units that cause the perched conditions are likely a barrier to deep percolation of surface water.

ii. An upper aquifer up to 300 ft thick that is present across most of the area. The upper aquifer is unconfined except in the areas of the semi-perched aquifer where it is semi-confined.

iii. A lower aquifer that is 500-2000 ft thick and is the most productive portion of the Basin. In the southeast portion of the Basin, the lower aquifer is confined and is separated from the upper aquifer by a fine-grained unit that is 100-200 ft thick.

The Coachella Valley Water District (CVWD) monitors groundwater depth in the target property area. The nearest well monitored by CVWD is Well #06S 08E 22 D02S. This well has an average depth to groundwater of 48.9 feet below ground surface (CVWD, 2009). No groundwater depth information for Well # 06S 08E 22 DO2S was found in the most current water engineering report. In a nearby well #06S08E19R01S groundwater depth was between 100 and 150 feet below sea level between 2010 and 2020.

8.0 TARGET PROPERTY RECONNAISSANCE

8.1 General Information

Site Name	Airport Business Park
Site Address	none
City, County, State, Zip	Coachella, California 92274
Current Site APN/Tax ID	APN 763-33-0013 APN 763-33-0018 APN 763-33-0029
Former Site APN/Tax ID	Undetermined
Region/Cluster	Undetermined
Tax Rate Area (TRA)	Undetermined
Boundary Description	Undetermined
Nearest Intersection	Airport Road and Highway 86
Side of Street	North side of Airport Road, West side of Highway 86
Vehicle Access	Gate on Airport Road
Area Description	Residential and mixed-use commercial/industrial
Site Topographic Quadrangle	Indio, California
Base Meridian	San Bernardino
Section	15
Township	6 South
Range	8 East
Oil Field	None identified
Current Site Owner	Empire Airport LLC
Date of Acquisition	2007 to 2017
Site Acreage	42.36 acres
Site Shape	Irregular
Site Use	None
Utilities	
Electricity	None
Natural Gas	None
Water	None
Sanitary Sewer	None
Storm Drain	None
Domestic Sewage	None
Solid Waste Removal	None
Fuel Oil	None
Steam	None
HVAC	None
Telephone	None

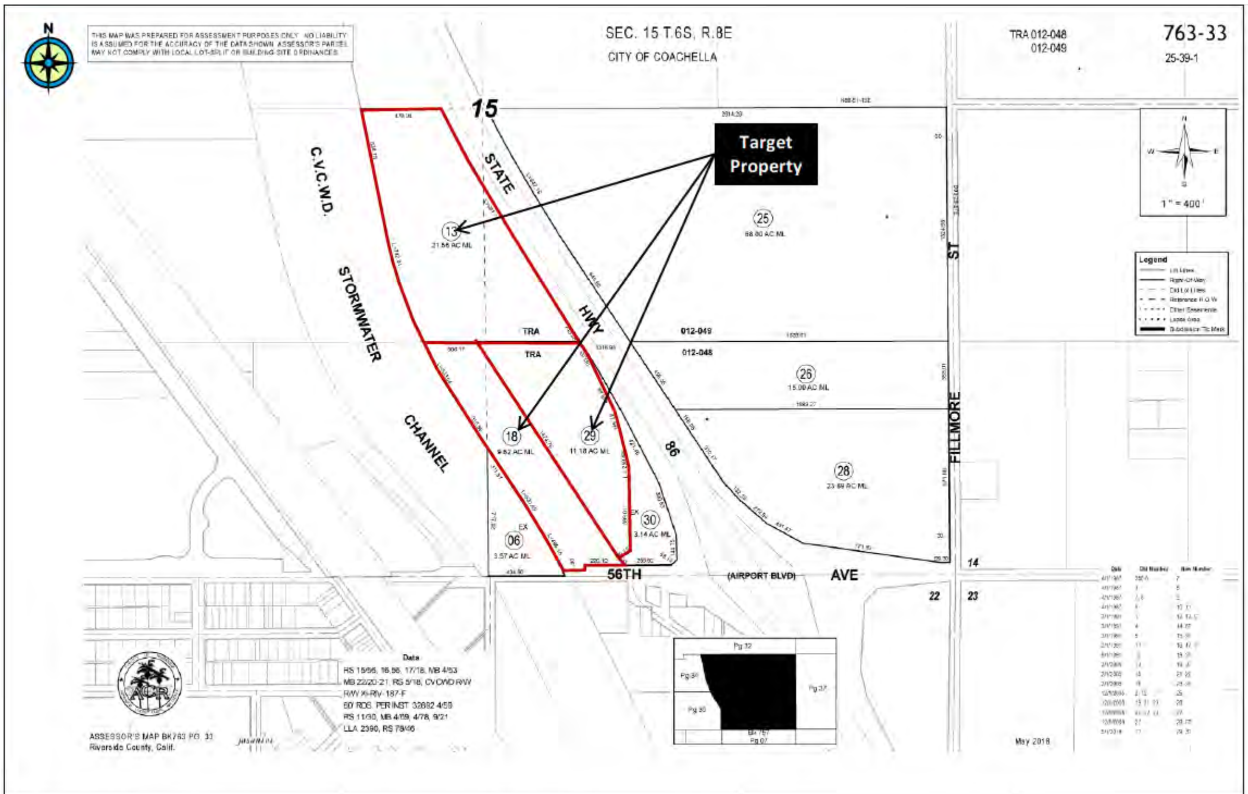
Altec representative Patrick S. Adams (Qualified Environmental Professional) visited the target property on February 9, 2021. Altec was unaccompanied during the site visit. The perimeters were also observed to identify areas where conditions on adjoining sites might pose adverse impacts. The weather during the inspection caused no limitations in visibility.

8.2 General Setting

The target property is in Coachella, California. It is characterized by vacant land that is generally flat.

8.3 Current Use

The target property parcels are vacant.



6035 Fremont Street, Riverside, CA 92504 Tel 951.352.6510 Fax 951.352.6514	**Parcel Map** 87630 Airport Road *(56th Avenue)* APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 Coachella, CA	Project No: 464-2021105 Date: February 2021 Not To Scale	**Figure 3**

6035 Fremont Street, Riverside, CA 92504 Tel 951.352.6510 Fax 951.352.6514	**Site Plan & Adjacent Properties Map** 87630 Airport Road *(56th Avenue)* APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 Coachella, CA	Project No: 464-2021105 Date: February 2021 Not To Scale	**Figure 4**

8.4 Exterior Observations

Site Observation Checklist			
Feature	Observed	Not Observed	Comments
Abandoned chemical containers		None	
Abandoned or stored electrical equipment		None	
Aboveground storage tanks (ASTs)		None	
Agricultural use			**Former AG use**
Air compressors		None	
Air pollution control equipment		None	
Antennas		None	
Areas of drainage run-on from neighboring properties		None	
Areas of suspicious ground settlement		None	
Asbestos-containing materials		None	
Battery storage		None	
Chemical attack of concrete paving		None	
Chemical stains		None	
Clarifiers/Grease Traps		None	

Site Observation Checklist			
Feature	Observed	Not Observed	Comments
Closed depressions		None	
Concrete corrosion or pitting		None	
Cooling towers		None	
Cutting/Machine oil on floor		None	
Dip tanks		None	
Drainage ditches		None	
Drains or openings		None	
Degreasers		None	
Drums or other chemical containers 5-gallons or more		None	
Dry wells		None	
Electrical transformers		None	
Endangered species or threatened species - animals			**Not determined**
Endangered species or threatened species - plants			**Not determined**
Erosion		None	
Evidence of refuse disposal		None	
Excessive cracking of slab		None	
Excessive noise sources		None	
Eye wash station		None	
Flood zones			**Adjacent stormwater channel**
Fluorescent lighting		None	
Freeway property		None	
Fuel dispensers		None	
Hazardous waste storage areas		None	
Hazardous materials storage areas		None	
Heating & cooling systems		None	
High tension power lines		None	
Historical features or structures		None	
Hummocky ground surface		None	
Hydraulic lift systems		None	
Landfilled areas		None	
Lead-based paint		None	
Lead in drinking water		None	
Machine pits		None	
Metal machining equipment		None	
Mechanics' pits		None	
Metal plating tanks/activities		None	
Metal shavings or scrap containers		None	
Monitoring wells		None	
Municipal Waste		None	
Odors – pungent, foul, noxious		None	
Outdoor lighting		None	

Site Observation Checklist			
Feature	Observed	Not Observed	Comments
Patches in slabs where USTs or remote fills may have been removed		None	
Pits, ponds, lagoons		None	
Former hazardous waste storage areas		None	
Former hazardous materials storage areas		None	
Pooled liquid		None	
Polychlorinated biphenyls		None	
Potable water sources		None	
Roads/driveways		None	
Rail siding		None	
Remnant AST footings, pads or secondary containments		None	
Septic tanks, cesspools or sewage disposal system		None	
Signage indicating hazardous or dangerous conditions		None	
Shoreline property		None	
Sloping or hilly land areas			**Area along west perimeter is bermed**
Solar power sources		None	
Spray paint booths			
Spills, leaks or other chemical releases		None	
Spill containment kits		None	
Stressed vegetation		None	
Storm water		None	
Storm water pollution prevention plans in use		None	
Sumps		None	
Sunken structural features such as loading docks, storm cellars, basements visible from exterior		None	
Surface water retention structures		None	
Underground pipe stub outs		None	
UST fill ports, man ways or vent pipes		None	
Vegetation, crops, lawns or landscaping			**Former crops**
Vehicle wash racks		None	
Vent pipes or other pipes that cannot readily explained		None	
Wastewater treatment equipment		None	
Water leaks/mold		None	
Wetlands		None	

9.0 ADJOINING & SURROUNDING PROPERTIES

9.1 Current Uses of Adjoining Properties
The current adjoining and nearby property uses are:

North	South	East	West
Undeveloped land	Airport Blvd., residential community	Highway 86, open agricultural land	Whitewater River, railroad tracks, industrial businesses

10.2 Past Uses of Adjoining Properties
The past adjoining and nearby property included:

Direction	Observations
North	Undeveloped land
South	Airport Blvd., residential community
East	Highway 86, open agricultural land
West	Whitewater River, railroad tracks, industrial businesses

9.3 Oil Wells/Oil Fields
No oil wells or oil fields were identified at the target property or in the immediate vicinity.

9.4 Pipelines
No pipelines were identified on the target property or on adjacent parcels.

There is a hazardous liquid pipeline located to the west of the target property that traverses along Highway 111. It appears to start in the area south of Mecca and runs north on Highway 111, and then north along the west side of Interstate 10.

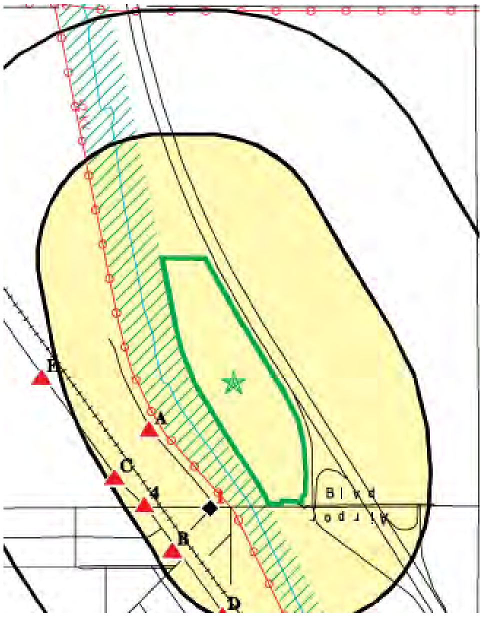
Two gas transmission pipelines are positioned to the east of Interstate 10 in the foothills leading to the San Bernardino mountains, towards Joshua Tree National Park. The gas lines runs southeast to the northwest. There is section of gas transmission pipeline depicted traversing north to south along Monroe Street, north of Highway 111 and ending just north of Highway 10 and Fred Waring Drive in Indio.

9.5 Methane Gas
No information has been identified to indicate that elevated concentrations of methane gas have been detected at the target property or in the vicinity.

9.5 Radon
Radon testing was not performed at the target property. Results of published radon surveys for the area indicate that radon does not appear to be a significant concern. EDR provided a summary of radon survey information compiled by the U.S. Environmental Protection Agency (USEPA) and the State of California Department of Health Services (DHS).

9.6 Flood Zones

The area to the west of the target property (Whitewater River stormwater channel) is identified on the EDR map as a special flood zone. Additional provisions could be necessary to protect future buildings/occupants. Altec recommends contacting the City of Coachella Building and Planning Departments to determine necessary requirements, if any.



The flood zone area is shown with greet hash marks in the inserted image above. The target property is outlined in bold green with a green star in the middle.

9.7 Electromagnetic Fields

Although there are no current regulations that apply limitations for residential structures in proximity to major sources of electromagnetic fields (EMFs) such as overhead high-tension power lines, high levels of EMFs are unresolved public health concerns. Significant sources of potential EMFs were not observed during the TP visit.

9.8 Vapor Encroachment Conditions

Vapor encroachment screening was not performed for the target property as a part of the Phase I ESA scope of work. Although we did not perform an ASTM Vapor Encroachment Screening, our professional opinion is that no vapor intrusion conditions currently exist in the target property. None of the adjacent or immediately surrounding sites/businesses appear to have a significant potential for release of volatile organic compounds to the soil or groundwater with subsequent migration to the target property.

It should be noted that groundwater is very shallow (between 10 and 20 feet below grade) in the vicinity. Releases contaminants have the potential for migration through groundwater to surrounding sites.

10.0 PRIOR ASSESSMENTS/EVALUATIONS

No prior site assessment reports were provided for our review.

11.0 EVALUATION/CONCLUSIONS

Altec performed a Phase I ESA of the target property in February 2021 in conformance with the scope and limitations of ASTM Practice E 1527. The following table summarizes the potential environmental concerns based on the findings:

Former Uses/Addresses/APN	Action Completed/REC evaluation
Item 1 Former Agricultural use All three parcels	**Agricultural Site Use** From approximately 1953 to 1984, the three target property parcels contained agricultural crops. The potential exists for residues of organophosphate pesticides (OPP), organochlorine pesticides (OCPs) and chlorinated herbicides (CHs) to be present in the soils in association with this agricultural usage. The potential presence of pesticides and herbicides at the target property would be identified as a recognized environmental condition (REC) if the detected concentrations exceed regulatory agency screening levels. A soils investigation is warranted.

Historical Recognized Environmental Conditions (HRECs)
No HRECs were revealed during this assessment.

Controlled Recognized Environmental Conditions (CRECs)
No CRECs were revealed during this assessment.

12.0 DEVIATIONS

ASTM Practice E 1527 indicates that no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a site. Performance of an ASTM Practice E 1527 ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a site. The practice recognizes reasonable limits of time and cost.

All appropriate inquiry does not mean an exhaustive assessment of a clean site. There is a point at which the cost of the information obtained, or the time required to gather tit outweighs the usefulness of the information, and in fact, may be a material detriment to the orderly completion of the transaction.

Not every site warrants the same level of assessment. Consistent with good commercial or customary practice, the appropriate level of environmental site assessment will be guided by the type of site subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry.

ASTM Practice E 1527 provides the following definitions:

Data Gap - a lack of or inability to obtain information required by the ASTM Practice E 1527 despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by the ASTM Practice E 1527, including, but not limited to site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.).

Data Failure - a failure to achieve the historical research objectives in the ASTM Practice E 1527 after reviewing the standard historical sources that are reasonable ascertainable and likely to be useful. Data failure is an example of one type of data gap.

Practically Reviewable - Information that is practically reviewable means that the information is provided by the source in a manner and in a form that, upon examination, yields information relevant to the site without the need for extraordinary analysis of irrelevant data. The form of the information shall be such that the user can review the records for a limited geographic area. Records that cannot be feasibly retrieved by reference to the location of the site or a geographic area in which the site is located are not generally practically reviewable. Records that are sorted, filed, organized, or maintained by the source agency only chronologically are not generally practically reviewable. Listings in publicly available records, which do not have adequate address information to be located geographically, are not generally considered practically reviewable.

Publicly Available - Information that is publicly available means that the source of the information allows access to the information by anyone upon request.

Reasonably Ascertainable - Information that is (1) publicly available, (2) obtainable from its source within reasonable time and cost constraints, and (3) practically reviewable.

Reasonable Time and Cost - Information that is obtainable within reasonable time and cost constraints means that the information will be provided by the source within 20 calendar days of receiving a written, telephone, or in-person request at no more than a nominal cost intended to cover the source’s cost of retrieving and duplicating the information. Information that can only be reviewed by a visit to the source is reasonably ascertainable if the visit is permitted by the source within 20 days of request.

The following table lists the deviations that constitute potential data gaps in this Phase I ESA.

Component	Description of Deviation / Data Gap
Records Review	Chain of Title Documents / Recorded Land Title Records – Chain of title information was deemed not practically reviewable or reasonable ascertainable.
	Environmental Liens – Lien search was performed for all of the covered APNs
	Specific Valuation Reduction – No deviations.
	Property Tax Files – This information was deemed not practically reviewable or reasonable ascertainable because of the difficulty in obtaining these files from the appropriate agency.
	Fire Insurance Maps – No deviations.
	Zoning and Land Use Information – No site-specific information obtained.
	Building Permits – Building permits were determined to be not reasonable ascertainable based on the proposed scope of work.
	Other Agency File Documentation – No deviations.
Site Reconnaissance	Onsite Observation – No deviations.
Interviews	Past Owners and Occupants – No access was provided.
	Key Site Manager – No current site manager was identified.
	Site Occupants – There were no current occupants.
	Local Fire Department Personnel – No interviews were conducted.
	Local Building Department Personnel – No interviews were conducted.
	State or Local Health Department Personnel – No interviews were conducted.
	State or Local Hazardous Waste Personnel – No interviews were conducted.
	State Water Quality Agency – No interviews were conducted.
Report	No deviations.

The following limitations apply to this Phase I ESA:

The information in this report was derived primarily from previous reports documenting the history of the former site occupants. The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration at the site, analysis of the data, and reevaluation of the findings, observations, and conclusions in the report. The findings, observations, and conclusions in this report are not, nor should be, considered an opinion concerning the compliance of any past or present owner or operator of the site with any federal, state, or local laws or regulations. No warranty or guarantee, expressed or implied, is made with respect to the data reported, except as specifically provided for in the contract for the work. Findings, observations, and conclusions are based solely upon site conditions in existence and readily available data at the time of this assessment. This Phase I ESA report presents professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental laws and regulations, the report shall not be construed to be a legal opinion as to the requirements of, or compliance with, environmental laws and regulations. Appropriate legal counsel should review issues pertaining to the RECs identified within this report, if any.

Except for the limitations and exceptions discussed within this report, this Phase I ESA complies with the ASTM Standard 1527.

13.0 REFERENCES

The following documents, maps, or other publications may have been used in the preparation of this report:

1. American Society for Testing and Materials Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E1527-13) (2013).

2. Environmental Data Resources (EDR-2021), Radius Map

3. EDR Historical Resources (2021), Sanborn Company Maps, Aerial Photographs, Telephone Directories, Topographic Maps.

4. Cal/EPA DTSC's Envirostor, RWQCB's Geotracker, SCAQMD Facility Information Details (FINDS) database online records (2021).

5. Cal/EPA DTSC's Hazardous Waste Tracking System (HWTS) database (2021).

6. Department of Conservation, Division of Oil, Gas & Geothermal Resources online records (2021).

7. Munger Map Book - California and Alaska Oil & Gas Fields.

8. U.S. Department of Transportation, Pipeline and Hazardous Material Safety Administration (PHMSA), Gas and Liquid Petroleum Pipelines (2021).

9. Pipeline Association for Public Awareness website (2021).

10. Coachella Valley Regional Water Management Group (CVRWMG). (2010). Coachella Valley Integrated Regional Water Management Plan. December 2010.

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17. CVWD. (2020b). Indio Subbasin Annual Report for Water Year 2018-2019. February 2020.

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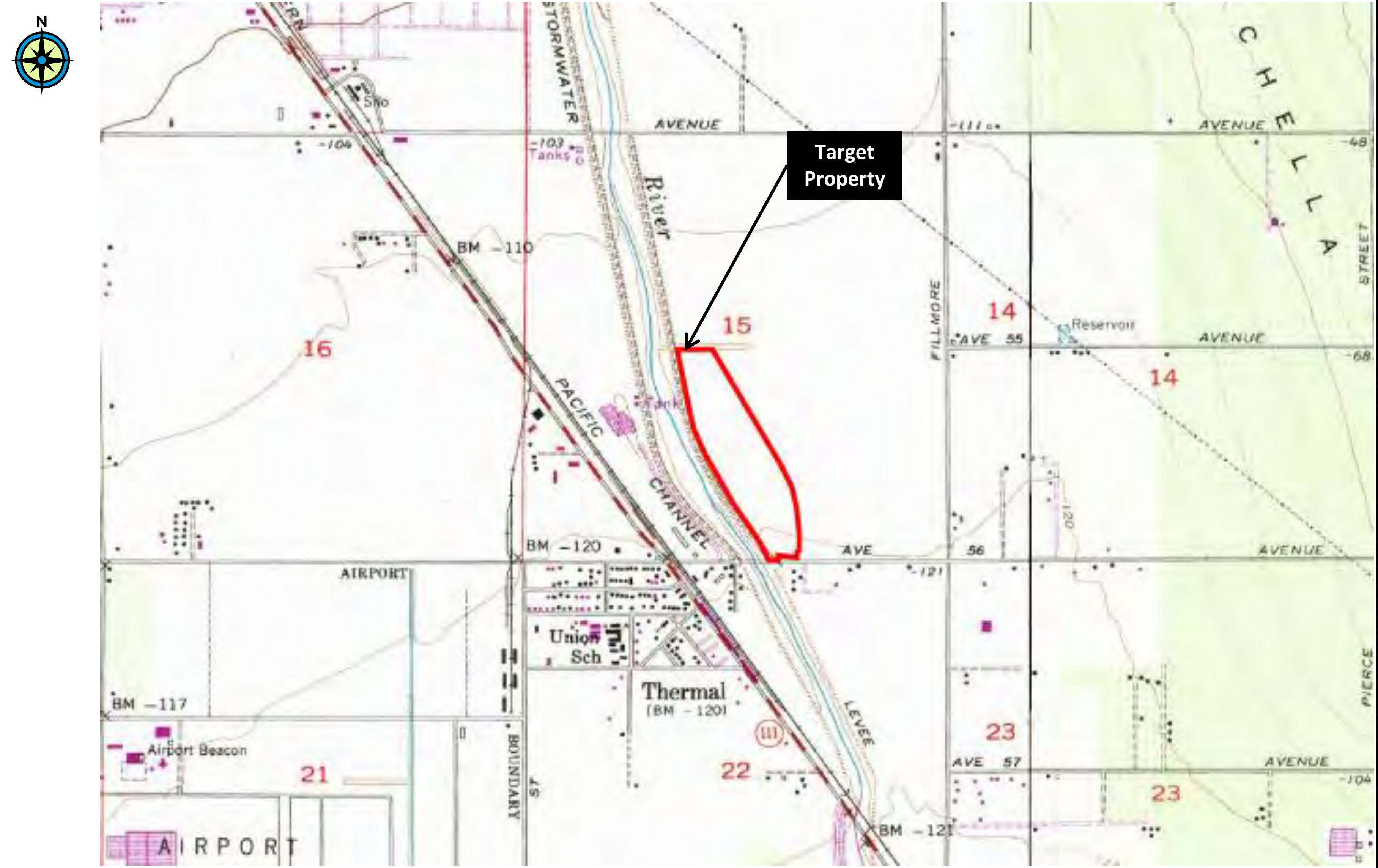
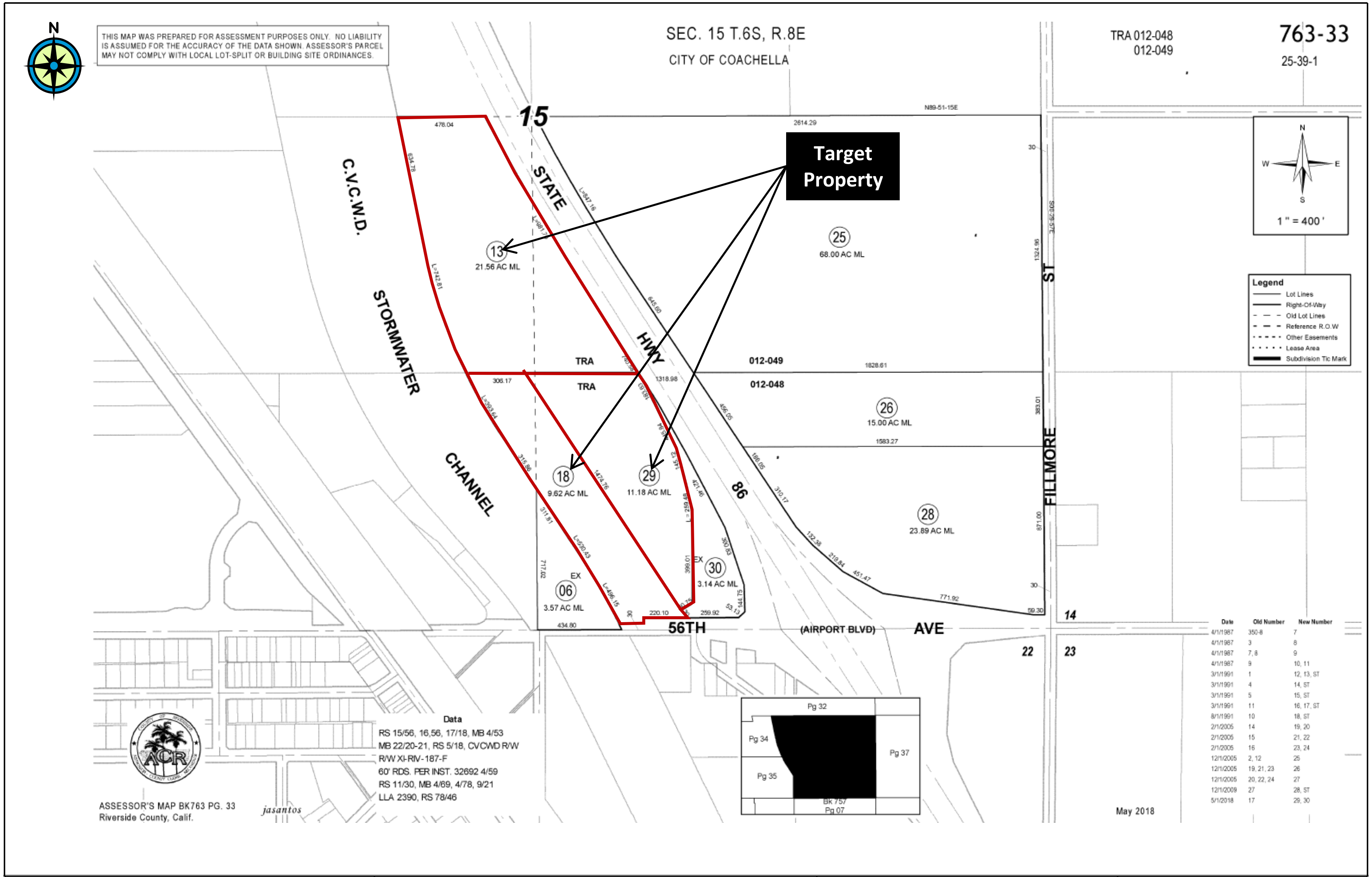
21. DWR. (2009). Bulletin 160-09, California Water Plan Update 2009, Integrated Water Management. December 2009.

APPENDIX A

Altec 6035 Fremont Street, Riverside, CA 92504 Tel 951.352.6510 Fax 951.352.6514	**Regional Location Map** 87630 Airport Road *(56th Avenue)* APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 Coachella, CA	Project No: 464-2021105 Date: February 2021 Not To Scale	**Figure 1**



Altec 6035 Fremont Street, Riverside, CA 92504 Tel 951.352.6510 Fax 951.352.6514	**Topographic Map** 87630 Airport Road *(56th Avenue)* APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029 Coachella, CA	Project No: 464-2021105 Date: February 2021 Not To Scale	**Figure 2**



6035 Fremont Street,
Riverside, CA 92504
Tel 951.352.6510
Fax 951.352.6514

Parcel Map

87630 Airport Road *(56th Avenue)*
APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029
Coachella, CA

Project No: 464-2021105
Date: February 2021
Not To Scale

Figure 3

Altec
6035 Fremont Street,
Riverside, CA 92504
Tel 951.352.6510
Fax 951.352.6514

Site Plan & Adjacent Properties Map
87630 Airport Road *(56th Avenue)*
APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029
Coachella, CA

Project No: 464-2021105
Date: February 2021
Not To Scale

Figure 4

APPENDIX B

View across the target property looking north, northwest.

View across the target property looking northeast.

View across the target property to the northeast.

View across the target property to the east.

View across the target property to the south, southeast.

View across the target property looking to the southeast.

View across the target property looking to the west, southwest.

View to the north on the target property along the west perimeter.

View of the sloped berm area along the west side of the target property, adjacent to the Whitewater River channel.

View of the graded road along the Whitewater River channel to the west of the target property.

View to the northwest of the graded road along the Whitewater River channel west of the target property.

View to the west of industrial buildings located across the Whitewater River channel.

View to the southwest of industrial buildings located across the Whitewater River channel; Airport Road is seen in the distance as it crosses over the river channel.

View of the graded road along the west side of the target property, looking south.

View along the graded road on the west side of the target property, looking north/northeast.

View across the target property to the east.

View across the target property looking east, southeast.

View looking south along the west perimeter of the target property.

View across the target property looking southwest.

View along the west perimeter of the target property looking west towards the Whitewater River.

View across the target property looking south from the middle of the north parcel; Highway 86 is in the distance along the east side of the TP.

View across the target property towards Highway 86, east, northeast.

View to the north, northeast from the south edge of the target property.

View to the northeast from the south edge of the target property.

View to the west along the south edge of the target property.

View to the east along Airport Road (south edge of TP) towards Highway 86.

View to the southeast at the Desert View mobile home park property across Airport Blvd.

View to the south at the Desert View mobile home park property across Airport Blvd.

View to the west along Airport Blvd.

CVWD water well located along the Whitewater River channel, west of the TP, along Airport Blvd.

Entry gate at the southwest corner of the target property, along Airport Blvd.

APPENDIX C

Haagen Coachella

87630 Airport Road

Thermal, CA 92274

Inquiry Number: 6323743.11

January 07, 2021

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

01/07/21

Site Name:

Haagen Coachella
87630 Airport Road
Thermal, CA 92274
EDR Inquiry # 6323743.11

Client Name:

Altec Testing & Engineering
6035 Fremont Street
Riverside, CA 92504
Contact: Lynn Laborde

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2002	1"=500'	Acquisition Date: January 01, 2002	USGS/DOQQ
1996	1"=500'	Acquisition Date: June 21, 1996	USGS/DOQQ
1984	1"=500'	Flight Date: August 24, 1984	USDA
1975	1"=500'	Flight Date: October 16, 1975	USGS
1972	1"=500'	Flight Date: August 17, 1972	USDA
1965	1"=500'	Flight Date: August 31, 1965	USGS
1959	1"=500'	Flight Date: September 06, 1959	USDA
1953	1"=500'	Flight Date: October 27, 1953	USDA
1949	1"=500'	Flight Date: February 15, 1949	USDA

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.


INQUIRY #: 6323743.11
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 6323743.11
YEAR: 2012
= 500'
N
EDR

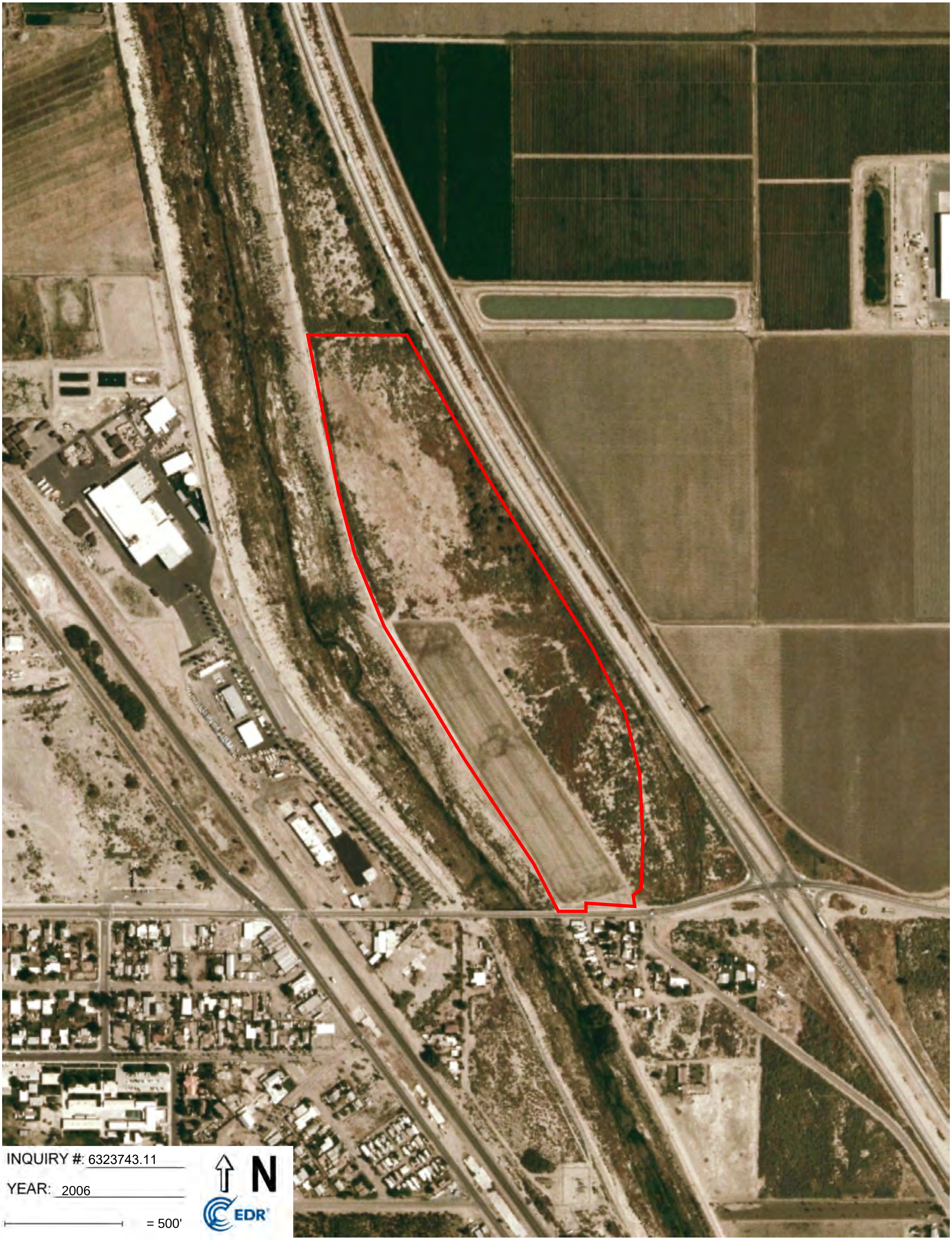
INQUIRY #: 6323743.11

YEAR: 2009

= 500'

N

EDR



INQUIRY #: 6323743.11

YEAR: 2006

= 500'

N

EDR

INQUIRY #: 6323743.11

YEAR: 2002

= 500'

N

EDR

INQUIRY #: 6323743.11

YEAR: 1996

= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

INQUIRY #: 6323743.11

YEAR: 1984

= 500'

N

EDR

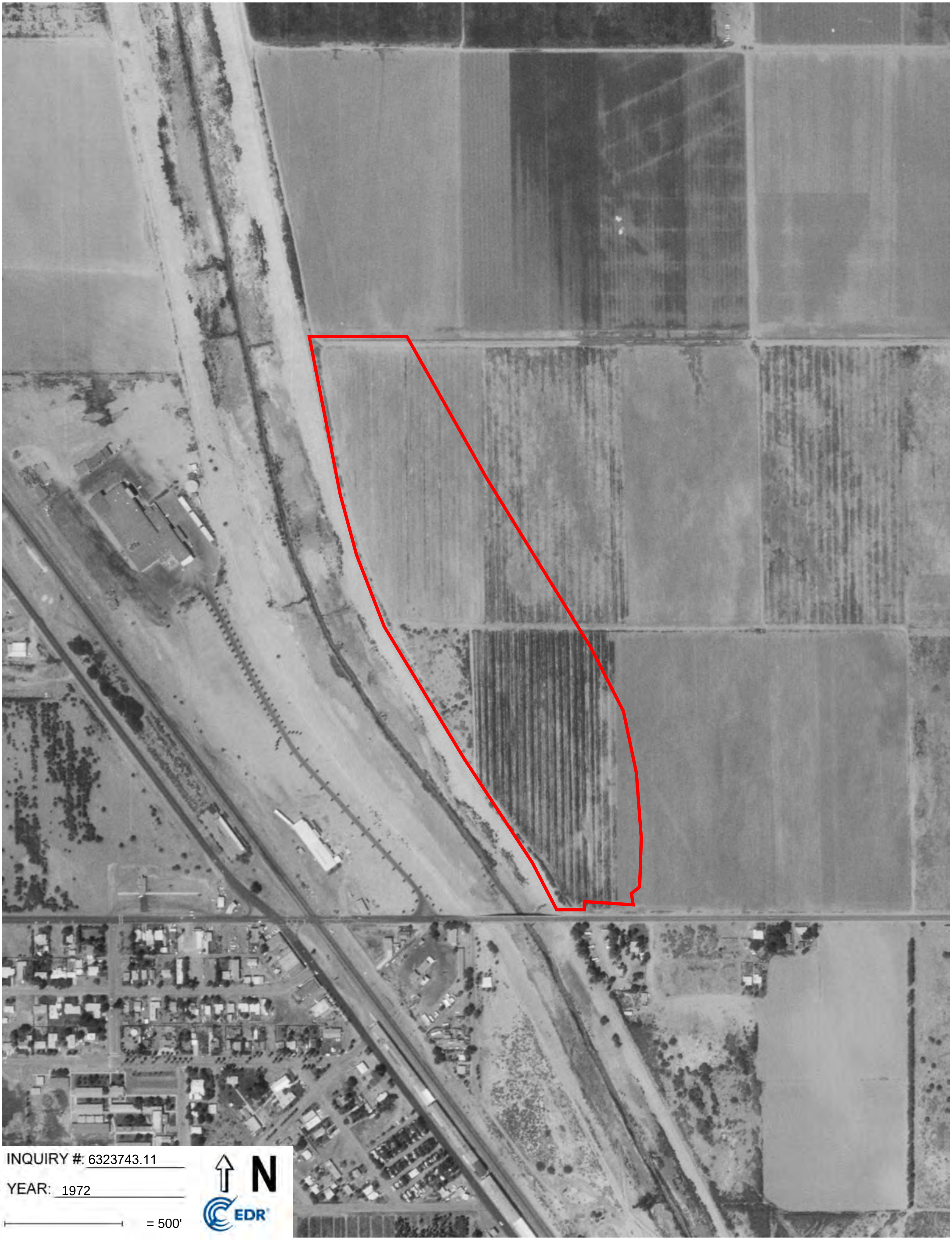
INQUIRY #: 6323743.11

YEAR: 1975

= 500'

N

EDR



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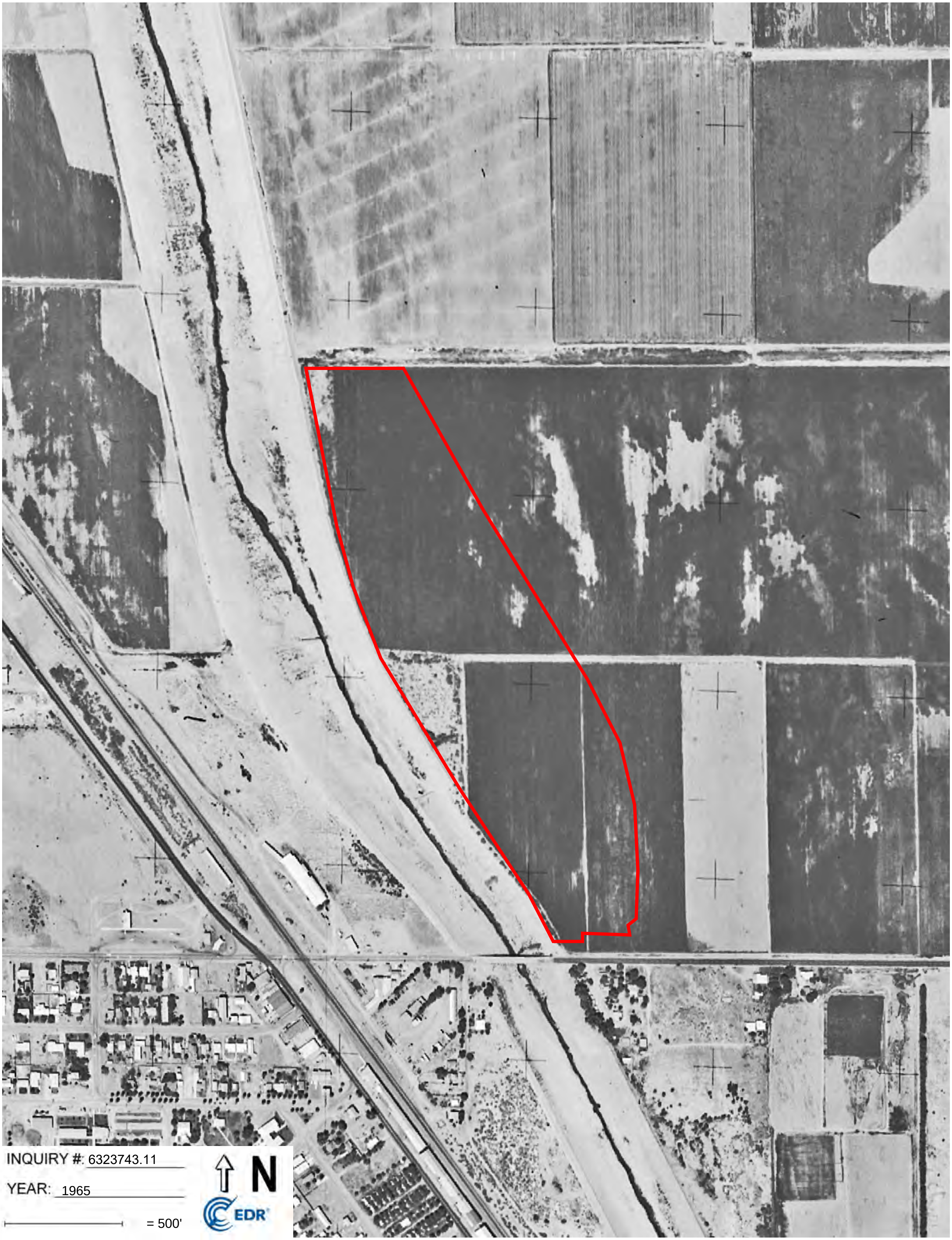
YEAR: 1972

= 500'

EDR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YEAR: 1965
= 500'
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EDR

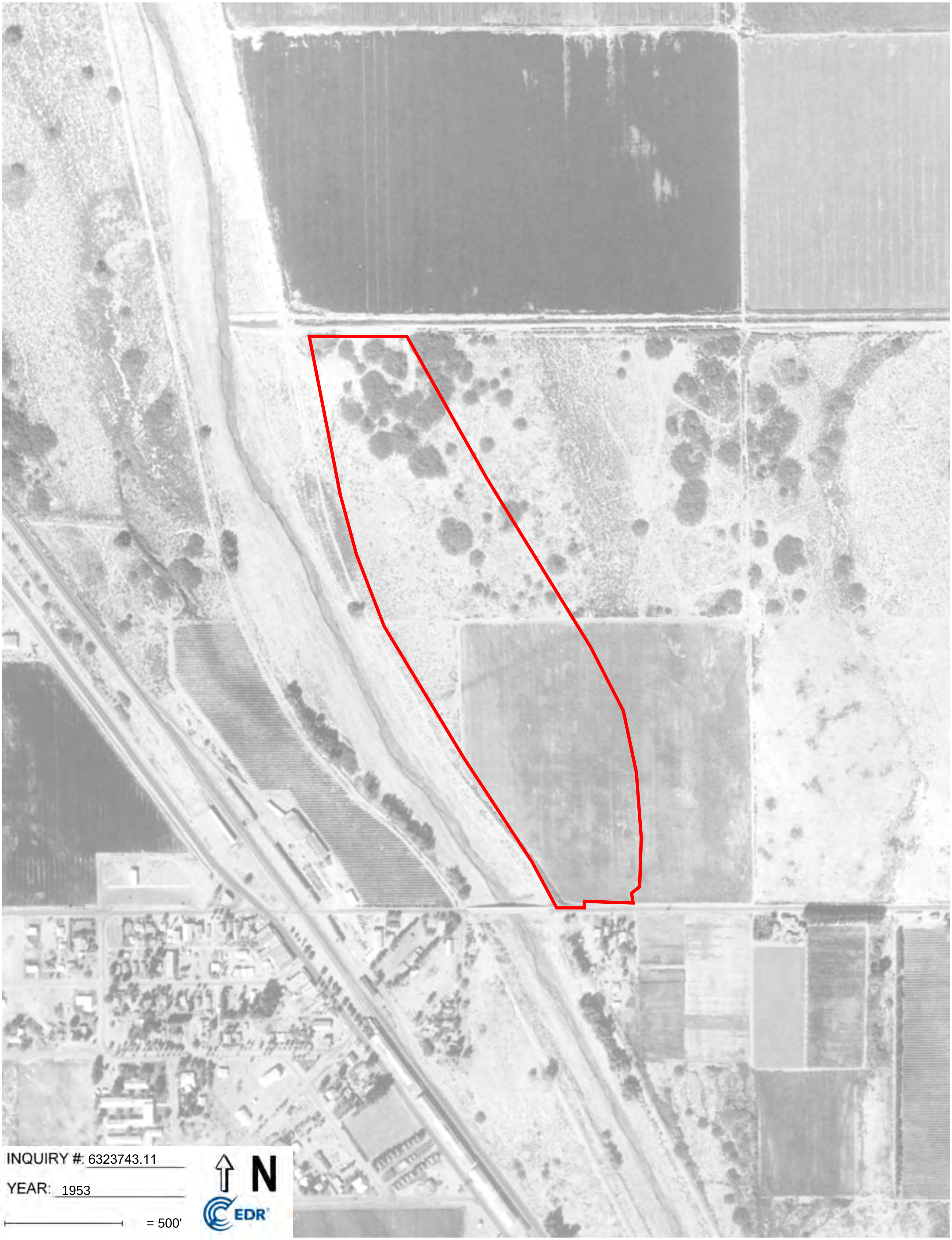
INQUIRY #: 6323743.11

YEAR: 1959

= 500'

N

EDR



INQUIRY #: 6323743.11

YEAR: 1953

= 500'

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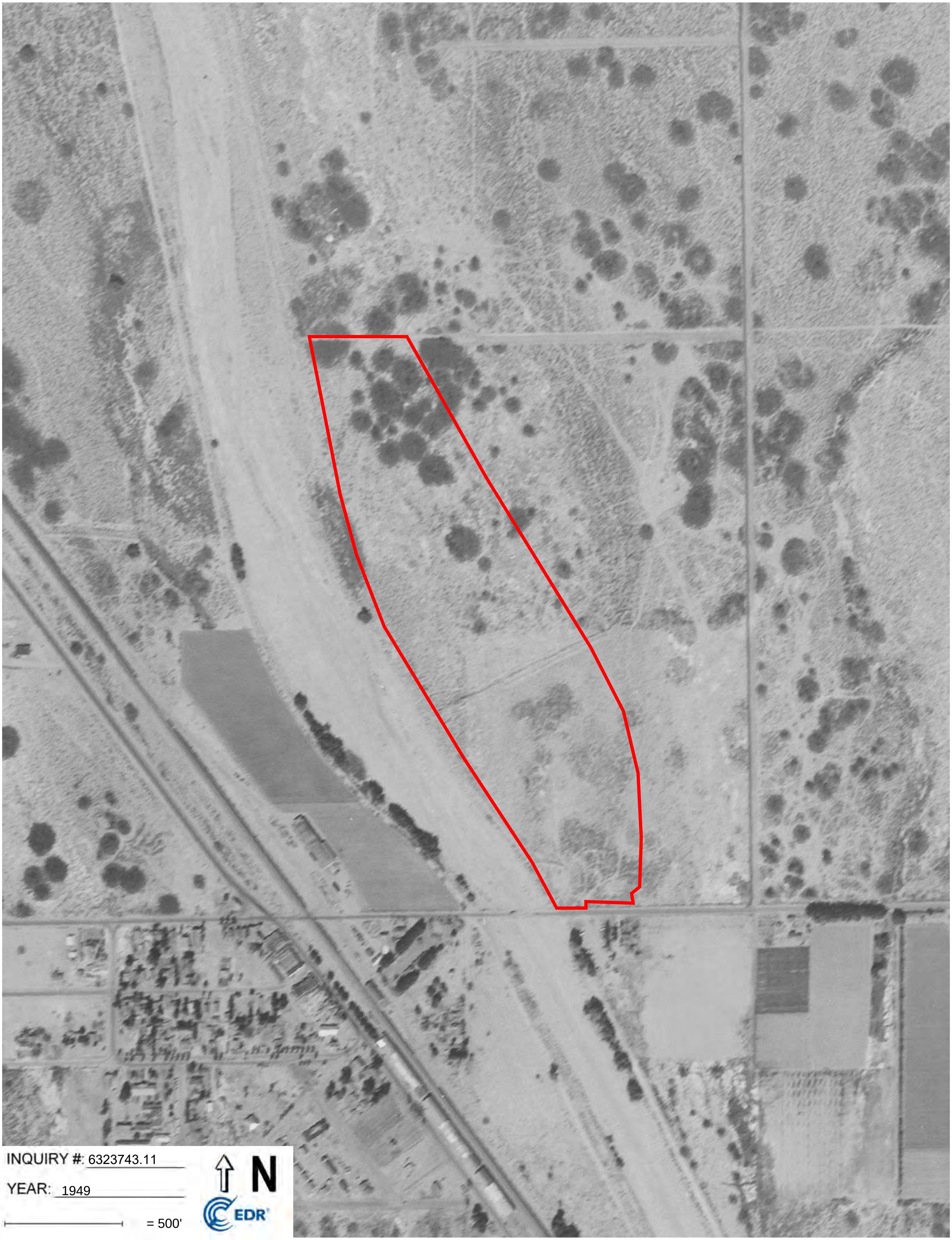
EDR



INQUIRY #: 6323743.11

YEAR: 1949

= 500'

N

EDR

Haagen Coachella

87630 Airport Road

Thermal, CA 92274

Inquiry Number: 6323743.4

January 07, 2021

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

01/07/21

Site Name:	**Client Name:**
Haagen Coachella	Altec Testing & Engineering
87630 Airport Road	6035 Fremont Street
Thermal, CA 92274	Riverside, CA 92504
EDR Inquiry # 6323743.4	Contact: Lynn Laborde

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Altec Testing & Engineering were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		***Coordinates:***	
P.O.#	NA	**Latitude:**	33.645645 33° 38' 44" North
Project:	464-2021105	**Longitude:**	-116.137741 -116° 8' 16" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	579958.04
		UTM Y Meters:	3723200.29
		Elevation:	-119.98' below sea level

Maps Provided:

2012
1972
1956
1955, 1956
1947
1943
1941
1904

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets


Mecca
2012
7.5-minute, 24000


Valerie
2012
7.5-minute, 24000

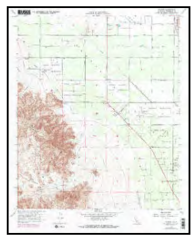

Thermal Canyon
2012
7.5-minute, 24000

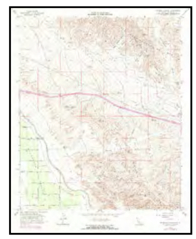

Indio
2012
7.5-minute, 24000

1972 Source Sheets

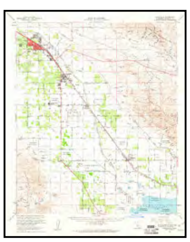

Mecca
1972
7.5-minute, 24000
Aerial Photo Revised 1972


Indio
1972
7.5-minute, 24000
Aerial Photo Revised 1972


Valerie
1972
7.5-minute, 24000
Aerial Photo Revised 1972


Thermal Canyon
1972
7.5-minute, 24000
Aerial Photo Revised 1972

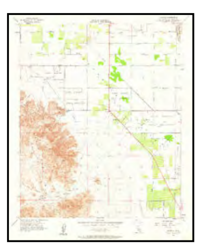
1956 Source Sheets

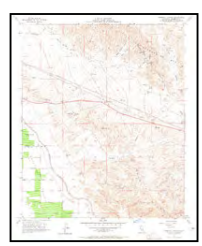

Coachella
1956
15-minute, 62500
Aerial Photo Revised 1953

1955, 1956 Source Sheets


Mecca
1955
7.5-minute, 24000
Aerial Photo Revised 1952


Indio
1956
7.5-minute, 24000
Aerial Photo Revised 1953

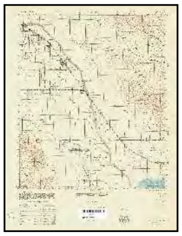

Valerie
1956
7.5-minute, 24000
Aerial Photo Revised 1953


Thermal Canyon
1956
7.5-minute, 24000
Aerial Photo Revised 1953

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1947 Source Sheets



COACHELLA
1947
15-minute, 50000

1943 Source Sheets

Coachella
1943
15-minute, 62500
Aerial Photo Revised 1941

1941 Source Sheets

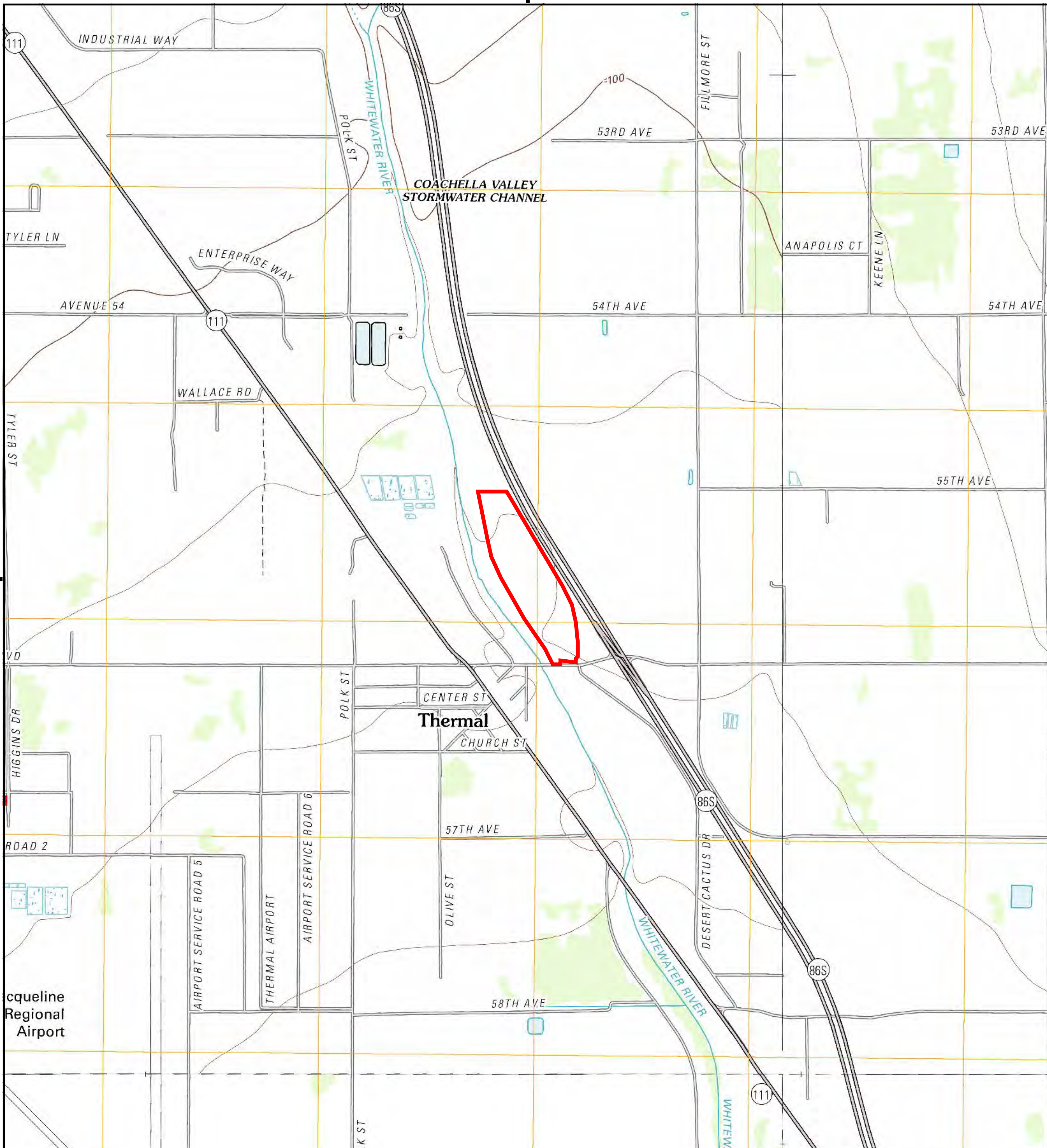
Coachella
1941
15-minute, 62500
Aerial Photo Revised 1941

1904 Source Sheets

Indio
1904
30-minute, 125000

Historical Topo Map

2012



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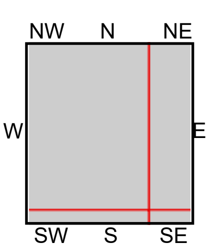


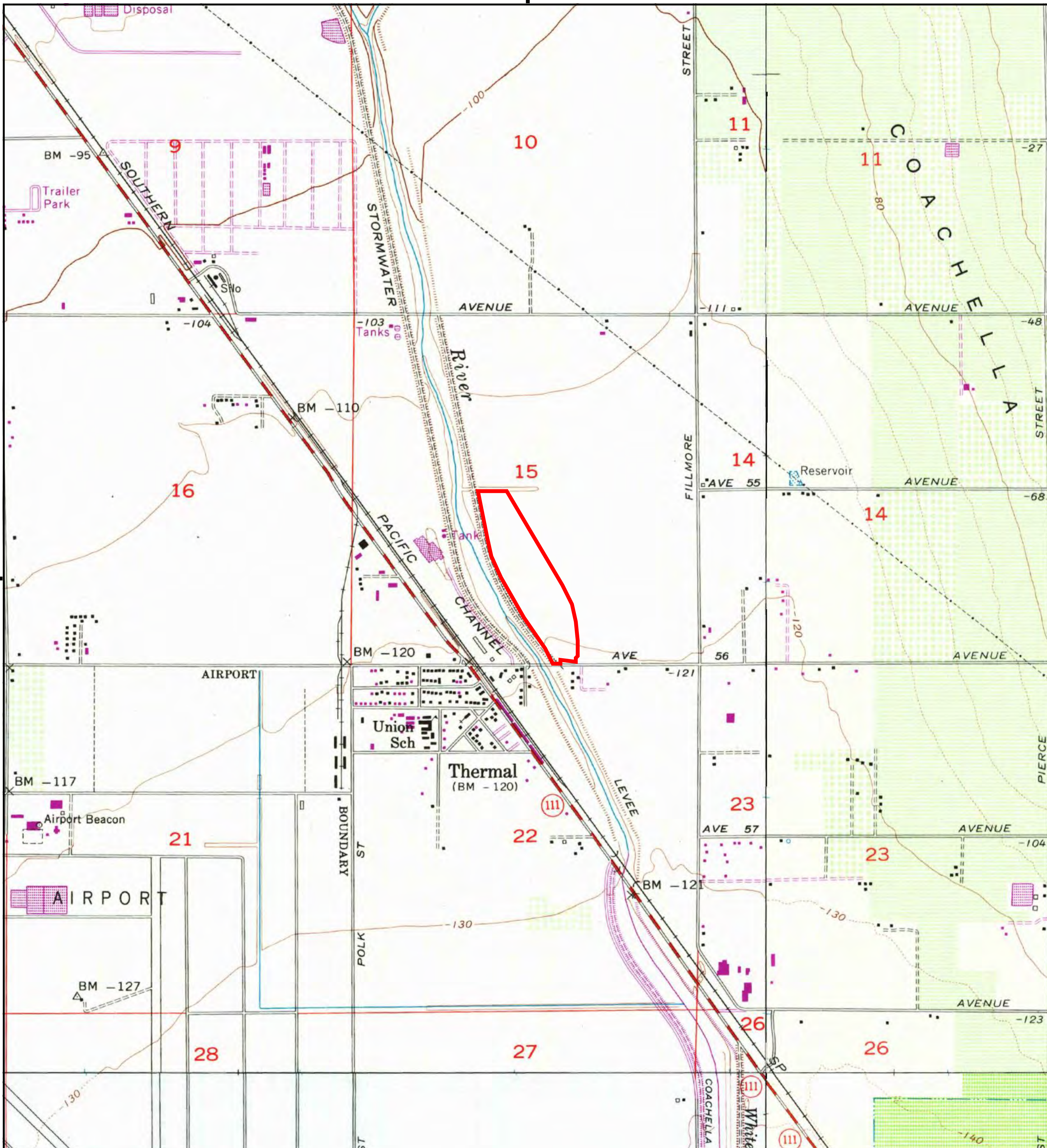
TP, Indio, 2012, 7.5-minute
NE, Thermal Canyon, 2012, 7.5-minute
SE, Mecca, 2012, 7.5-minute
SW, Valerie, 2012, 7.5-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N

Historical Topo Map

1972



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NW N NE
W E
SW S SE

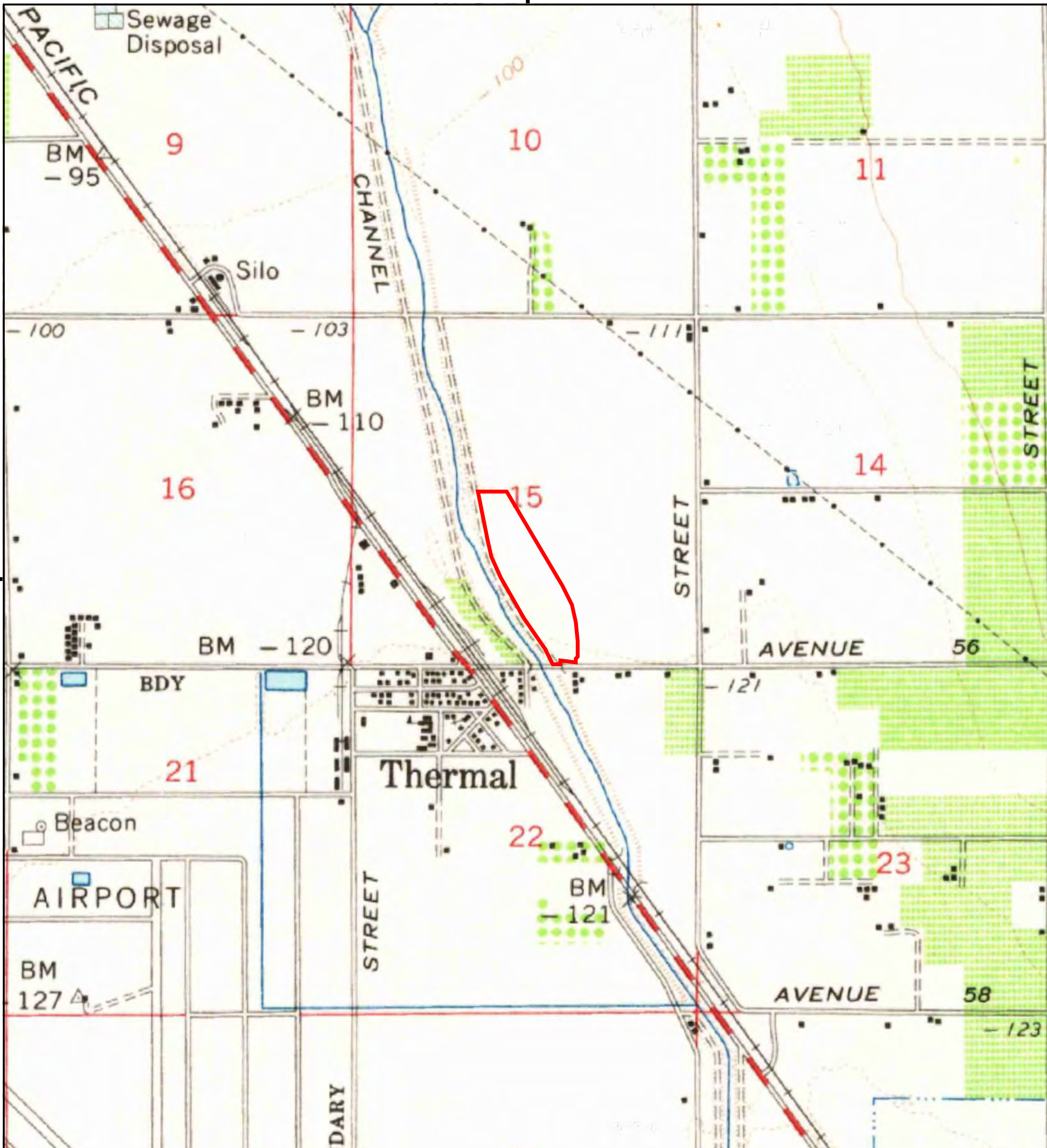
TP, Indio, 1972, 7.5-minute
NE, Thermal Canyon, 1972, 7.5-minute
SE, Mecca, 1972, 7.5-minute
SW, Valerie, 1972, 7.5-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N

Historical Topo Map

1956



This report includes information from the following map sheet(s).

0 Miles	0.25	0.5	1	1.5

NW N NE

W E

SW S SE

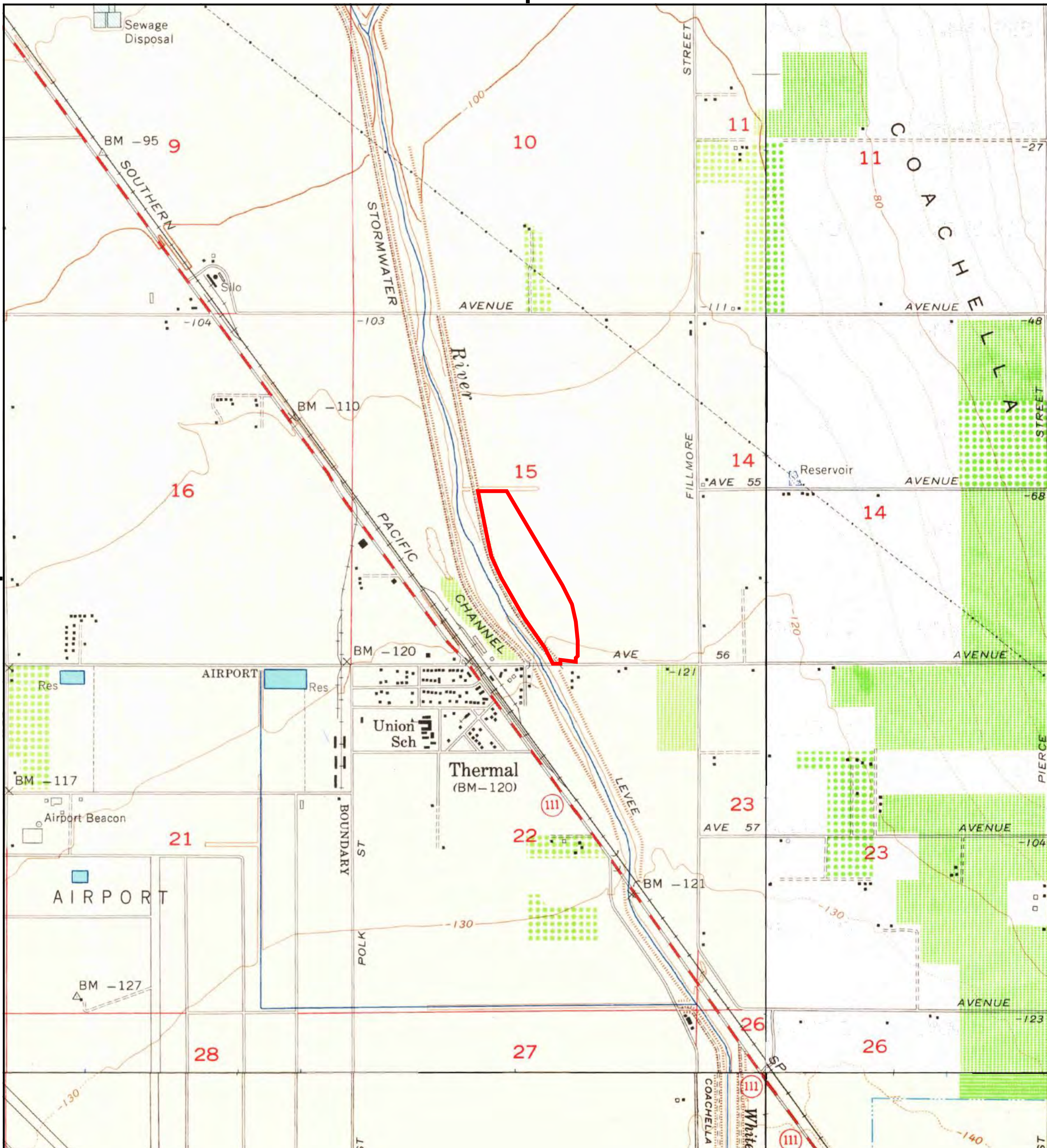
TP, Coachella, 1956, 15-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N

Historical Topo Map

1955, 1956



This report includes information from the following map sheet(s).

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W E
SW S SE

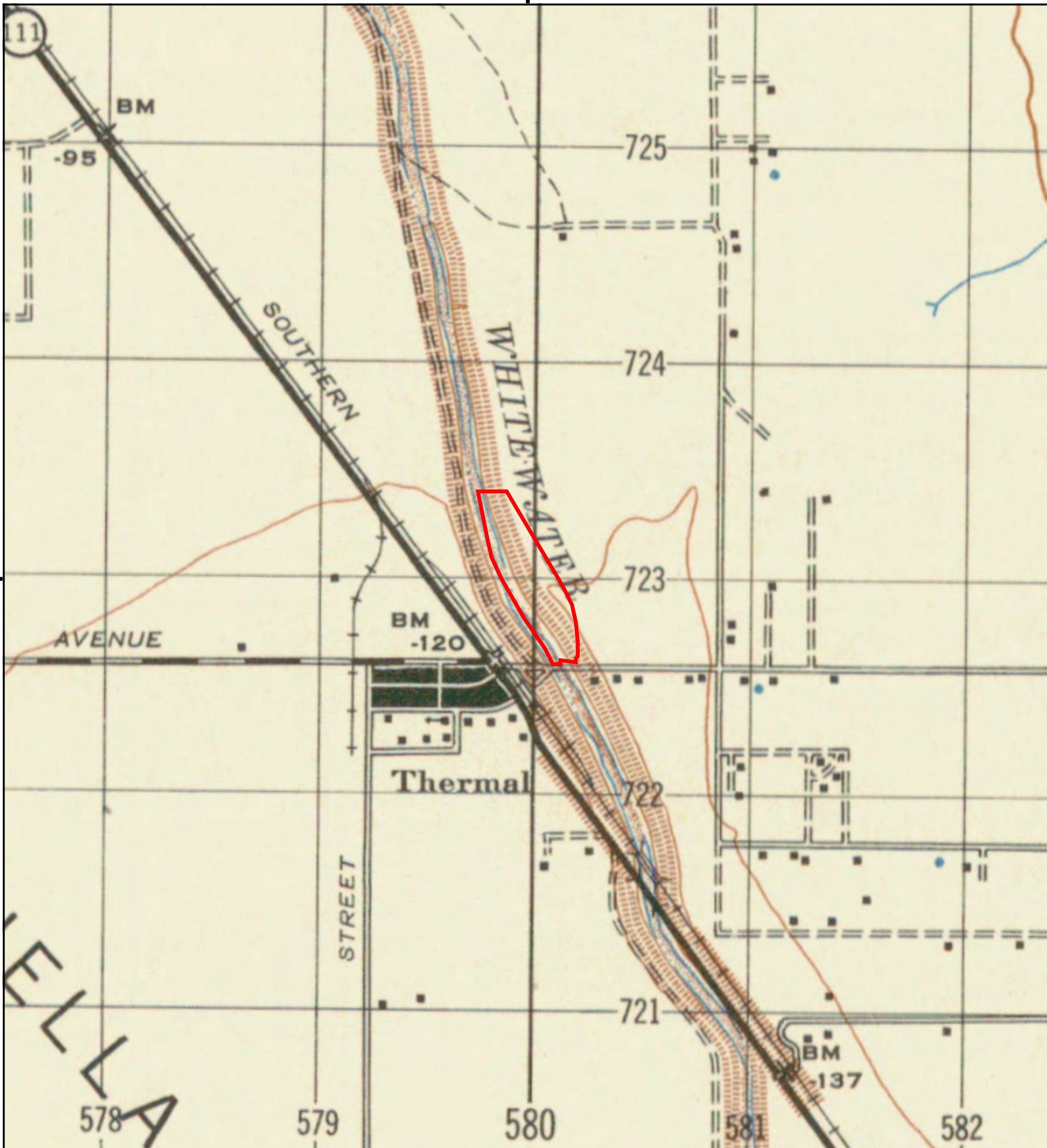
TP, Indio, 1956, 7.5-minute
NE, Thermal Canyon, 1956, 7.5-minute
SE, Mecca, 1955, 7.5-minute
SW, Valerie, 1956, 7.5-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N

Historical Topo Map

1947



This report includes information from the following map sheet(s).

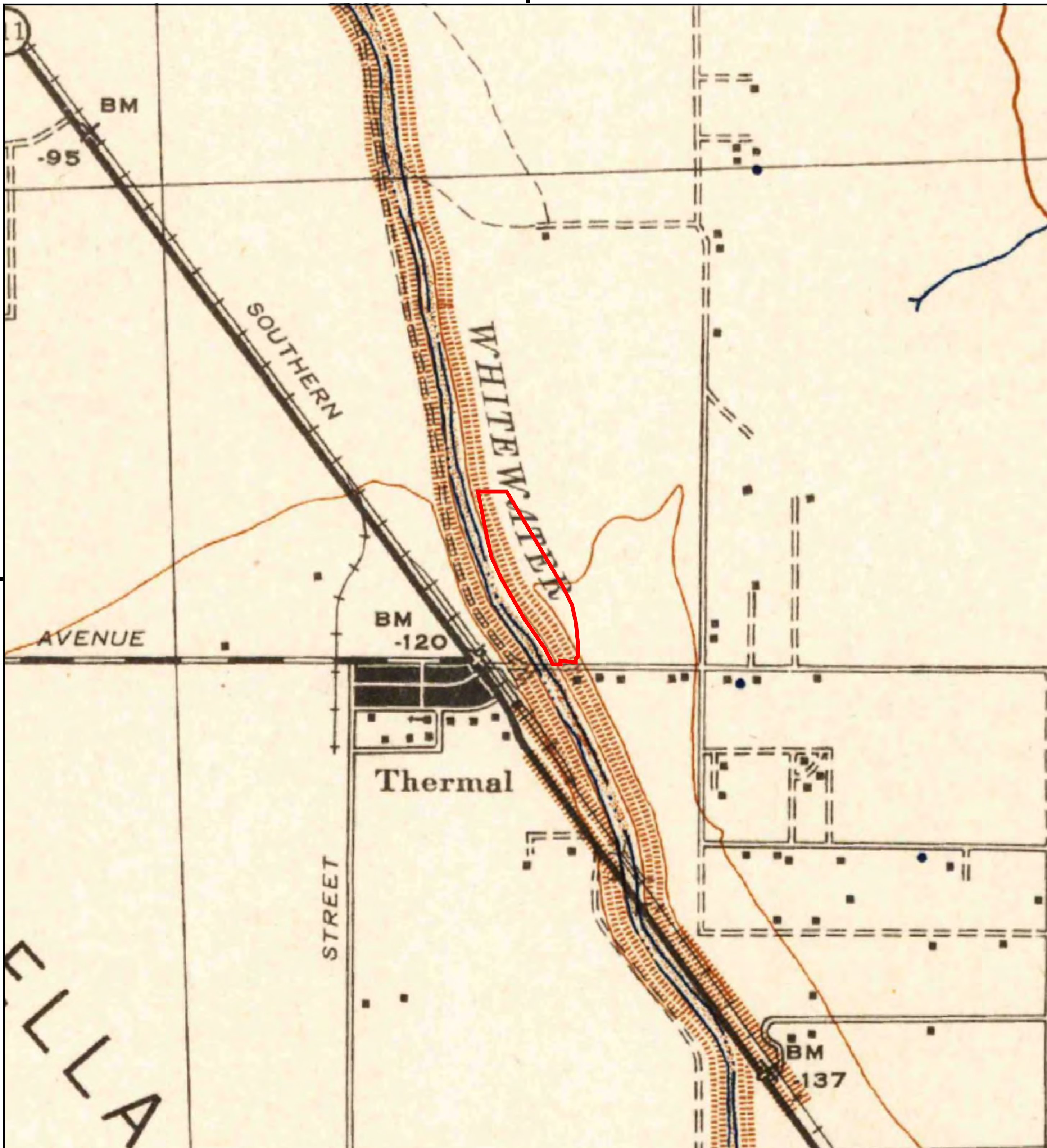
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, COACHELLA, 1947, 15-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

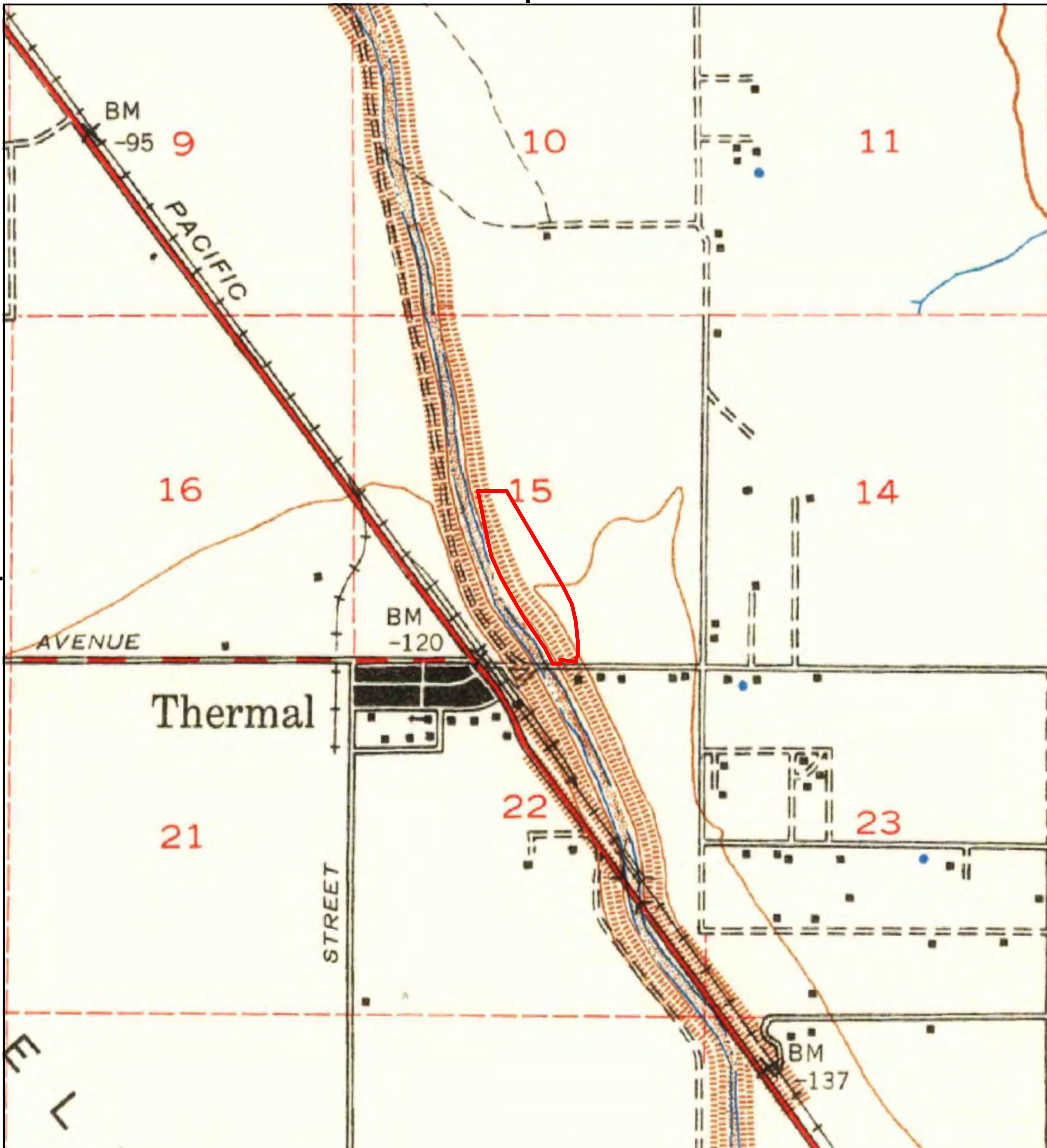
NW N NE
W E
SW S SE

TP, Coachella, 1943, 15-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

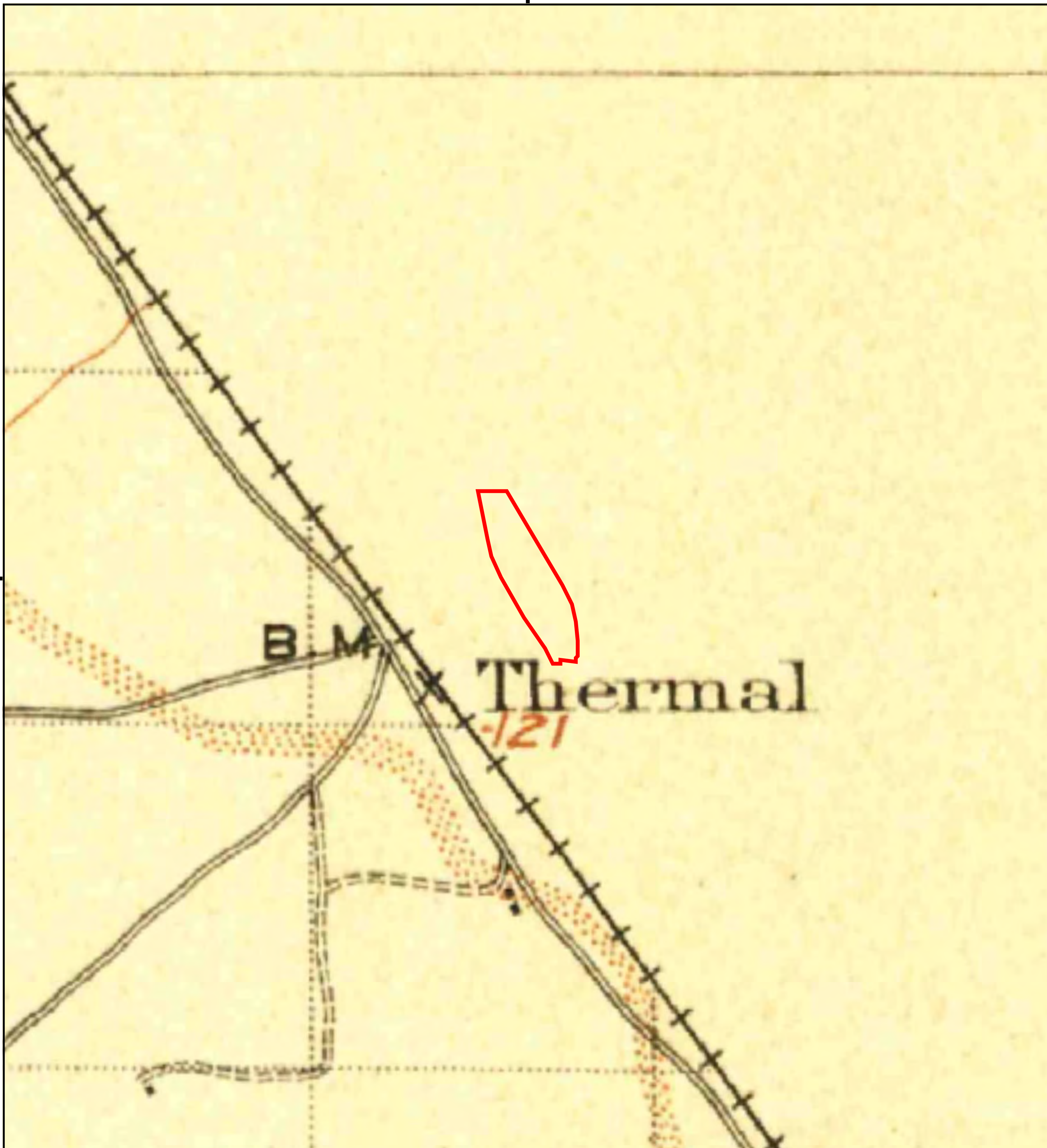
TP, Coachella, 1941, 15-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N

Historical Topo Map

1904



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Indio, 1904, 30-minute

SITE NAME: Haagen Coachella
ADDRESS: 87630 Airport Road
Thermal, CA 92274
CLIENT: Altec Testing & Engineering

N

Haagen Coachella
87630 Airport Road
Thermal, CA 92274

Inquiry Number: 6323743.5
January 08, 2021

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by infoUSA®

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☑	☐	EDR Digital Archive
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1974	☑	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

87630 Airport Road
Thermal, CA 92274

Year	*CD Image*	*Source*	
AIRPORT BLVD			
2017	pg A2	EDR Digital Archive	
2014	pg A4	EDR Digital Archive	
2010	pg A7	EDR Digital Archive	
2005	pg A10	EDR Digital Archive	
2000	pg A13	EDR Digital Archive	
1995	pg A15	EDR Digital Archive	
1992	pg A16	EDR Digital Archive	
1985	pg A18	Haines Criss-Cross Directory	
1980	pg A19	Haines Criss-Cross Directory	
1980	pg A20	Haines Criss-Cross Directory	
1974	pg A21	Haines Criss-Cross Directory	
1971	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AIRPORT BLVD 2017

82071	ZAVALA, JOSE A
82079	VAZQUEZ, ALMA N
82225	VALDEZ, MARCELA P
	WESTSIDE ELEMENTARY SCHOOL
82261	BURNETT, JEROME B
82519	BROOKS, DONALD L
82540	ZIMMER, JOHN C
82560	CLEMENTE, VICTOR M
82775	NIETO, RICHARD P
82815	GARCIA, CHAD R
82975	FIGUEROA, FAUSTO
83555	HADLEYS DATE GARDENS
	KECK, JOHN E
83800	BORREGO COMMUNITY HEALTH FOUNDATION
84061	GONZALEZ, JOHNNY R
84091	VELAZQUEZ, SYLVIA R
84101	JEHOVAHS WITNESS
84155	MENDOZA, IRALY
	MENDOZA, RAMOS E
	MONTOYA, VERONICA S
	PALMASOTO, ARACELY
	QUEVEDO, MARIA
	STAMPER, CHARLES C
84201	CHAIDEZ, JULIO
	GARCIA, KATHY
	NAVARRO, GUSTAVO
	ROMERO, ERNEST R
	SANDOVAL, EVA G
	VELARDE, FRANCISCO
84255	CAMPOS, SANDRA L
85086	MCCOMBS, MICHAEL R
85240	REED, STEVEN W
85555	HITS THERMAL
86036	LUGO, CECENA B
86150	CRUZ, EDGAR
86199	COUNTY OF RIVERSIDE
87055	PEREZ, JESUS S
87085	BAUTISTA, S
87151	ZAMORA, SILVINO
87195	RODRIGUEZ, ANTONIA
87201	GARCIA, LORENZO
87211	LIMON, JIMMY V
87227	TORRES, JUAN A
87425	AYALA, LUIS M
87629	BRAMBILA, MARIA E
	CASTRO, TRINIDAD M
	CELEDON, MARCO
	EG ENTERPRISES CORPORATION
	GAZCA, MARIA A
	LOPEZ, TONY F

AIRPORT BLVD 2017 (Cont'd)

87629	ROMAN, MARIANA
	SUAREZ, OSCAR B
87710	QUIROZ, MARIA M
88041	ALVARADO, LORENA
	BRAVO, PEREZ J
	CORONA, ELIZABETH L
	CORONA, LIZ
	ESPINOZA, JOSE A
	ESPINOZA, RICARDO
	HERNANDEZ, CONNIE R
	HERNANDEZ, JULIO
	VALENCIA, CARMEN L
	ZAMARRIPA, JOSE
88201	CORONA, LUIS A
88265	GUZMAN, LOUIE G
88375	ESCOVEDO, CORRINE E
	FUENTES, LUCIA
	NEVAREZ, JOSE
	OLIVAREZ, RAFAEL
	PAYNE, JANETTE M
	PEREZ, ALBERTO
	RIVERA, JUAN
	SANCHEZ, ARMANDO
	SANCHEZ, MIRANDA
	VALDOVINOS, EMILIA
	VARGAS, JOHN J
88385	CHAIDEZ, MANUEL D
	MEZA, VANESSA
	VARGAS, MARGARITA
88405	VALDEZ, MARINA
88475	MARTINEZ, JOSIE
	SANTOS, LEO D
89430	LOPEZ, RAMIRO L
89450	MENDEZ, ROMAN E

AIRPORT BLVD 2014

82069	ROMAN, ROGELIO R
82071	ZAVALA, JOSE A
82073	OCCUPANT UNKNOWN,
82077	OCCUPANT UNKNOWN,
82079	OCCUPANT UNKNOWN,
82225	WESTSIDE ELEMENTARY SCHOOL
	WESTSIDE HEAD START
82241	AVENA, MIGUEL
82261	BURNETT, JEROME B
82519	BROOKS, KAY H
82540	OCCUPANT UNKNOWN,
82560	GONZALEZ, VICTOR M
82641	OCCUPANT UNKNOWN,
82775	NIETO, RICHARD P
82815	PAZ, JOSE R
82939	JUAREZ, CHRISTINA
82971	RAMIREZ, VIRGINIA
82973	OCCUPANT UNKNOWN,
82975	FIGUEROA, FAUSTO
83555	HADLEYS DATE GARDENS
83800	BORREGO COMMUNITY HEALTH FOUNDATION
84061	GONZALEZ, JOHNNY R
84091	ADELAIDA, FRANCISCO
	CABRERA, LEONEL
	CARPIO, AIDA
	GALARZA, RAYMUNDO
	GARCIA, DELFINO
	LOPEZ, MARIA R
	PIDILLA, SALVADOR
	VELAZQUEZ, SYLVIA R
84101	JEHOVAHS WITNESS
84105	OCCUPANT UNKNOWN,
84155	BECERRA, LUIS
	GAMVOA, JOSE
	MIRANDA, JANETTE
	MONTOYA, VERONICA S
	PALMASOTO, ARACELY
	RAMOS, EDUARDO M
	STAMPER, CHARLES C
84201	CEBRERA, MARIA A
	CHAIDEZ, JULIO
	GARCIA, KATHY
	NAVARRO, GUSTAVO
	ROMERO, ERNEST R
	SANDOVAL, EVA G
	VELARDE, FRANCISCO
84255	CAMPOS, SANDRA L
85086	MCCOMBS, MICHAEL R
85190	REED, VIDA
85240	REED, STEVEN W

AIRPORT BLVD 2014 (Cont'd)

85555	DERDAU
	HITS THERMAL
86036	LUGO, CECENA B
86150	GONZALEZ, JOSE N
87135	FRANCO, BROOKE
87151	ZAMORA, SILVINO
87201	GARCIA, LORENZO
87211	LIMON, JIMMY V
87227	TORRES, JUAN A
87423	AYALA, LOUIS M
87425	AYALAS
	OCCUPANT UNKNOWN,
87613	FISHER, D
87629	CASTRO, TRINIDAD M
	EG ENTERPRISES CORPORATION
	GAZCA, MARIA A
	LOPEZ, TONY F
	RODRIGUEZ, MARIA
	ROMAN, MARIANA
87633	GONZALEZ, JOSE A
87705	FUNES, JOSE R
87710	QUIROZ, MARIA M
87735	REYES, CARLOS O
87745	MARTINEZ, VICTOR R
88041	ALVARADO, LORENA
	ARANA, MAYRA
	BARAJAS, VICTOR M
	BRAVO, PEREZ J
	CORONA, AUDREY
	DEANDA, RAUL
	DIAZ, CYNTHIA
	ESCOBAR, EDUARDO D
	FREGOSO, ERIKA
	GALARZA, NORA
	GUTIERREZ, YESENIA
	HERNANDEZ, CONNIE R
	LINARES, DIANA
	MORENO, MANUELA
	PACIS, MOUNISE
	RAMIREZ, JOSE G
	REYES, PILAR
	VALENCIA, CARMEN L
88201	CORONA, LUIS A
88261	BURNETT, PHIL
88265	GUZMAN, LOUIE G
88314	ARELLANO, FIDEL
88349	ARELLANO, MARTIN S
88350	JUAREZ, LUZ V
88375	DURAN, SERGIO
	GARCIA, CHRISTINE

AIRPORT BLVD 2014 (Cont'd)

88375	PEREZ, ALBERTO
	RIVERA, JUAN
	RODRIGUEZ, BERTHA
	SANCHEZ, ARMANDO
	VALDOVINOS, EMILIA
	VARGAS, JOHN J
88385	JARA, EDUARDO V
	RODRIGUEZ, ROBERT
	VALENZUELA, ERIKA
	VARGAS, MARGARITA
88405	VALDEZ, MARINA
88475	MARTINEZ, JOSIE
	SANTOS, LEO D
89430	OCCUPANT UNKNOWN,
89450	OCCUPANT UNKNOWN,
89465	LOPEZ, RAMIRO L

AIRPORT BLVD 2010

82069	STASI, JIM L
82071	ZAVALA, JOSE A
82073	LOPEZ, LUCY
82079	OCCUPANT UNKNOWN,
82225	WESTSIDE HEAD START
	WESTSIDE SCHOOL
82241	AVENA, MIGUEL
82261	BURNETT, JEROME B
82519	OCCUPANT UNKNOWN,
82540	DESERT BALLOON CHARTERS
	OCCUPANT UNKNOWN,
	THERMAL GROWERS
82560	CLEMENTE, VICTOR M
82641	OCCUPANT UNKNOWN,
82775	NIETO, RICHARD P
82815	OCCUPANT UNKNOWN,
82939	JUAREZ, CHRISTINA
82973	FERNANDEZ, GABRIEL
82975	FIGUEROA, FAUSTO
83295	PEREZ, MARICELA R
83555	ALAMO RANCH CO
	BASTIDAS, PEDRO A
	HADLEYS DATE GARDENS
	SANCHEZ, CUAUHTEMOC
83800	COACHELLA VALLEY HIGH SCHOOL
84061	GONZALEZ, JUAN J
84091	ADELAIDA, FRANCISCO
	CABRERA, LEONEL
	CARPIO, AIDA
	CHAIDEZ, JULIO
	GARCIA, DELFINO
	LOPEZ, MARIA R
	PIDILLA, SALVADOR
84101	JEHOVAHS WITNESSES
84105	OCCUPANT UNKNOWN,
84155	CORONEL, MARIA L
	GAMVOA, JOSE
	HULL, D
	IRIQUI, MARIA D
	MENDOZA, RAMOS E
	MIRANDA, JANETTE
	MONTOYA, ANTONIO A
	NUNEZ, ERNESTO
	STAMPER, CHARLES C
	THOMAS, EGBERT
	ZAMBRANO, NYDIA
84201	GALARZA, REYMUNDO
	GARCIA, KATHY
	NAVARRO, GUSTAVO
	ROMERO, ERNEST R

AIRPORT BLVD 2010 (Cont'd)

84201	SANDOVAL, DANIEL
	VELARDE, FRANCISCO
84205	OCCUPANT UNKNOWN,
84255	CAMPOS, SANDRA L
85084	OCCUPANT UNKNOWN,
85190	REED, VIDA
85240	REED, STEVEN W
85555	HITS THERMAL
85884	OCCUPANT UNKNOWN,
86036	LUGO, CECENA B
86150	ARREOLA, MARIA D
87055	SORIA, PEREZ
87085	LUJAN, AURELIA G
87095	ZEPEDA, JAIME
87135	ARROYO, JUANITA
87151	DELGADO, ISELA
87200	US POST OFFICE
87201	SANTARIAGA, MODESTO
87211	GARCIA, LORENZO N
87227	TORRES, JUAN M
87275	VALENCIA, ADAM
87316	JEWEL DATE CO
87400	CALIFORNIA AG PROPERTY
87423	AYALA, LOUIS M
87425	AYALA, LUIS M
	AYALAS
87613	FISHER, D
87629	AGUILERA, JORGE
	BELTRAN, PASCUALA
	CAMACHO, FILIMINA
	CASTRO, TRINIDAD M
	CORDOVA, ARTURO
	CRUZ, JOSE
	GAZCA, MARIO
	GUISA, ESTELLA
	HERANDEZ, ERNESTO M
	LOPEZ, MAGDALENO
	MOLINA, MARIA
	RAMIREZ, GRACIELA
	ROBLEDO, MARIA D
	RODRIGUEZ, MARIA
	SEGOVIANO, LOURDES
	SUAREZ, OSCAR B
	VALLE, ROSENDA
87633	GONZALEZ, JOSE A
87705	FUNES, JOSE R
87710	MICHEL, JUAN M
87735	REYES, CARLOS O
87745	MARTINEZ, VICTOR R
88041	ARANA, MAYRA

AIRPORT BLVD 2010 (Cont'd)

88041	BARAJAS, VICTOR M
	BERNAL, JESUS
	BRAVO, PEREZ J
	CORONA, MARGARITA
	CRUZ, ROSENDO
	DEANDA, RAUL
	DIAZ, ADOLFO D
	ESCOBAR, EDUARDO D
	EVELINA, BERNAL J
	FREGOSO, ERIKA
	GAMEZ, YOLANDA
	GARCIA, MARIA A
	GONZALEZ, MARIA D
	GUDINO, SERGIO
	HARDING, LAURAL
	HERNANDEZ, ROBERTO
	MARTINEZ, ROXANNE
	MENDEZ, ALEJANDRO H
	NAVARRO, PEDRO R
	PACIS, MOUNISE
	RAMIREZ, MARGARITA M
	REYES, PILAR
	VALENCIA, CARMEN L
	VILLAREAL, JUAN
	VILLARREAL, NICOLASA C
88160	DELGADO, MANUEL C
88201	CORONA, LUIS A
88236	DELGADO, MANUEL
88349	ARELLANO, MARTIN S
88350	JUAREZ, LUZ V
88385	CERVANTES, HUMBERTO
	CONTRERAS, SONIA
	COTA, ROSA M
	DELGADO, TRINIDAD
	ESPARZA, BERTHA L
	PADILLA, GRACIELA
	SANCHEZ, GUSTAVO
	VALENZUELA, MARIA B
	VARGAS, MARGARITA
88405	CAMARENA, ALBERT
88475	REAL, EULOGIO
89430	BELK, DREW A
89450	GARCIA, CONCEPCION M
89465	LOPEZ, RAMIRO L

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AIRPORT BLVD 2005

82071	WAGGONER, REX D
82073	LOPEZ, LUCY
82077	OCCUPANT UNKNOWN,
82079	PEREZ, LETICIA B
82225	WESTSIDE ELEMENTARY SCHOOL
82261	BURNETT, JEROME B
82540	DESERT BALLOON CHARTERS
	DESERT, O
82560	CLEMENTES PALM SERVICE
	GONZALEZ, ANGELA
82775	GARCIA, RHONDA
	WESTSIDE PATIOS
82815	OCCUPANT UNKNOWN,
82973	FERNANDEZ, LEONARDO B
82975	FIGUEROA, FAUSTO
83295	PEREZ, MARICELA R
83555	BALBUENA, GERARDO
	HADLEYS DATE GARDENS
	SANCHEZ, CUAUHTEMOC
83800	COACHELLA VALLEY HIGH SCHOOL
84061	GONZALEZ, JUAN R
84091	GARCIA, ROSA M
84105	STAMPER, CHARLES C
84155	ALEXANDER, NANETTE
	LACHUPAROSA NURSERY
	LOERA, JOSE L
	MARES, CATALINA
	MEDINA, ADELAIDA G
	MEDINA, JOSE
	MENDOZA, RAMOS E
	MILLS, E
	MONTOYA, VERONICA S
84201	ROMERO, ERNEST R
85084	OCCUPANT UNKNOWN,
85188	FRANCO CONSTRUCTION INC
85240	REED, WAYNE F
85884	OCCUPANT UNKNOWN,
86036	CESENA, MANUEL C
86150	ARREOLA, MARIA D
87201	MEJIA, JAIME
87211	LIMON, JIMMY V
87227	TORRES, JUAN C
87231	GALLEGOS, FELIPE J
87275	CHURCH OF GOD JESUS ES EL CAMI
	VALENCIA, ADAM
87400	RDO EQUIPMENT
87423	AYALA, LOUIS M
87425	AYALA, LUIS
	AYALAS AUTO REPAIR
	SANTA FE WELDING & STEEL SUPPLY

AIRPORT BLVD 2005 (Cont'd)

87629	BAUTISTA, PABLO
	BELTRAN, PASCUALA
	CASTRO, TRINIDAD M
	GARCIA, GUADALUPE
	GAZCA, ANTONIO
	GAZCA, MARIO
	GONZALEZ, ROSA
	GUILLEN, PAUL B
	HERANDEZ, ERNESTO
	LEON, CONCEPCION
	MOLINA, MARIA
	QUINONES, SILVIA B
	RAMIREZ, GRACIELA
	ROBLEDO, ESMERALDA
	SEGOVIANO, L
	TRONCOSO, RUBEN
	VALLE, ROSENDA
87633	GONZALEZ, JOSE A
87705	GONZALEZ, JOSE A
87735	REYES, CARLOS O
87745	MARTINEZ, VICTOR R
88041	BARAJAS, HUGO G
	BARAJAS, VICTOR M
	BRAVO, PEREZ J
	CRUZ, ROSENDO
	DIAZ, ADOLFO D
	ESCOBAR, EDUARDO D
	ESPINOZA, RODOLFO
	FRANSISCO, BARAJAS
	GONZALEZ, GILBERTO
	GONZALEZ, JULIO C
	GONZALEZ, MARIA D
	GUDINO, RAFAEL R
	GUDINO, SERGIO
	HERNANDEZ, ROBERTO
	HERNANDEZ, TESSLA
	LUGO, JUAN
	MADRIGAL, ROBERT
	MARTINEZ, VANESSA
	MENDEZ, ALEJANDRO
	PEREZ, RAUL D
	RAMIREZ, JOSE G
	RIVERA, CLARA
	TORRES, MARIA L
	VARGAS, ANNETTE
	VILLARREAL, NICOLASA C
	ZAMARIPA, ESTHER
88201	CORONA, LUIS A
88236	DELGADO, MANUEL
88385	BORBOLLA, MARIA

AIRPORT BLVD 2005 (Cont'd)

88385	GUERRA, BENJAMIN
	VALENZUELA, CLEMENTE
89430	BELK, DREW A
89465	LOPEZ, RAMIRO L
89550	GONZALEZ, FREDDY G
89950	CEBALLOS, GUADALUPE
92500	WEST COAST AGGREGATE

AIRPORT BLVD 2000

82225	WESTSIDE HEAD START
	WESTSIDE SCHOOL
82261	BURNETT, JEROME B
82550	DESERT BALLOON CHARTERS
82641	JARVIS, EUGENE C
82775	WESTSIDE PATIOS
82971	AGUILAR, EDWARD L
82975	FIGUEROA, FAUSTO
83555	RAYA, MARIA
83800	DOMINGUEZ, MELINDA
84061	ESPINOZA, JUANA
	HIPOLITODIAZ, R
84155	IRIQUI, MARIA
	LAW, LARRY L
	MEDINA, JOSE
	MONTOYA, V S
	STAMPER, CHARLES C
84201	ROMERO, ERNEST
	SANDOVAL, EVA
85240	REED, WAYNE F
85884	MARTINEZ, CORTEZ P
	SALCEDO, C
86036	CECENA, JUANA C
86150	ARREOLA, MARIA D
	NUNEZ, ARCADIO
	NUNEZGONZALEZ, JOSE M
87151	ZAMORA, H
87201	GALLEGOSMEJIA, ROGELIO
87211	LIMON, JIMMY
87227	MENDOZA, CARLOS
87251	PETES BARBER SHOP
87263	LIMONS FOOD MARKET
87275	VALENCIA ADAM AUTO SALES
87629	AGREDANO, M
	BAUTISTA, PABLO
	CASTRO, T M
	DUARTE, M
	GONZALEZ, ROSA
	HERANDEZ, ERNESTO
	MOLINA, MARIA
	QUINONES, SYLVIA B
	RAMIREZ, JAVIER
	URBANO, RAMON
	VERDUGO, BLANCA E
87633	GONZALEZ, JOSE G
87705	GONZALEZ, JOSE A
87745	MARTINEZ, MARIA
	MARTINEZ, VICTOR
88041	ACEVESSOLIS, CESAR
	BARAJAS, JOSE M

AIRPORT BLVD 2000 (Cont'd)

88041	BARAJAS, VICTOR
	ESPINOZA, RODOLFO
	FUENTES, V
	GUDINO, RAFAEL R
	HEREDIA, MARIA D
	HERNANDEZ, ROBERTO
	LOPEZ, E
	MORALES, MIGUEL
	NUNEZ, RAUL
	PEREZ, GABRIEL A
	RAMIREZ, ANTONIO
	RODRIGUEZ, ROSA D
	RUIZ, JOSE G
	VILLAREAL, JOSE
88350	ZAMUDIO, PANFILO
88375	GONZALEZ, MARY
88385	GUERRA, B
	MENDEZ, TORRES M
89225	LOAIZA, JESUS
89950	CEBALLOS, GUADALU
	ROSILLO, MARISOL V
92500	VALLEY ROCK & SAND INCORPORATED

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AIRPORT BLVD 1995

81750	FOSTER TURF PRODUCTS SOD FARM
82225	WESTSIDE ELEMENTARY SCHOOL
	WESTSIDE HEAD START
82261	BURNETT, PHIL
	CUSTOM CLASSICS
82540	ZIMMER, JANE
82550	BALLOON RANCH
	OSTRICH PACIFIC
83555	HADLEYS DATE GARDENS
83800	COACHELLA VALLEY HIGH SCHOOL
84101	JEHOVAHS WITNESSES
84155	LA CHUPAROSA NURSERY
87023	MADRID, EFRAIN
87200	US POST OFFICE
87251	PETES BARBER SHOP
87263	LIMONS FOOD MARKET
87275	ADAM VALENCIA AUTO SALES
88375	GONZALES, ALFRED
89950	DESERT DIAMOND SALES
92500	DIAL STEEL
	JOHNSON ENGINEERING
	VALLEY ROCK & SAND

AIRPORT BLVD 1992

81599	AGRICULTURAL CMMDTY
81750	FOSTER TURF PROD
82225	RODRIGUEZ, MARIA G
	WESTSIDE HEAD START
83555	GOMEZ, G
	HADLEYS DATE GARDNS
	LOPEZ, ARMANDO
	OROZCO, ESTHER
	SEPULVEDA, CARMEN
83800	COACHELLA VLY HI SC
84061	ESPINOZA, JAIME
	MORALES, BEATRIZ
	MORAN, NOE M
84091	TOOEY DEVLP CORP
84101	JEHOVAHS WITNESSES
84201	ROMERO, LIDIA
85086	MATTRESS CORNER THE
85240	REED WAYNE F
	REED, WAYNE F
86036	CECENA, JUANA C
87037	GUZMAN, M
87200	US POSTAL SERVICE
87201	GONZALEZ, MELANIA
87211	LIMON, JIMMY
87251	PETES BARBER SHOP
87263	LIMONS FOOD MKT
87275	ADAM VALENCIA AUTO
	LANUEVA, FE
87301	GAYLER DOW WELDNG
87425	PRODUCE EXPRESS
87500	DOLE DRIED FURIT
87629	BAUTISTA, PABLO
	DOZAL, N
	LIRA, ARNULFO
	LOPEZ, M
	MIRANDA, ELVIRA
	MIRANDA, JOSE
	MIRANDA, MARIA C
	OCAMPO, LOURDES
	RODRIGUEZ, OLIVIA
	SOTO, AVELINA
87705	GONZALEZ, JOSE A
87745	MARTINEZ, MARIA
	MARTINEZ, VICTOR JR
88041	ACEVES, G
	BARAJAS, JOSE C
	BARAJAS, TERESA
	CUEVAS, FELIPE
	DIAZ, MARIO A
	HEREDIA, MARIA D

AIRPORT BLVD 1992 (Cont'd)

88041	IBARRA, RICARDO M
	MADRIGAL, JOSE
	PEREZ, GABRIEL A
	PEREZ, MOISES T
	RODRIGUEZ, C
	SOLORIO, M
	VILLAREAL, JOSE
	ZAMORA, G
88375	LOPEZ, MARIA
88385	PINUELAS, COLUMBA
89225	DELGADO, M
89450	ACEVES, MARIA
	AGUILAR, MANUELA
	HERNANDEZ, CELIA A
89950	DESERT DIAMOND SLS
	FIGUEROA, FRANK
	GONZALEZ, FREDDY G
92500	CROWN MINERALS INC
	GRAYROCK CNCRTE PRD
	SUN WEST TRANSPORT
	VALLEY ROCK&&AND

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AIRPORT BLVD 1985

AIRPORT BLVD 92274 THERMAL

80251	KENNEDY T E	564-4366	3
80367	XXXX	00	
80376	XXXX	00	
81511	LOPEZ ALICIA C	399-5611	4
81601	XXXX	00	
81743	CERVANTES JESUS R	399-5015	4
81771	CAMPOS ROSALIO	399-5201	6
82069	XXXX	00	
82071	JEFFERY TERRY	399-5637	3
82073	XXXX	00	
82075	XXXX	00	
82077	LANDRESS FARON	399-5052	+5
82079	XXXX	00	
82225	SALAS ALBERTO	399-5393	4
	WESTSIDE HEAD START	399-5908	1
	WESTSIDE SCHOOL	399-5171	8
82815	GARCIA MIKE P	399-5285	2
82971	CUSTER DARRELL L	399-5516	9
83235	SHERWOOD NORMAN	399-5401	8
83295	XXXX	00	
83385	XXXX	00	
83475	XXXX	00	
83555	HADLEYS DATE GARDNS	399-5191	7
83605	XXXX	00	
83755	XXXX	00	
83800	COACHELLA VL SCHOOL	399-5125	
	COACHELLY VLY HI SC	399-5183	2
	COACHLA UNI SCH MNT	399-5125	9
84091	TORRES TINA	399-5390	+5
84155	SANDOVAL MANUEL	399-5985	2
84201	ROMERO LIDIA	399-5244	3
85240	REED WAYNE F	399-5402	
	REEDS REWIND	399-5402	
86036	CECENA JUANA C	399-1159	4
87023	MADRID EFRAIN	399-5459	9
87037	GUZMAN MARCIANO	399-5991	
	GUZMAN MARCIANO JR	399-5471	3
87055	HERNANDEZ RUEBEN	399-5993	+5
87085	XXXX	00	
87135	GUMMER BRAD	399-5572	8
87200	US PSTL THERMAL	399-5304	2
87201	XXXX	00	
87227	GUZMAN MARCIANO JR	399-1146	3
87251	PETES BARBER SHOP	399-5428	
87263	LIMONS FOOD MKT	399-5281	
87301	GAYLER DOW WELDNG	399-5642	1
87400	XXXX	00	
87425	PRODUCE EXPRESS	399-5144	4
	SANDERS VERL G	399-5580	3
	THOMAS ARNOLD	399-5754	8
87495	XXXX	00	
87765	MORENO MICHAEL E	399-5902	4
88161	LINARES GUADALUPE	399-1394	4
88375	XXXX	00	
88394	XXXX	00	
88405	MORGAN DAVID E	399-1216	+5
89425	TENNECO W MEL PAK	399-9760	2
89450	HERNANDEZ CELIA A	399-1167	2
	LLAMAS JOSE	399-5310	4
89950	DESERT DIAMOND SLS	399-1876	2
	FIGUEROA FRANK	399-5888	1
90500	TROUTNER LYMAN L	399-5004	3
92500	COACHELLA VLY CONCR	399-1850	+5
	VALLEY ROCK&SAND	399-1891	2
★	17 BUS 47 RES	5 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AIRPORT BLVD 1980

AIRPORT BLVD 92274 THERMAL

80251	KENNEDY MARK	564-4366	9
	KENNEDY TINA	564-4366	+0
80367*	**SPENCER D FLR CVRNG**	**345-4327**	9
	SPENCER J	564-3291	9
80376	XXXX	00	
81511	SANDOVAL RAMIRO	399-5611	9
81601	XXXX	00	
81771	CAMPOS ROSALIO	399-5201	6
82069	KING CARL	399-5575	9
82073	XXXX	00	
82075	LOUTSENHIZER DANNY	399-5602	9
82077	LANE DAVID L	399-5254	9
82079	LAWRENCE ROSE A	399-5531	9
82225*	**WESTSIDE SCHOOL**	**399-5171**	8
82815	GIBBS JOHN J	399-5223	+0
82971	CUSTER DARRELL L	399-5516	9
83235	SHERWOOD NORMAN	399-5401	8
83295	XXXX	00	
83475	XXXX	00	
83555*	**HADLEYS DATE GARDEN**	**399-5191**	
	PADILLA FRANCISCO S	399-5505	+
	ROCHA GAVINO ELENES	399-5518	+
	RODRIGUEZ HECTOR	399-5876	+
83605	XXXX	00	
83755	VALLADOLID JAVIER R	399-5397	+
83800*	**COACHLA VL SCL MNTC**	**399-5125**	
*	**COCHLA VLY HIGH SCL**	**399-5183**	
*	**K V I M CVHS**	**399-5552**	
85056	XXXX	00	
85240	REED WAYNE F	399-5402	
*	**REEDS REWIND**	**399-5402**	
86150	MEADOWS M	399-5206	
87023	MADRID EFRAIN	399-545[illegible]	
87037	GUZMAN MARCIANO	399-599[illegible]	
87085	GONZALEZ ARMANDO	399-527[illegible]	
87135	GUMMER BRAD	399-557	
87200*	**US PO THERMAL**	**399-53[illegible]**	
87201	ALVARADO RAMONA	399-553	
87251*	**PETES BARBER SHOP**	**399-542**	
87263*	**LIMONS FOOD MKT**	**399-528**	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AIRPORT BLVD 1980

..AIRPORT BLVD		92274 CONT..	
87400	XXXX	00	
87425	THOMAS ARNOLD	399-5754	8
87495*	CO RVRSD RD MNTNC	399-5136	+0
	POWELL GLEN V	399-5353	6
87629	MEDFORD FRANK	399-5923	+0
87765	LATIMER CARL	399-5479	
87775	XXXX	00	
88161	XXXX	00	
88375	GONZALES ARMIDA	399-5924	
89425	CASTANEDA MIKE	399-5322	6
89450	ACEBES JESUS	399-5036	9
89950*	DESRT DIAMOND SLS	399-1876	9
*	LARSON K K VINEYRDS	399-5914	9
92500*	VANS ROCK SAND QRY	399-5005	9
*	VANS ROCK&SAND OFC	399-5210	+0
*	15 BUS 40 RES	11 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AIRPORT BLVD 1974

AIRPORT BLVD 92274 THERMAL

81601	ROBERTS JEROME G	399-5911
82075	MERCHANT MARY	399-5610
82225	*WESTSIDE SCHOOL	399-5795
83235	XXXX	00
83605	*KECK ALBERT P CO	399-5608
83800	*COACHLA VLY HI SCHL	399-5183
	*COACHLLA VLY HI BUS	399-5185+4
	*COACHLLA VLY HI GYM	399-5184+4
	*COACHLLA VLY HI SCH	399-5484+4
85056	HARTSCH LEONARD J	399-5803+4
85240	REED WAYNE F	399-5402+4
	*REEDS REWIND	399-5402+4
86150	HANSEN TERRY	399-5676+4
86220	DELACRUZ ANTONIO	399-5420+4
	HENDERSON G	399-5687
87037	GUZMAN MARCIANO	399-5991+4
87135	XXXX	00
87201	ALVARADO RAMONA	399-5530
87251	*PETES BARBER SHOP	399-5428+4
87263	*LIMONS FOOD MKT	399-5281
87400	XXXX	00
87495	FOWLKES TOM	399-5527
	*RIVERSD CO RD MNTC	399-5136+4
	*RIVERSD CO ROAD DPT	399-5136+4
	*RIVRSDE CO ROAD DPT	399-5814
87629	XXXX	00
87765	LATIMER CARL	399-5479
87775	WHITENER MICHAEL N	399-5495
88041	PINEDO ARCADIO	399-5923+4
88375	GONZALES ARMIDA	399-5924
89225	XXXX	00
89425	HERBEKIAN ARA	399-5322
	*MEL PAK LABOR CAMP	399-9760
89450	*LARSCN K K VINEYRDS	399-5914+4

* 14 BUS 20 RES 14 NEW

Haagen Coachella

87630 Airport Road

Thermal, CA 92274

Inquiry Number: 6323743.3

January 07, 2021

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

01/07/21

Site Name:	**Client Name:**
Haagen Coachella	Altec Testing & Engineering
87630 Airport Road	6035 Fremont Street
Thermal, CA 92274	Riverside, CA 92504
EDR Inquiry # 6323743.3	Contact: Lynn Laborde

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Altec Testing & Engineering were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # CBF8-4060-83DA

PO # NA

Project 464-2021105

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: CBF8-4060-83DA

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

Altec Testing & Engineering (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Haagen Coachella
87630 Airport Road
Thermal, CA 92274

Inquiry Number: 6323743.7
January 11, 2021

EDR Environmental Lien and AUL Search

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

87630 Airport Road
Haagen Coachella
Thermal, CA 92274

ENVIRONMENTAL LIEN

Environmental Lien:	Found	☐	Not Found	☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs:	Found	☐	Not Found	☒

RESEARCH SOURCE

Source 1:

Riverside Recorder
Riverside, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	deed
Title is vested in:	St of Calif
Title received from:	Rancho Coachella Prop LP
Deed Dated	6/25/2010
Deed Recorded:	8/30/2010
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	St of Calif
Parcel # / Property Identifier:	763330013
Comments:	See Exhibit

Deed 2:

Type of Deed:	deed
Title is vested in:	Empire Airport LLC
Title received from:	Empire iI LLC
Deed Dated	6/21/2007
Deed Recorded:	6/27/2007
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	Empire Airport LLC
Parcel # / Property Identifier:	763330018
Comments:	See Exhibit

Deed 3:

Type of Deed:	deed
Title is vested in:	Empire Airport LLC
Title received from:	St of CA
Deed Dated	10/12/2017

Deed Recorded:	11/15/2017
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	Empire Airport LLC
Parcel # / Property Identifier:	763330029
Comments:	See Exhibit

Deed Exhibit 1

‹ Lawyers Title

RECORDING REQUESTED BY

mail tax statements to:
When Recorded Mail To

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
464 W. 4th STREET, 6th FLOOR
SAN BERNARDINO, CA 92401-1400
Attention C.R. Beckley – MS 865

FREE RECORDING:
This instrument is for the benefit of The State of California, and is entitled to be recorded without fee.(Govt. Code 6103)

DOC # 2010-0413767
08/30/2010 08:00A Fee:NC
Page 1 of 5
Recorded in Official Records
County of Riverside
Larry W. Ward
Assessor, County Clerk & Recorder

S	R	U	PAGE	SIZE	DA	MISC	LONG	RFD	COPY
1			5						
M	A	L	465	426	PCOR	NCOR	SMF	NCHG	EXAM
				T:		CTY	UNI		034

610673172 TRA: 012-049

GRANT DEED
(INDIVIDUAL)

District	County	Route	Kilo Post	Number
08	RIV	86s	16.45	20534

Ø

T
034

Rancho Coachella Properties, L.P., a California Limited Partnership existing under and by virtue of the laws of the State of California, does hereby GRANT to the STATE OF CALIFORNIA, all that real property in the City of Coachella, County of Riverside, State of California, described as:

See Exhibit "A"

08-RIV-Rte 86s-PM 16.45-20534(20534-1)

Mail tax statements to:
Return address as shown above

Form RW 6-1(B) (Revised 10/99)

<u>**EXHIBIT "A"**</u>

All rights, title, and interest of that portion of the South half of Section15, Township 6 South, Range 8 East, of the San Bernardino Base and Meridian of Official Plat thereof, as described by a Quit Claim Deed to Rancho Coachella Properties L.P. recorded February 27, 2006 as Document No. 2006-0143820, of Official Records of Riverside County, State of California reiterated as follows:

"THE LAND REFERRED TO IN THIS REPORT IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF RIVERSIDE AND IS DESCRIBED AS FOLLOWS:

"THAT CERTAIN PARCEL OF LAND SHOWN AND DEFINED AS "ADJUSTED PARCEL 1" ON LOT LINE ADJUSTMENT NO. 2005-02A AS SET FORTH AND DESCRIBED IN THAT "CERTAIN CERTIFICATE OF LOT LINE ADJUSTMENT", APPROVED BY THE CITY OF COACHELLA, RECORDED JULY 15, 2005 AS DOCUMENT NO. 2005-0568184 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

A PARCEL OF LAND LYING WITHIN THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER (NW1/4 SE1/4), THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (SW1/4 SE1/4), THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER (NE 1/4 SW1/4) AND WITHIN THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER (SE1/4 SW1/4), ALL IN SECTION 15, TOWNSHIP 6 SOUTH, RANCH 8 EAST OF THE SAN BERNARDINO BASE AND MERIDIAN, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THAT PORTION OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER (NW1/4 SE1/4) OF SECTION 15, TOWNSHIP 6 SOUTH, RANGE 8 EAST OF THE SAN BERNARDINO BASE AND MERIDIAN, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, LYING SOUTHWESTERLY OF THE SOUTHWESTERLY LINE OF THAT PARCEL OF LAND CONVEYED TO THE STATE OF CALIFORNIA, BY DEED RECORDED FEBRUARY 15, 1991 AS INSTRUMENT NO. 91-52616 OF OFFICIAL RECORDS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA;

TOGETHER WITH THAT PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER (SW1/4 SE1/4) OF SAID SECTION 15, LYING SOUTHWESTERLY OF THE SOUTHWESTERLY LINE OF THAT PARCEL OF LAND CONVEYED TO THE STATE OF CALIFORNIA, BY DEED RECORDED FEBRUARY 15, 1991 AS INSTRUMENT NO. 91-52616 OF OFFICIAL RECORDS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA AND LYING NORTHEASTERLY OF THE NORTHEASTERLY LINE OF THAT PARCEL OF LAND CONVEYED TO SUN WORLD, INC. BY DEED RECORDED OCTOBER 8, 1987 AS INSTRUMENT NO. 87-291868, OF OFFICIAL RECORDS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA;

TOGETHER WITH THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER (NE1/4 SW1/4) OF SAID SECTION 15, LYING SOUTHWESTERLY OF THE SOUTHWESTERLY LINE OF THAT PARCEL OF LAND CONVEYED TO THE STATE OF CALIFORNIA, BY DEED RECORDED FEBRUARY 15, 1991 AS INSTRUMENT NO. 91-52616 OF OFFICIAL RECORDS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA AND LYING NORTHEASTERLY OF THE NORTHEASTERLY LINE OF THAT PARCEL OF LAND CONVEYED AS A PER[ETUAL EASEMENT TO THE COACHELLA VALLEY STORM WATER DISTRICT OF RIVERSIDE COUNTY BY DEED RECORDED MARCH 31, 1936 IN BOOK 269 PAGE 512 OF OFFICIAL RECORDS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA;

TOGETHER WITH THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER (SE1/4 SW1/4) OF SAID SECTION 15, LYING NORTHEASTERLY OF THE NORTHEASTERLY LINE OF THAT PARCEL OF LAND CONVEYED TO SUN WORLD, INC., BY DEED RECORDED OCTOBER 8, 1987, AS INSTRUMENT NO. 87-291888, OF OFFICIAL RECORDS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA."

Note: The portion of the above description contained within the quotations is a reiteration of the legal description recited in the above-mentioned Quit Claim Deed. It appears here to satisfy mandates established by others, thereby facilitating recordation of this document. The State of California makes no assertion as to the accuracy or correctness of this reiteration by the appearance of it in this document. Reference shall be made to the actual recorded document for any interpretation thereof.

Number
20534-1

The grantor further understands that the present intention of the grantee is to construct and maintain a public highway on the lands hereby conveyed in fee and the grantor, for the grantor and the grantor's successors and assigns, hereby waives any claims for any and all damages to grantor's remaining property contiguous to the property hereby conveyed by reason of the location, construction, landscaping or maintenance of said highway.

(As used above, the term "grantor" shall include the plural as well as the singular number.)

Dated this 25th day of June, 2010.

Rancho Coachella Properties, LP, a California limited partnership
by Diversified Engineering, a California corporation, General Partner

BY: Elaine M Regan

Elaine M Regan, Secretary/Treasurer

STATE OF CALIFORNIA
County of } SS.

PERSONAL ACKNOWLEDGMENT

SEE ATTACHED ACKNOWLEDGMENT

~~On this the _____ day of _________________ 20 _____, before me, _________________________________,~~
~~Name, Title of Officer-E.G., "Jane Doe, Notary Public"~~

~~personally appeared ____,~~
~~Name(s) of Signer(s)~~

~~personally known to me~~
~~proved to me on the basis of satisfactory evidence~~

~~to be the person(s) whose name(s) _____ is/are subscribed to the within instrument and acknowledged to me that _____ he/she/they executed the same in _____ his/her/their authorized capacity(ies), and that by _______ his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.~~

~~WITNESS my hand and official seal.~~

~~(Signature of Notary Public in and for said State)~~

(for notary seal or stamp)

THIS IS TO CERTIFY, That the State of California, acting by and through the Department of Transportation (pursuant to Government Code Section 27281), hereby accepts for public purposes the real property described in the within deed and consents to the recordation thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th **day of** July**, 20**10.

CINDY McKIM
Director of Transportation

By: Barbara Baernstein

Attorney in Fact

Barbara Baernstein

08-RIV-Rte 86s-PM 16.45-20534(20534-1)

Form RW 6-1(B) (Revised 10/99)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of San Diego

On June 25, 2010 (Date) before me, Sharon R. Saddler, notary Public (Here Insert Name and Title of the Officer),

personally appeared Elaine M Regan (Name(s) of Signer(s)),

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she~~/they~~ executed the same in ~~his~~/her~~/their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her~~/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

SHARON R. SADDLER
COMM. #1717519
NOTARY PUBLIC • CALIFORNIA
SAN DIEGO COUNTY
Comm. Exp. JAN. 31, 2011
MGC1

Place Notary Seal Above

Signature Sharon R. Saddler (Signature of Notary Public)

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Grant Deed

Document Date: 6-25-10 Number of Pages: 4

Signer(s) Other Than Named Above: State of California

Capacity(ies) Claimed by Signer(s)

Signer's Name: Elaine M Regan
- ☐ Individual
- XX Corporate Officer — Title(s): Secty/Treasurer
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other:

Signer Is Representing: Diversified Engineering

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name:
- ☐ Individual
- ☐ Corporate Officer — Title(s):
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other:

Signer Is Representing:

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Deed Exhibit 2

DOC # 2007-0417038
06/27/2007 08:00A Fee:23.00
Page 1 of 3 Doc T Tax Paid
Recorded in Official Records
County of Riverside
Larry W. Ward
Assessor, County Clerk & Recorder

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL TO:
Empire Airport, LLC c/o Haagen Company
898 North Sepulveda Blvd., Ste 400
El Segundo, CA 90245

S	R	U	PAGE	SIZE	DA	MISC	LONG	RFD	COPY
1			3						1
M	A	L	465	426	PCOR	NCOR	SMF	NCHG	EXAM
					DA	T: 12	CTY	UNI	014

TRA-012

GRANT DEED

A.P.N.: 763-330-018-3,052-338-866-9,052-434-826-0

File No. 24

C 014

The Undersigned Grantor(s) Declare(s): DOCUMENTARY TRANSFER TAX $**not for public record**; CITY TRANSFER TAX $**N/A**;

[X] computed on the consideration or full value of property conveyed, OR

[ ] computed on the consideration or full value less value of liens and/or encumbrances remaining at time of sale,

[ ] unincorporated area; [X] City of Coachella, and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Empire II, LLC, a California Limited Liability Company

hereby GRANTS to Empire Airport, LLC, a California Limited Liability Company

the following described property in the City of Coachella, County of RIVERSIDE, State of California:

THAT PORTION OF THE SOUTH ½ OF THE SOUTH ½ OF SECTION 15, TOWNSHIP 6 SOUTH, RANGE 8 EAST, SAN BERNARDINO MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE SOUTHEAST ¼ OF SAID SECTION 15; THENCE EASTERLY 435.92 FEET ALONG THE SOUTH LINE OF SAID SECTION ON A BEARING OF NORTH 89° 51' 30" EAST AS SHOWN IN THE RECORD OF SURVEY BOOK 17 AT PAGE 18 ON FILE IN THE OFFICE OF THE COUNTY RECORDER OF RIVERSIDE COUNTY, SAID MAP BEING THE BASIS OF BEARINGS FOR THIS DESCRIPTION, TO A POINT IN THE EASTERLY RIGHT OF WAY LINE OF THE C.V. STORMWATER CHANNEL, SAID POINT ALSO BEING IN A NON-TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 7,500 FEET TO WHICH POINT A RADIAL LINE OF SAID CURVE BEARS NORTH 61°00' 53" EAST, AND WHICH POINT IS THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION.

Mail Tax Statements To: **SAME AS ABOVE** 2953 20-20

THE FOLLOWING FIVE COURSES ARE ALONG THE EASTERLY RIGHT OF WAY LINE OF THE C.V. STORMWATER CHANNEL; THENCE NORTHWESTERLY ALONG SAID CURVE 34.28 FEET THROUGH A CENTRAL ANGLE OF 0° 15' 43" TO THE NORTHERLY LINE OF AIRPORT BOULEVARD (AVENUE 56) SAID NORTHERLY LINE BEING PARALLEL WITH AND 30.00 FEET DISTANT FROM, MEASURED AT RIGHT ANGLES, THE SOUTH LINE OF SAID SECTION; THENCE NORTHWESTERLY 496.15 FEET ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 3° 47' 25" TO A POINT OF TANGENCY TO WHICH A RADIAL LINE BEARS NORTH 56° 57' 45" EAST; THENCE NORTH 33° 02' 15" WEST 311.81 FEET TO THE WEST LINE OF THE SOUTHEAST ¼ OF SAID SECTION; THENCE CONTINUING NORTH 33° 02' 15" WEST, 315.86 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE NORTHEASTERLY HAVING A RADIUS OF 3,000 FEET TO WHICH POINT OF CURVE A RADIAL LINE BEARS SOUTH 56° 57' 45" WEST; THENCE CONTINUING NORTHWESTERLY ALONG SAID CURVE 393.64 FEET THROUGH A CENTRAL ANGLE OF 7° 31' 05" TO THE NORTH LINE OF THE SOUTHEAST ¼ OF THE SOUTHWEST ¼ OF SAID SECTION, TO WHICH POINT A RADIAL LINE BEARS SOUTH 64° 28' 50" WEST; THENCE NORTH 89° 52' 15" EAST ALONG THE NORTH LINE OF THE SOUTHEAST ¼ OF THE SOUTHWEST ¼ OF SAID SECTION 15, 306.11 FEET TO A POINT DISTANT WESTERLY 52.26 FEET FROM THE NORTHEAST CORNER OF SAID SOUTHEAST ¼ OF THE SOUTHWEST ¼ OF SAID SECTION 15; THENCE SOUTH 33° 02' 15" EAST, 1,543.16 FEET TO THE NORTHERLY LINE OF AIRPORT BOULEVARD SAID NORTHERLY LINE BEING 30.00 FEET DISTANT FROM, MEASURED AT RIGHT ANGLES, AND PARALLEL THE SOUTH LINE OF SAID SECTION; THENCE CONTINUING SOUTH 33° 02' 15" EAST, 35.73 FEET TO THE SOUTH LINE OF SAID SECTION 15; THENCE SOUTH 89° 51' 30" WEST ALONG THE SOUTH LINE OF SAID SECTION, 359.09 FEET TO THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION.

EXCEPTING THEREFROM THE SOUTHERLY 30.00 FEET.

ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA, BY GRANT DEED RECORDED JUNE 18, 1991 AS INSTRUMENT NO. 1991-203811 OF OFFICIAL RECORDS.

Dated: 06/21/2007

Empire II, LLC, a California Limited Liability Company

By: Haagen Company, LLC, a California limited liability company

By: Alexander Haagen, III, Manager

STATE OF California)SS
COUNTY OF Los Angeles)

K.K.W.

On June 25, 2007, before me, Kimberly K. Williams,
Notary Public, personally appeared
Alexander Haagen III K.K.W., personally known to me ~~(or proved to me on the basis of satisfactory evidence)~~ to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/~~they~~ executed the same in his/~~her~~/~~their~~ authorized capacity(~~ies~~) and that by his/~~her~~/~~their~~ signature(~~s~~) on the instrument the person(~~s~~) or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

WITNESS my hand and official seal.

Signature K.W.

KIMBERLY K. WILLIAMS
Commission # 1651013
Notary Public — California
Los Angeles County
My Comm. Expires Apr 9, 2010

My Commission Expires: April 9, 2010

This area for official notarial seal

Notary Name: Kimberly K Williams
Notary Phone: 310-648-7400 x202
Notary Registration Number: 1651013
County of Principal Place of Business: Los Angeles

original signature page bears embossment

Deed Exhibit 3

**RECORDED AT REQUEST OF
AND MAIL TO
Department of Transportation
Excess Land Manager
464 W. 4th Street, 8th Floor
San Bernardino, CA 92401**

Attn John Hotchkiss

2017-0478725

11/15/2017 01:40 PM Fee: $ 43.00

Page 1 of 7

Recorded in Official Records
County of Riverside
Peter Aldana
Assessor-County Clerk-Recorder

914

Space above this line for Recorder's Use

DIRECTOR'S DEED
GRANT

District	County	Route	Postmile	Number
08	RIV	86	16.45	DD020534-01-01

-00016 OCT 18 2017 APN 763 330 013 and 017

The State of California, acting by and through its Director of Transportation, hereinafter called STATE, hereby grants to

Empire Airport, LLC

hereinafter called GRANTEE, that real property in the City of Coachella, County of Riverside, State of California, described as follows:

See Exhibit "A"
and
Depicted as Exhibit "B"
attached and made a part thereof:

Subject to special assessments if any, restrictions, reservations, and easements of record.

D.T.T. $410.90

MAIL TAX STATEMENTS TO:

Empire Airport, LLC
Attn.: Alexander Haagen III
12302 Exposition Blvd
Los Angeles, CA 90064

EXHIBIT "A"

That portion of the South half of Section 15, T.6S. R.8E. SAN BERNARDINO MERIDIAN, in the City of Coachella, County of Riverside, State of California, according to the Official Plat thereof, described as "Adjusted Parcel 1" on Lot Line Adjustment No. 2005-02A as set forth and described in that "Certain Certificate of Lot Line Adjustment", Recorded July 15, 2005 as Document No. 2005-0568184, and also described in a Grant Deed to the State of California, Recorded August 30, 2010 as Document No. 2010-0413767 of Official Records of said County, lying westerly of the following described line;

COMMENCING at a point on the northeasterly line of said certain parcel of land as described in said Grant Deed and being a point on the Southwesterly line of that parcel of Land conveyed to the State of California, by Grant Deed recorded February 15, 1991 as Instrument No. 1991-52616 of Official Records, County of Riverside, State of California, said point being the southerly terminus of that certain course mentioned in said Grant Deed being "South 32°23'05" East, 740.58 feet";

Thence North 32°23'05" West, 183.63 feet along said certain course to the **POINT OF BEGINNING**;

Thence leaving said southwesterly line, South 26°30'03" East, 445.84 feet;

Thence South 16°10'39" East, 145.12 feet to the beginning of a curve, concave southwesterly having a radius of 930.00 feet to which a radial line bears North 73°49'21" East;

Thence southwesterly along an arc length of 259.48 feet, through a central angle of 15°59'09";

Thence South 00°11'30" East, 399.01 feet;

Thence South 56°54'20" West, 80.75 feet to a point on the southwesterly line of first said Grant Deed to the **POINT OF TERMINATION**, said point being 30.00 feet along last said line from the northerly line described in Document No. 1991-203811 of Official Records of said County. Said northerly line also being the northerly line of Airport Blvd. (Ave 56), half width of 30.00 feet.

The distances used in the above description are on the California Coordinate system of 1983, Zone 6, multiply all distances used in the above description by 1.00002571 to obtain ground level distances.

There shall be no abutter's rights, including rights of access, appurtenant to the above described real property in and to the adjacent state freeway.

"The above-described real property is landlocked and without any direct access to the freeway or to any public or private road. The State of California is without obligation or liability to provide access to said real property."

This real property description has been prepared by me, or under my direction, in conformance with the Professional Land Surveyors' Act.

Signature: ______________________

Professional Land Surveyor

Date: OCT. 12, 2017

PROFESSIONAL LAND SURVEYOR
STANELI B. VERSTEEG
EXP. 12-31-18
No. 7967
STATE OF CALIFORNIA

08-RIV-86-PM 16.45-20534-01-01-(DD020534-01-01)

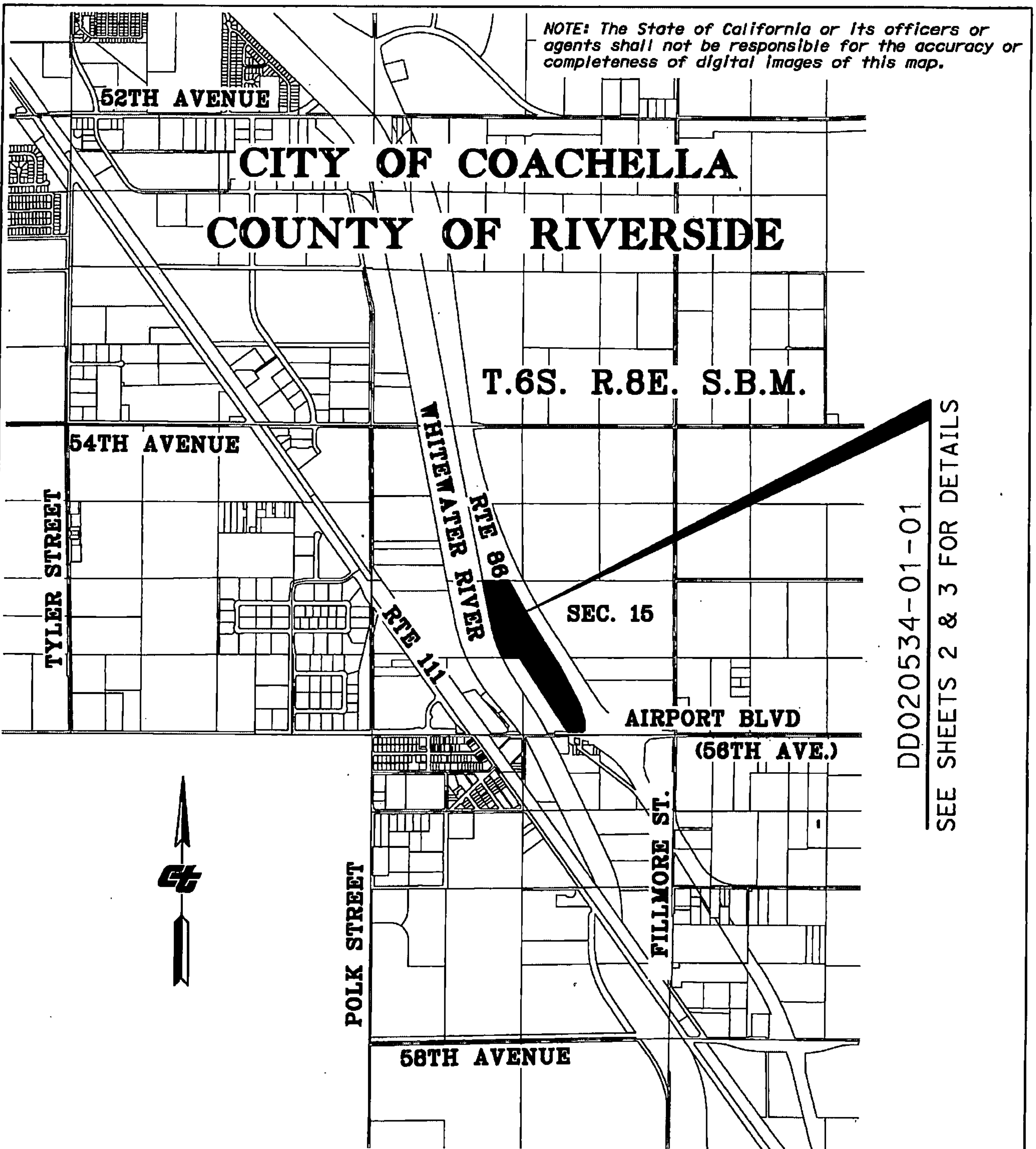


EXHIBIT "B"

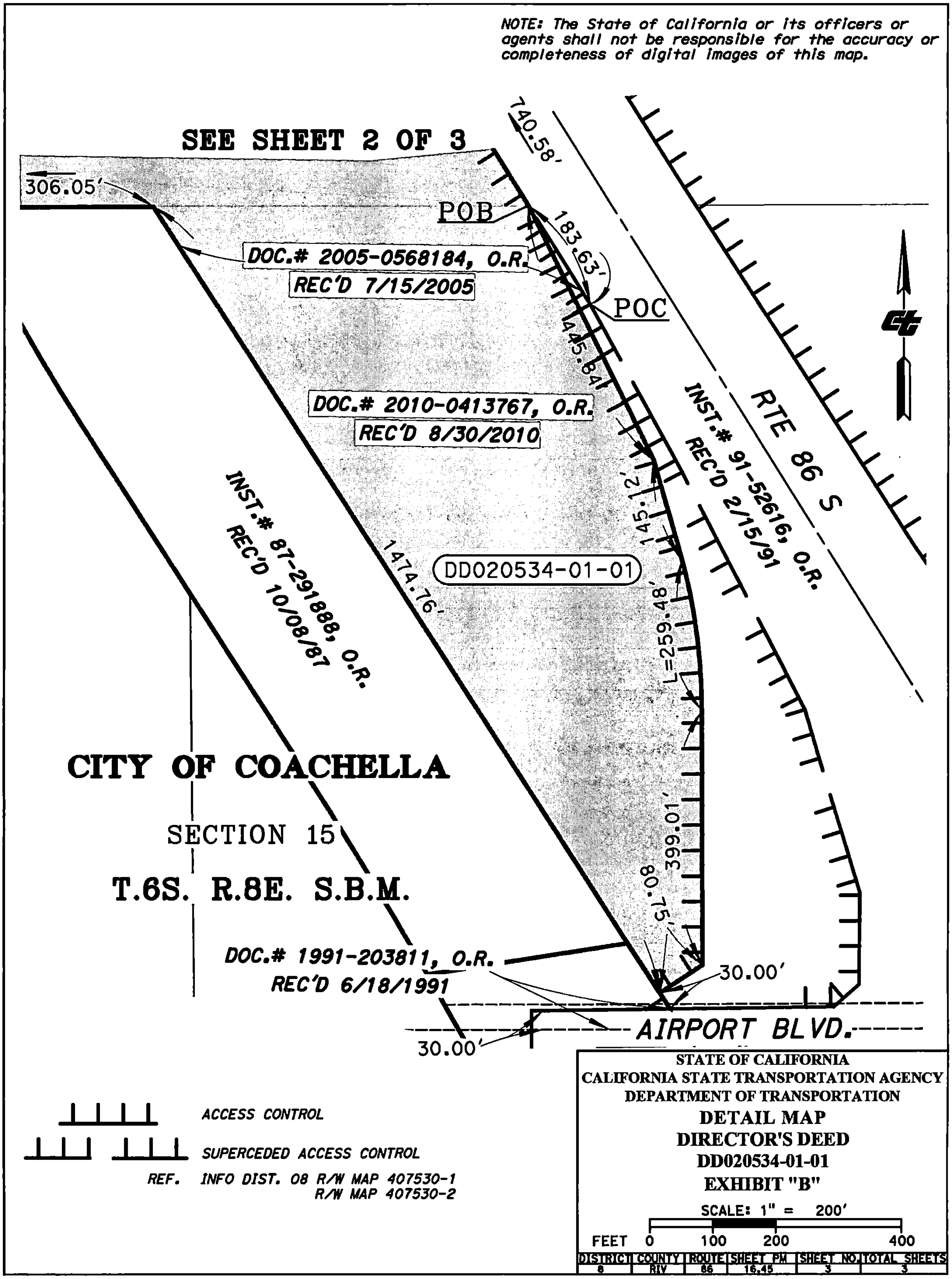
VICINITY MAP FOR DEPICTION OF EXHIBIT "A"

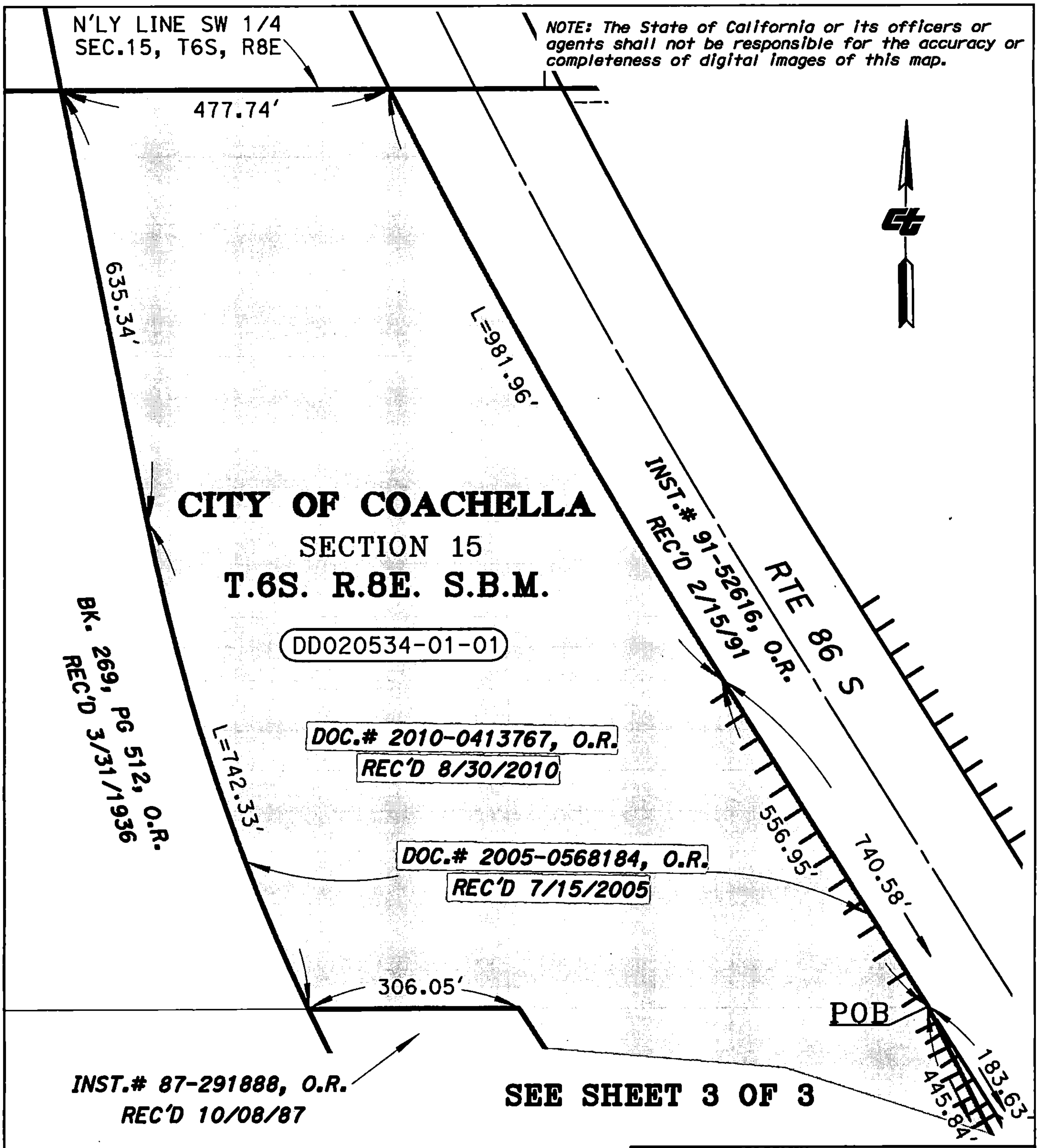
REF. INFO. DIST. 08 R/W MAP 407530-2

STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION
VICINITY MAP
DIRECTORS DEED
DD020534-01-01
EXHIBIT "B"

NO SCALE

DIST	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
8	RIV	86 S	16.45	1	3


NOTE: The State of California or its officers or agents shall not be responsible for the accuracy or completeness of digital images of this map.
SEE SHEET 2 OF 3
306.05'
740.58'
POB
183.63'
POC
DOC.# 2005-0568184, O.R.
REC'D 7/15/2005
445.84'
DOC.# 2010-0413767, O.R.
REC'D 8/30/2010
INST.# 91-52616, O.R.
REC'D 2/15/91
RTE 86 S
145.12'
DD020534-01-01
1474.76'
INST.# 87-291888, O.R.
REC'D 10/08/87
L=259.48'
399.01'
80.75'
CITY OF COACHELLA
SECTION 15
T.6S. R.8E. S.B.M.
DOC.# 1991-203811, O.R.
REC'D 6/18/1991
30.00'
AIRPORT BLVD.
30.00'
ACCESS CONTROL
SUPERCEDED ACCESS CONTROL
REF. INFO DIST. 08 R/W MAP 407530-1
R/W MAP 407530-2
STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION
DETAIL MAP
DIRECTOR'S DEED
DD020534-01-01
EXHIBIT "B"
SCALE: 1" = 200'
FEET 0 100 200 400
DISTRICT 8
COUNTY RIV
ROUTE 86
SHEET PM 16.45
SHEET NO. 3
TOTAL SHEETS 3



ACCESS CONTROL

SUPERCEDED ACCESS CONTROL

REF. INFO DIST. 08 R/W MAP 407530-1
R/W MAP 407530-2

STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION

DETAIL MAP
DIRECTOR'S DEED
DD020534-01-01
EXHIBIT "B"

SCALE: 1" = 200'

FEET 0 100 200 400

DISTRICT	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
8	RIV	86	16.45	2	3

Number
DD020534-01-01

This conveyance is executed pursuant to the authority vested in the Director of Transportation by law and, in particular, by the Streets and Highways Code.

Dated 10-18-17

APPOVED AS TO FORM AND PROCEDEURE

ATTORNEY
DEPARTMENT OF TRANSPORTATION

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

By Malcolm Daughtery
Director of Transportation
Malcolm Daughtery

By
Attorney in Fact
Lawrence Kelly

THIS IS TO CERTIFY that the California Transportation Commission has authorized the Director of Transportation to execute the foregoing deed at its meeting regularly called and held on the 18th day of October 2017, in the city of Modesto.

Dated this 18th day of October 2017.

Susan Bransen
SUSAN BRANSEN, Executive Director
CALIFORNIA TRANSPORTATION COMMISSION

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Bernardino)

On November 15, 2017 before me, Neidy Pinuelas, Notary Public,
Date Here Insert Name and Title of the Officer

personally appeared Lawrence Kelly
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that he~~/she/they~~ executed the same in his~~/her/their~~ authorized capacity~~(ies)~~, and that by his~~/her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature [signature]
Signature of Notary Public

NEIDY PINUELAS
Commission # 2131697
Notary Public - California
San Bernardino County
My Comm. Expires Nov 19, 2019

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document. DD020534-01-01

Description of Attached Document
Title or Type of Document: Directors Deed Grant Document Date: October 18, 2017
Number of Pages: 6 Signer(s) Other Than Named Above: ____

Capacity(ies) Claimed by Signer(s)

Signer's Name: ____
☐ Corporate Officer — Title(s): ____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: ____
Signer Is Representing: ____

Signer's Name: ____
☐ Corporate Officer — Title(s): ____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: ____
Signer Is Representing: ____

RECORDED AT REQUEST OF
AND MAIL TO
Department of Transportation
Excess Land Manager
464 W. 4th Street, 8th Floor
San Bernardino, CA 92401
Attn John Hotchkiss

2017-0478725
11/15/2017 01:40 PM Fee: $ 43.00
Page 1 of 7
Recorded in Official Records
County of Riverside
Peter Aldana
Assessor-County Clerk-Recorder

914

Space above this line for Recorder's Use

DIRECTOR'S DEED
GRANT

District	County	Route	Postmile	Number
08	RIV	86	16.45	DD020534-01-01

-00016 OCT 18 2017 APN ~~756~~ 763 330 013 and 017

The State of California, acting by and through its Director of Transportation, hereinafter called STATE, hereby grants to

Empire Airport, LLC

hereinafter called GRANTEE, that real property in the City of Coachella, County of Riverside, State of California, described as follows:

See Exhibit "A"
and
Depicted as Exhibit "B"
attached and made a part thereof:

Subject to special assessments if any, restrictions, reservations, and easements of record.

D.T.T. $410.90

MAIL TAX STATEMENTS TO:

Empire Airport, LLC
Attn.: Alexander Haagen III
12302 Exposition Blvd
Los Angeles, CA 90064

EXHIBIT "A"

That portion of the South half of Section 15, T.6S. R.8E. SAN BERNARDINO MERIDIAN, in the City of Coachella, County of Riverside, State of California, according to the Official Plat thereof, described as "Adjusted Parcel 1" on Lot Line Adjustment No. 2005-02A as set forth and described in that "Certain Certificate of Lot Line Adjustment", Recorded July 15, 2005 as Document No. 2005-0568184, and also described in a Grant Deed to the State of California, Recorded August 30, 2010 as Document No. 2010-0413767 of Official Records of said County, lying westerly of the following described line;

COMMENCING at a point on the northeasterly line of said certain parcel of land as described in said Grant Deed and being a point on the Southwesterly line of that parcel of Land conveyed to the State of California, by Grant Deed recorded February 15, 1991 as Instrument No. 1991-52616 of Official Records, County of Riverside, State of California, said point being the southerly terminus of that certain course mentioned in said Grant Deed being "South 32°23'05" East, 740.58 feet";

Thence North 32°23'05" West, 183.63 feet along said certain course to the **POINT OF BEGINNING**;

Thence leaving said southwesterly line, South 26°30'03" East, 445.84 feet;

Thence South 16°10'39" East, 145.12 feet to the beginning of a curve, concave southwesterly having a radius of 930.00 feet to which a radial line bears North 73°49'21" East;

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Thence South 00°11'30" East, 399.01 feet;

Thence South 56°54'20" West, 80.75 feet to a point on the southwesterly line of first said Grant Deed to the **POINT OF TERMINATION**, said point being 30.00 feet along last said line from the northerly line described in Document No. 1991-203811 of Official Records of said County. Said northerly line also being the northerly line of Airport Blvd. (Ave 56), half width of 30.00 feet.

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There shall be no abutter's rights, including rights of access, appurtenant to the above described real property in and to the adjacent state freeway.

"The above-described real property is landlocked and without any direct access to the freeway or to any public or private road. The State of California is without obligation or liability to provide access to said real property."

This real property description has been prepared by me, or under my direction, in conformance with the Professional Land Surveyors' Act.

Signature: ______________________

Professional Land Surveyor

Date: OCT. 12, 2017

PROFESSIONAL LAND SURVEYOR
STANELI B. VERSTEEG
EXP. 12-31-18
No. 7967
STATE OF CALIFORNIA

08-RIV-86-PM 16.45-20534-01-01-(DD020534-01-01)

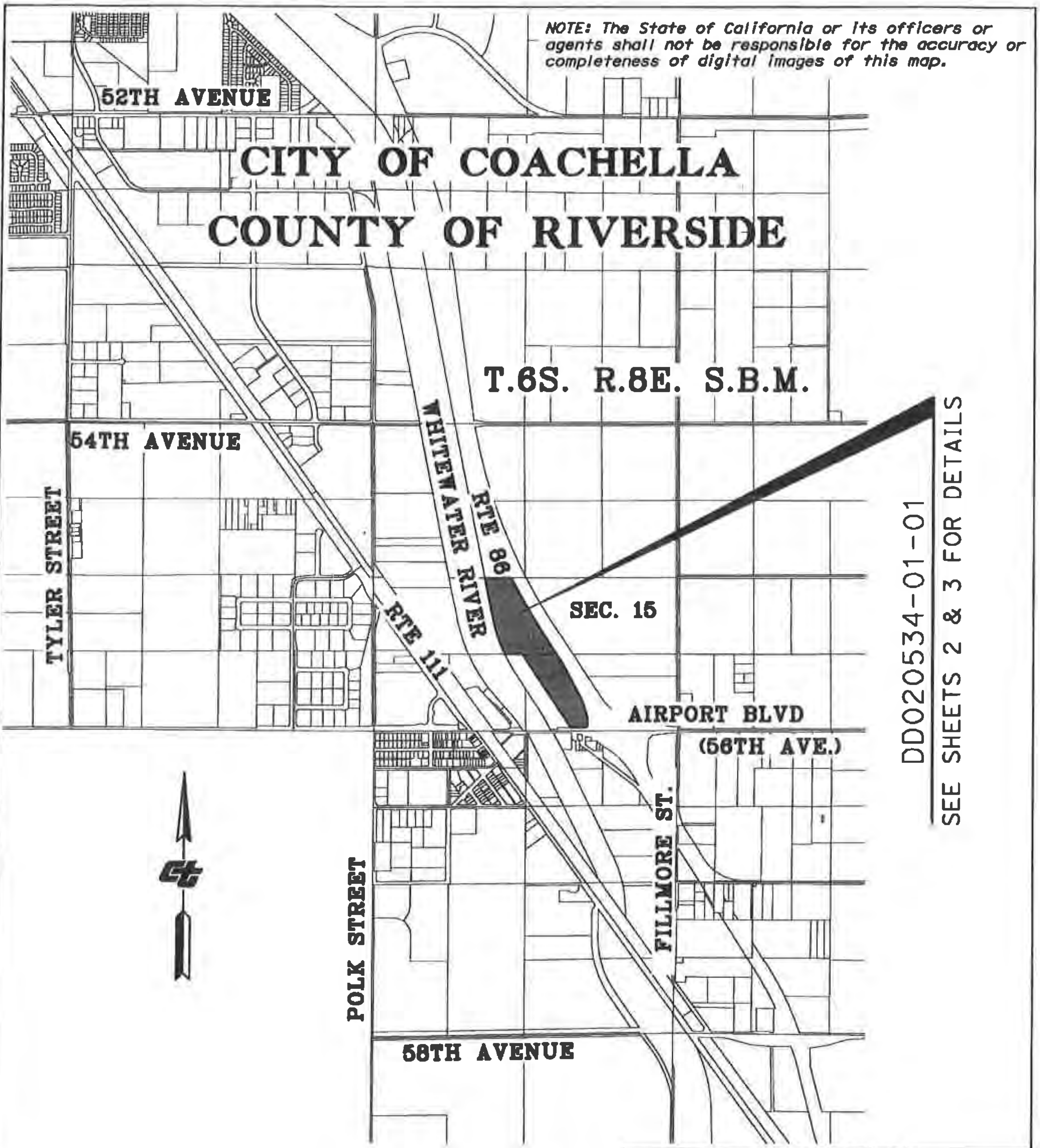


EXHIBIT "B"

VICINITY MAP FOR DEPICTION OF EXHIBIT "A"

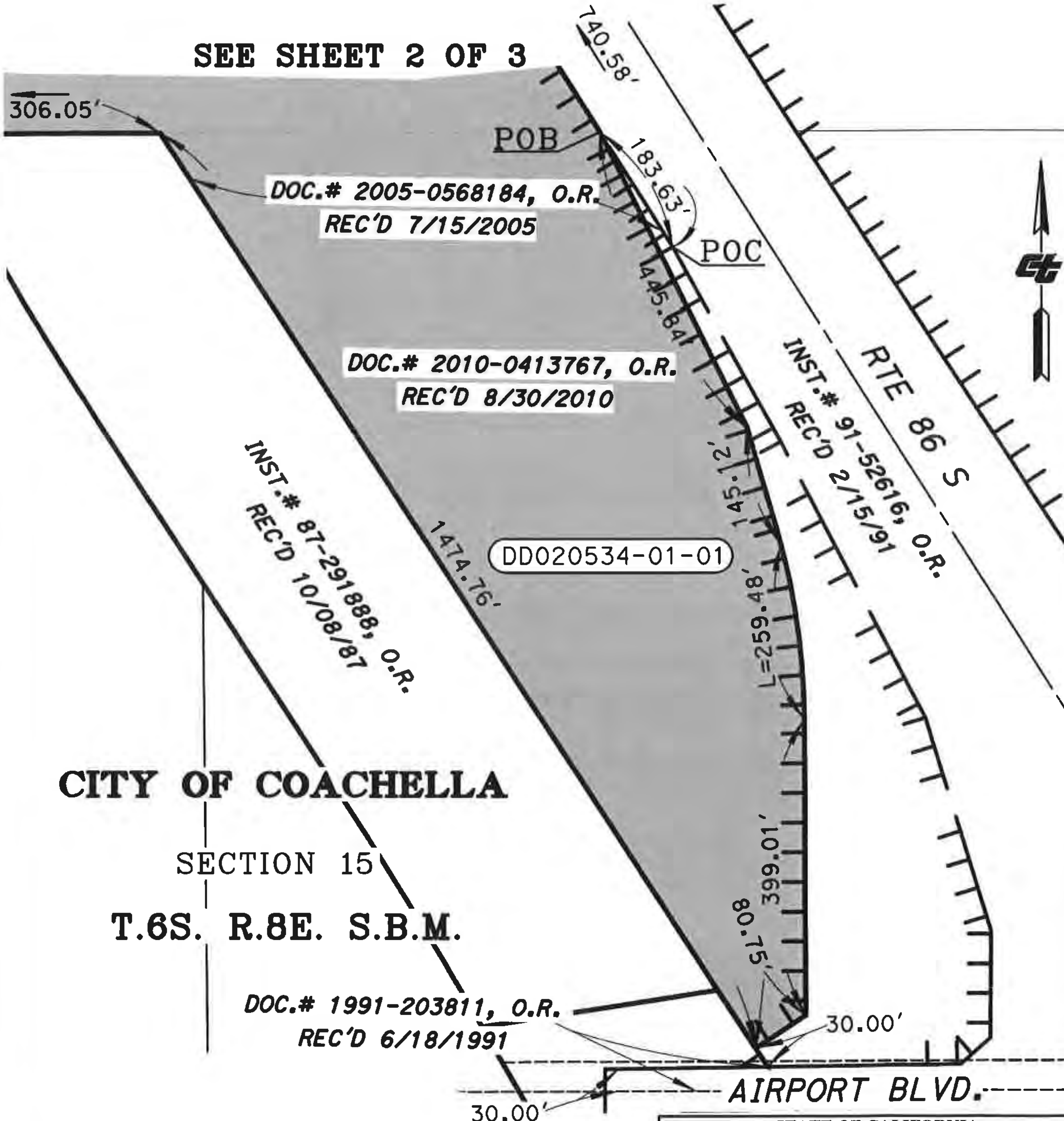
REF. INFO. DIST. 08 R/W MAP 407530-2

STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION
VICINITY MAP
DIRECTORS DEED
DD020534-01-01
EXHIBIT "B"

NO SCALE

DIST	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
8	RIV	86 S	16.45	1	3

NOTE: The State of California or its officers or agents shall not be responsible for the accuracy or completeness of digital images of this map.



ACCESS CONTROL

SUPERCEDED ACCESS CONTROL

REF. INFO DIST. 08 R/W MAP 407530-1
R/W MAP 407530-2

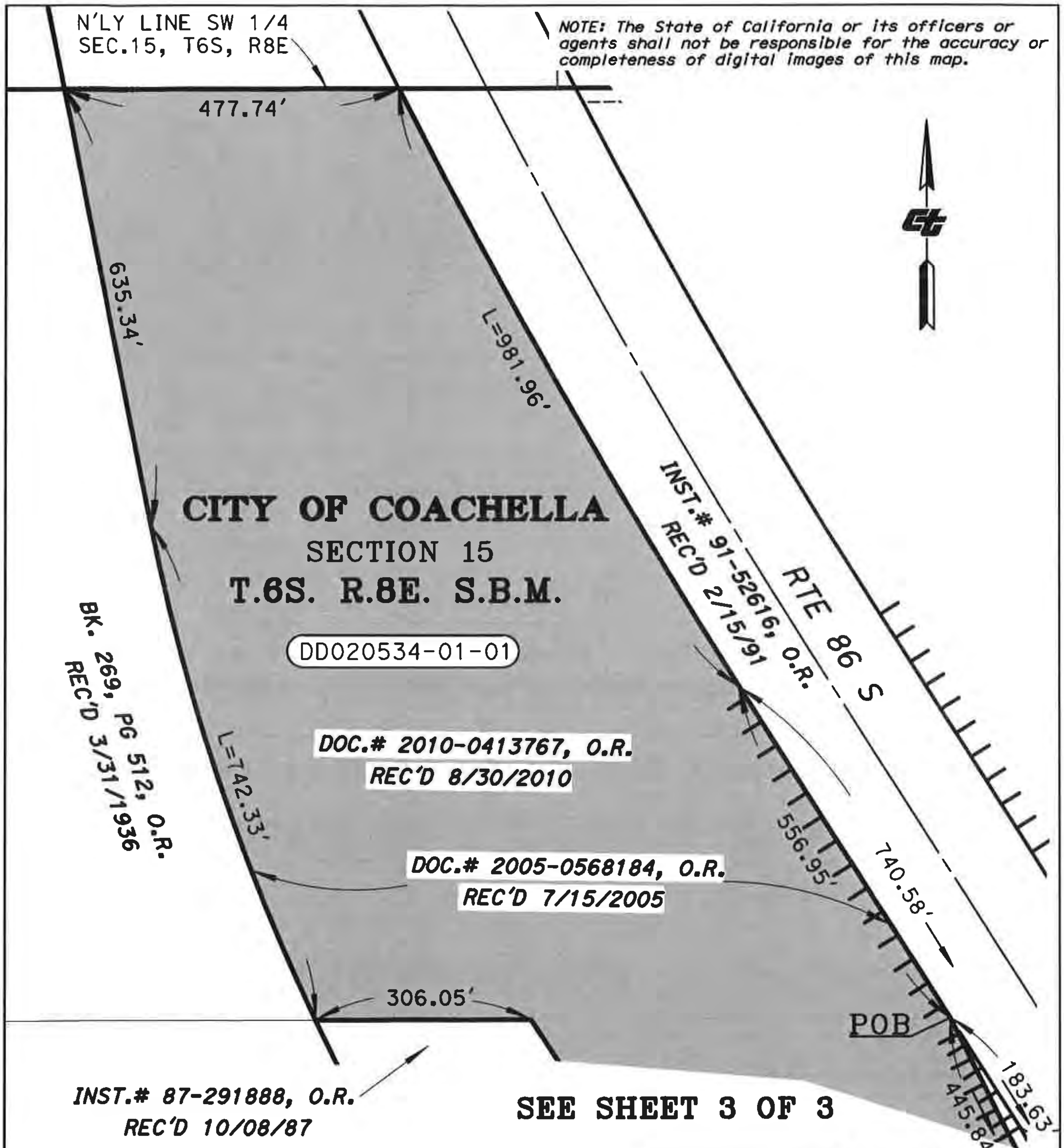
STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION

DETAIL MAP
DIRECTOR'S DEED
DD020534-01-01
EXHIBIT "B"

SCALE: 1" = 200'

FEET 0 100 200 400

DISTRICT	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
8	RIV	86	16.45	3	3



SEE SHEET 3 OF 3

ACCESS CONTROL

SUPERCEDED ACCESS CONTROL

REF. INFO DIST. 08 R/W MAP 407530-1
R/W MAP 407530-2

STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION

DETAIL MAP
DIRECTOR'S DEED
DD020534-01-01
EXHIBIT "B"

SCALE: 1" = 200'

FEET 0 100 200 400

DISTRICT	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
8	RIV	86	16.45	2	3

Number
DD020534-01-01

This conveyance is executed pursuant to the authority vested in the Director of Transportation by law and, in particular, by the Streets and Highways Code.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Dated 10-18-17

APPOVED AS TO FORM AND PROCEDEURE

ATTORNEY
DEPARTMENT OF TRANSPORTATION

By Malcolm Dougherty
Director of Transportation
Malcolm Daughtery

By
Attorney in Fact
Lawrence Kelly

THIS IS TO CERTIFY that the California Transportation Commission has authorized the Director of Transportation to execute the foregoing deed at its meeting regularly called and held on the 18th day of October 2017, in the city of Modesto.

Dated this 18th day of October 2017.

Susan Bransen
SUSAN BRANSEN, Executive Director
CALIFORNIA TRANSPORTATION COMMISSION

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Bernardino)

On November 15, 2017 before me, Neidy Pinuelas, Notary Public,
Date *Here Insert Name and Title of the Officer*

personally appeared Lawrence Kelly
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

NEIDY PINUELAS
Commission # 2131697
Notary Public - California
San Bernardino County
My Comm. Expires Nov 19, 2019

Signature [signature]
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document. DD020534-01-01

Description of Attached Document
Title or Type of Document: Directors Deed Grant Document Date: October 18, 2017
Number of Pages: 6 Signer(s) Other Than Named Above: ____________

Capacity(ies) Claimed by Signer(s)

Signer's Name: ____________
☐ Corporate Officer — Title(s): ____________
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: ____________
Signer Is Representing: ____________

Signer's Name: ____________
☐ Corporate Officer — Title(s): ____________
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: ____________
Signer Is Representing: ____________

Haagen Coachella
87630 Airport Road
Thermal, CA 92274

Inquiry Number: 6323743.8
January 07, 2021

EDR Building Permit Report

Target Property and Adjoining Properties

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Building Permit Report: Search Documentation

1/07/21

Site Name:
Haagen Coachella
87630 Airport Road
Thermal, CA 92274

EDR Inquiry # 6323743.8

Client Name:
Altec Testing & Engineering
6035 Fremont Street
Riverside, CA 92504

Contact: Lynn Laborde

Search Documentation

DATA GAP

The complete collection of Building Permit data available to EDR has been searched, and as of 1/07/21, EDR does not have access to building permits in the city where your target property is located (Thermal, CA).

EDR BUILDING PERMIT REPORT

About This Report

The EDR Building Permit Report provides a practical and efficient method to search building department records for indications of environmental conditions. Generated via a search of municipal building permit records gathered from more than 1,600 cities nationwide, this report will assist you in meeting the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

Building permit data can be used to identify current and/or former operations and structures/features of environmental concern. The data can provide information on a target property and adjoining properties such as the presence of underground storage tanks, pump islands, sumps, drywells, etc., as well as information regarding water, sewer, natural gas, electrical connection dates, and current/former septic tanks.

ASTM and EPA Requirements

ASTM E 1527-13 lists building department records as a "standard historical source," as detailed in § 8.3.4.7: "Building Department Records - The term building department records means those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property." ASTM also states that "Uses in the area surrounding the property shall be identified in the report, but this task is required only to the extent that this information is revealed in the course of researching the property itself."

EPA's Standards and Practices for All Appropriate Inquires (AAI) states: "§312.24: Reviews of historical sources of information. (a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of §312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records."

Methodology

EDR has developed the EDR Building Permit Report through our partnership with BuildFax, the nation's largest repository of building department records. BuildFax collects, updates, and manages building department records from local municipal governments. The database now includes 30 million permits, on more than 10 million properties across 1,600 cities in the United States.

The EDR Building Permit Report comprises local municipal building permit records, gathered directly from local jurisdictions, including both target property and adjoining properties. Years of coverage vary by municipality. Data reported includes (where available): date of permit, permit type, permit number, status, valuation, contractor company, contractor name, and description.

Incoming permit data is checked at seven stages in a regimented quality control process, from initial data source interview, to data preparation, through final auditing. To ensure the building department is accurate, each of the seven quality control stages contains, on average, 15 additional quality checks, resulting in a process of approximately 105 quality control "touch points."

For more information about the EDR Building Permit Report, please contact your EDR Account Executive at (800) 352-0050.

EDR® Environmental Data Resources Inc

BUILD FAX® PROPERTY HISTORY

Haagen Coachella
87630 Airport Road
Thermal, CA 92274

Inquiry Number: 6323743.6
January 07, 2021

The EDR Property Tax Map Report

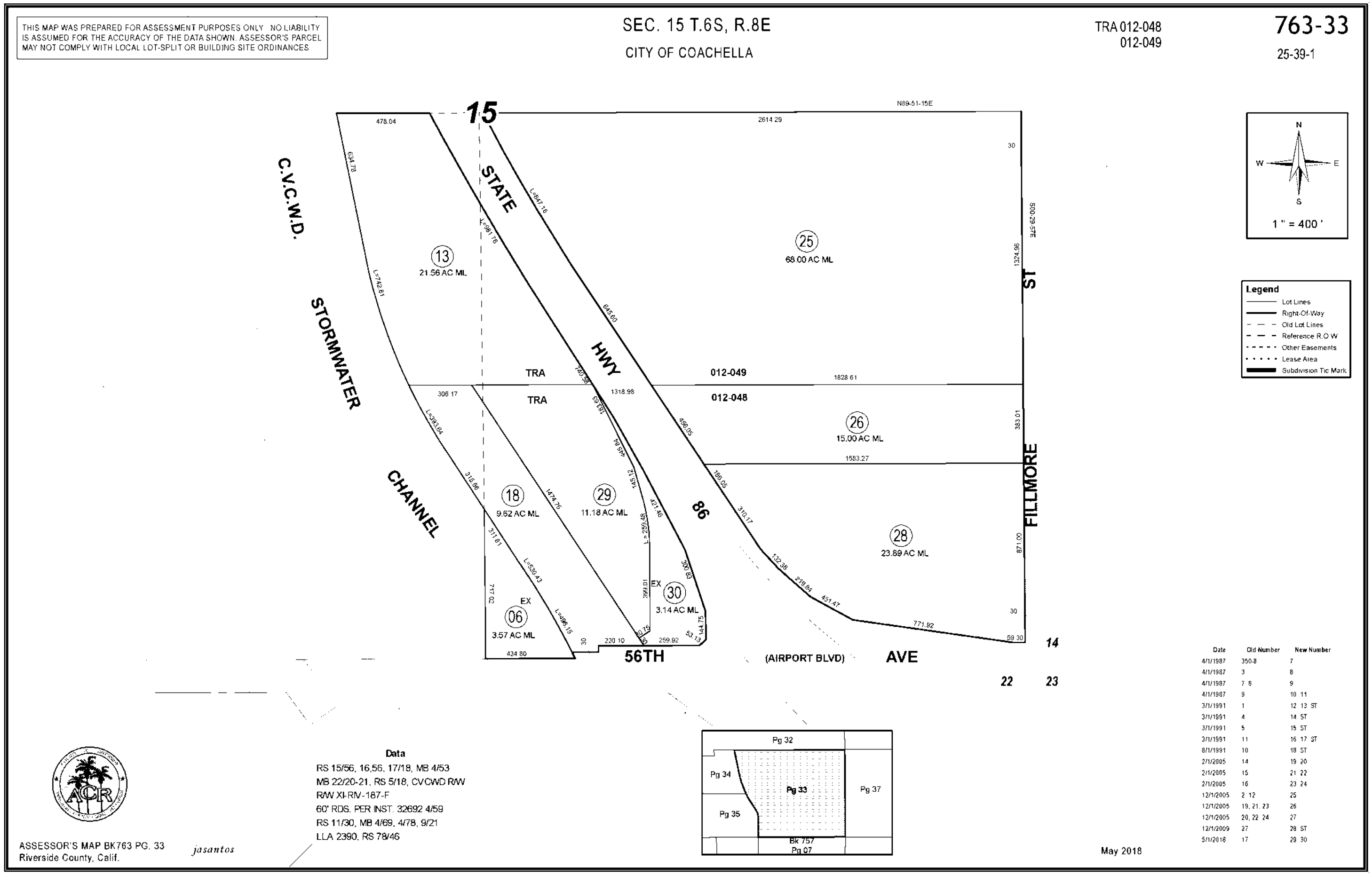
EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

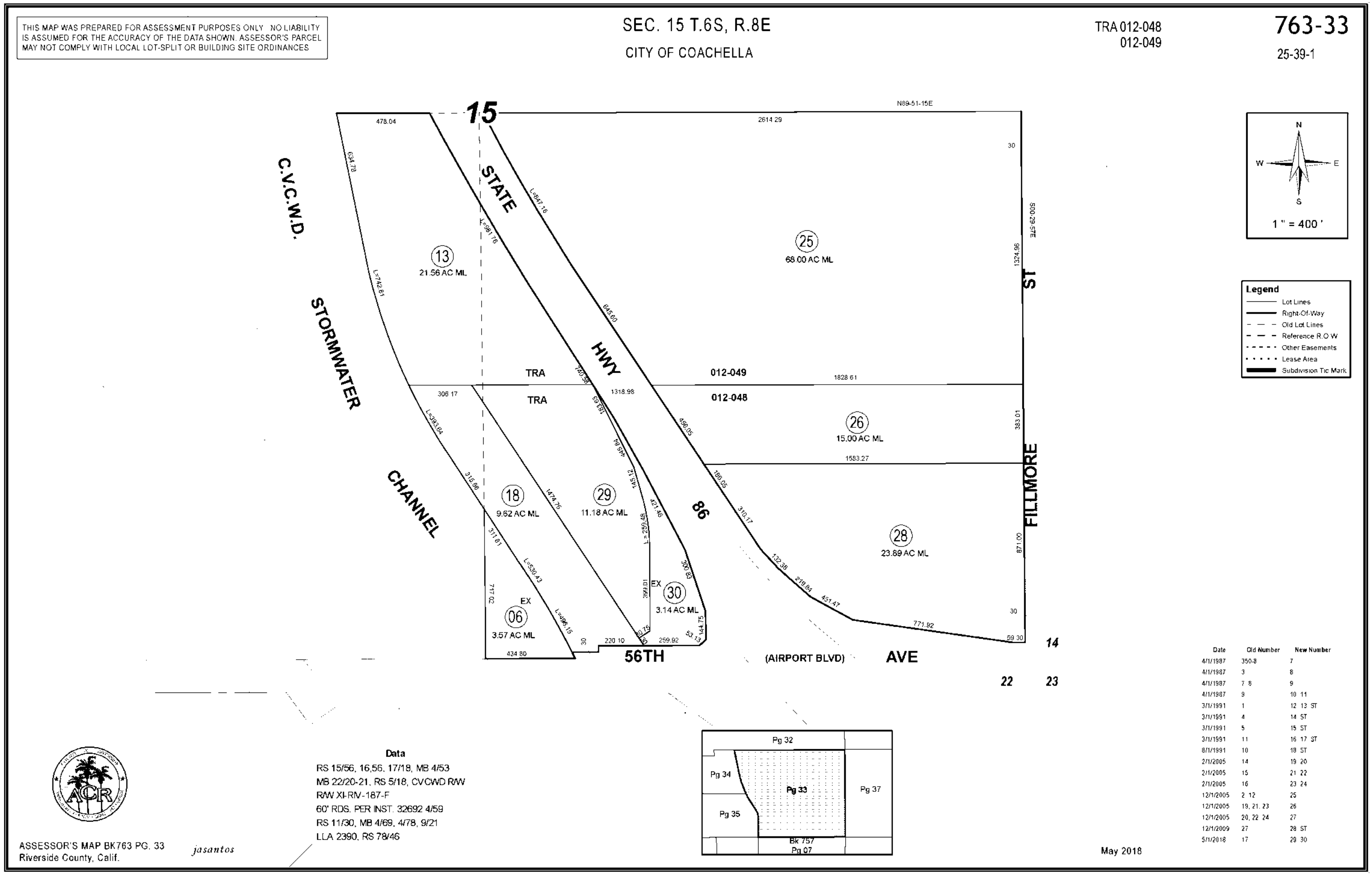
EDR Property Tax Map Report

Environmental Data Resources, Inc.'s EDR Property Tax Map Report is designed to assist environmental professionals in evaluating potential environmental conditions on a target property by understanding property boundaries and other characteristics. The report includes a search of available property tax maps, which include information on boundaries for the target property and neighboring properties, addresses, parcel identification numbers, as well as other data typically used in property location and identification.

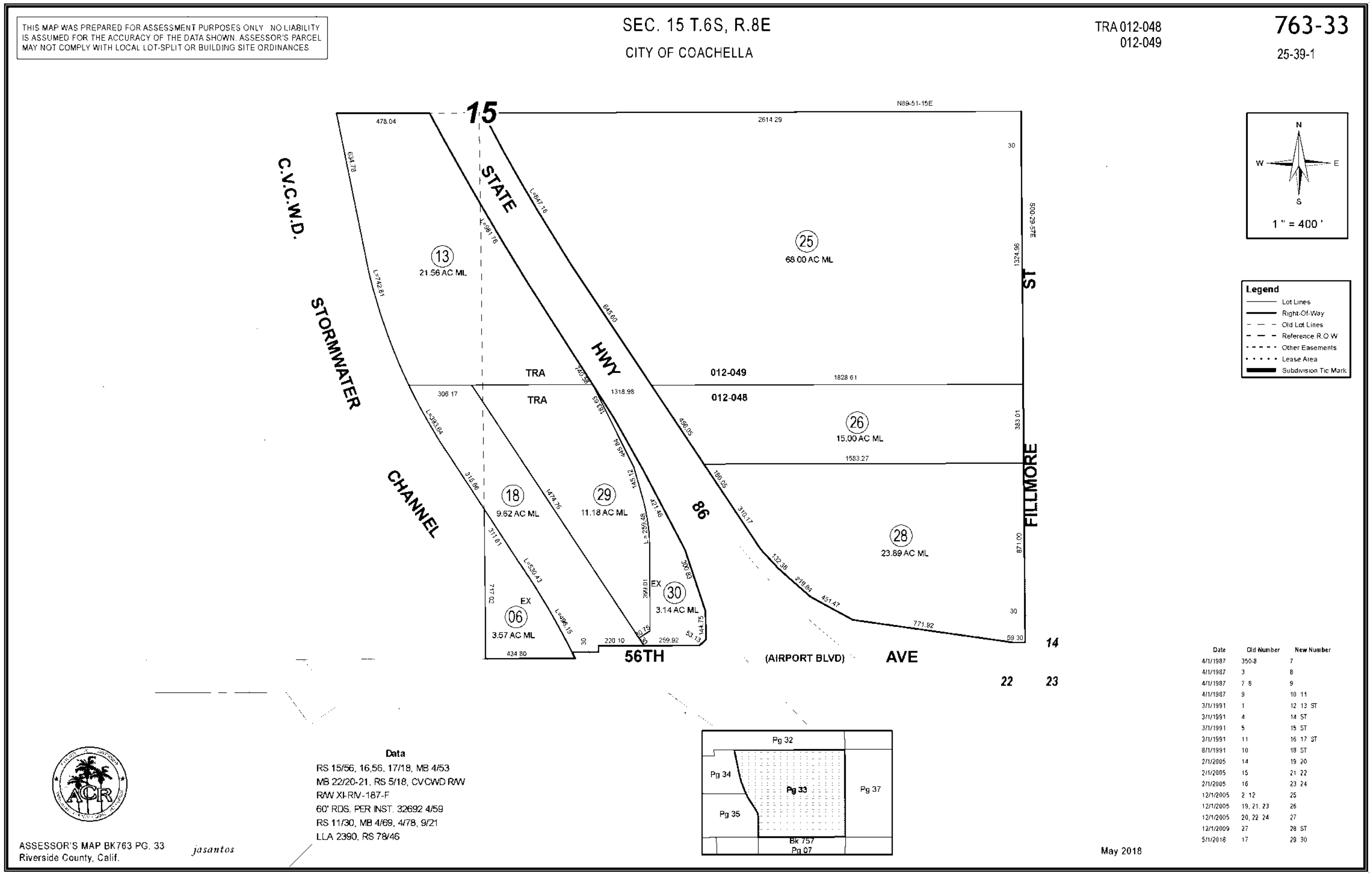
Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.



THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES
SEC. 15 T.6S, R.8E
CITY OF COACHELLA
TRA 012-048
012-049
763-33
25-39-1
15
C.V.C.W.D.
STORMWATER
CHANNEL
STATE
HWY
86
FILLMORE
ST
56TH
(AIRPORT BLVD)
AVE
13
21.56 AC ML
25
68.00 AC ML
26
15.00 AC ML
28
23.89 AC ML
18
9.52 AC ML
29
11.18 AC ML
30
3.14 AC ML
06
3.57 AC ML
EX
TRA
012-049
012-048
14
22
23
1 " = 400 '
Legend
Lot Lines
Right-Of-Way
Old Lot Lines
Reference R.O.W
Other Easements
Lease Area
Subdivision Tic Mark
Date Old Number New Number
4/1/1987 350-8 7
4/1/1987 3 8
4/1/1987 7 8 9
4/1/1987 9 10 11
3/1/1991 1 12 13 ST
3/1/1991 4 14 ST
3/1/1991 5 15 ST
3/1/1991 11 16 17 ST
8/1/1991 10 18 ST
2/1/2005 14 19 20
2/1/2005 15 21 22
2/1/2005 16 23 24
12/1/2005 2 12 25
12/1/2005 19, 21, 23 26
12/1/2005 20, 22 24 27
12/1/2009 27 28 ST
5/1/2018 17 29 30
Data
RS 15/56, 16,56, 17/18, MB 4/53
MB 22/20-21, RS 5/18, CVCWD R/W
R/W XI-RIV-187-F
60' RDS. PER INST. 32692 4/59
RS 11/30, MB 4/69, 4/78, 9/21
LLA 2390, RS 78/46
Pg 32
Pg 34
Pg 33
Pg 37
Pg 35
Bk 757
Pg 07
ASSESSOR'S MAP BK763 PG. 33
Riverside County, Calif.
jasantos
May 2018



Date	Old Number	New Number
4/1/1987	350-8	7
4/1/1987	3	8
4/1/1987	7 8	9
4/1/1987	9	10 11
3/1/1991	1	12 13 ST
3/1/1991	4	14 ST
3/1/1991	5	15 ST
3/1/1991	11	16 17 ST
8/1/1991	10	18 ST
2/1/2005	14	19 20
2/1/2005	15	21 22
2/1/2005	16	23 24
12/1/2005	2 12	25
12/1/2005	19, 21. 23	26
12/1/2005	20, 22 24	27
12/1/2009	27	28 ST
5/1/2018	17	29 30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SEC. 15 T.6S, R.8E
CITY OF COACHELLA
TRA 012-048
012-049
763-33
25-39-1
15
C.V.C.W.D.
STORMWATER
CHANNEL
STATE
HWY
86
FILLMORE
ST
56TH
(AIRPORT BLVD)
AVE
TRA
012-049
012-048
13
21.56 AC ML
25
68.00 AC ML
26
15.00 AC ML
28
23.89 AC ML
18
9.52 AC ML
29
11.18 AC ML
30
3.14 AC ML
06
3.57 AC ML
EX
14
22
23
1 " = 400 '
Legend
Lot Lines
Right-Of-Way
Old Lot Lines
Reference R.O.W
Other Easements
Lease Area
Subdivision Tic Mark
Date
Old Number
New Number
4/1/1987 350-8 7
4/1/1987 3 8
4/1/1987 7 8 9
4/1/1987 9 10 11
3/1/1991 1 12 13 ST
3/1/1991 4 14 ST
3/1/1991 5 15 ST
3/1/1991 11 16 17 ST
8/1/1991 10 18 ST
2/1/2005 14 19 20
2/1/2005 15 21 22
2/1/2005 16 23 24
12/1/2005 2 12 25
12/1/2005 19, 21, 23 26
12/1/2005 20, 22 24 27
12/1/2009 27 28 ST
5/1/2018 17 29 30
Data
RS 15/56, 16,56, 17/18, MB 4/53
MB 22/20-21, RS 5/18, CVCWD R/W
R/W XI-RIV-187-F
60' RDS. PER INST. 32692 4/59
RS 11/30, MB 4/69, 4/78, 9/21
LLA 2390, RS 78/46
Pg 32
Pg 34
Pg 33
Pg 37
Pg 35
Bk 757
Pg 07
ASSESSOR'S MAP BK763 PG. 33
Riverside County, Calif.
jasantos
May 2018

Haagen Coachella
87630 Airport Road
Thermal, CA 92274

Inquiry Number: 6323743.2s
January 07, 2021

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	92
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-12
Physical Setting Source Map Findings	A-14
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

87630 AIRPORT ROAD
THERMAL, CA 92274

COORDINATES

Latitude (North):	33.6456450 - 33˚ 38' 44.32''
Longitude (West):	116.1377410 - 116˚ 8' 15.86''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	579959.8
UTM Y (Meters):	3723007.0
Elevation:	120 ft. below sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5641206 INDIO, CA
Version Date:	2012
Northeast Map:	5639302 THERMAL CANYON, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140521
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
87630 AIRPORT ROAD
THERMAL, CA 92274

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	RVSD CO ROAD YARD TH	87495 AIRPORT BLVD	LUST, Cortese, HIST CORTESE, CERS	Lower	569, 0.108, South
A2	CALIFORNIA REDIDATE	87500 AVE 56	RCRA-SQG, FINDS, ECHO	Higher	667, 0.126, WSW
A3	THERMAL CA INDUSTRIA	87500 AIRPORT BLVD	RCRA NonGen / NLR	Higher	667, 0.126, WSW
4	C V ORGANIC FERTILIZ	55-591 HIGHWAY 111	HIST UST	Higher	1130, 0.214, SW
B5	GTE THERMAL	56189 HIGHWAY 111	LUST, SWEEPS UST, CA FID UST, Cortese	Higher	1138, 0.216, SSW
B6	GTE - THERMAL	56189 111	LUST, HIST CORTESE, CERS	Higher	1138, 0.216, SSW
C7	JOE'S TUNE UP	55951 HIGHWAY 111	LUST, Cortese, HIST CORTESE	Higher	1245, 0.236, SW
C8	OE S TUNE UP	55951 HIGHWAY 111	LUST	Higher	1245, 0.236, SW
D9	APPLE MARKET ONE	56491 HIGHWAY 111	LUST, CERS HAZ WASTE, CERS TANKS, Cortese, CERS	Higher	1277, 0.242, South
D10	APPLE MARKETS INC DB	56491 HIGHWAY 111	RCRA NonGen / NLR	Higher	1277, 0.242, South
D11	APPLE MARKET	56491 HIGHWAY 111	SWEEPS UST, CA FID UST	Higher	1277, 0.242, South
D12	APPLE MARKET ONE	56491 HWY 111	UST	Higher	1277, 0.242, South
D13	APPLE MARKET ONE	56491 US HIGHWAY 111	UST	Higher	1277, 0.242, South
E14	COACHELLA VALLEY ORG	55591 HIGHWAY 111	LUST, Cortese, CERS	Higher	1513, 0.287, West
E15	COACHELLA VALLEY ORG	55591 HIGHWAY 111	LUST, HIST CORTESE	Higher	1513, 0.287, West
16	CVUSD - BUS BARN	87-150 CHURCH ST	LUST, Cortese, ENF, CERS	Higher	2237, 0.424, SSW
17	RANCHO COACHELLA PRO	54000 HIGHWAY 111	Notify 65	Higher	5024, 0.952, NW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL - National Priority List
Proposed NPL - Proposed National Priority List Sites
NPL LIENS - Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL - National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY - Federal Facility Site Information listing
SEMS - Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE - Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS - Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF - RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG - RCRA - Large Quantity Generators
RCRA-VSQG - RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS - Land Use Control Information System
US ENG CONTROLS - Engineering Controls Sites List

EXECUTIVE SUMMARY

US INST CONTROLS - - - - - - - - Institutional Controls Sites List

Federal ERNS list

ERNS - Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE - - - - - - - - - - - - - - - - - - State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR - - - - - - - - - - - - - - - EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF - Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST - - - - - - - - - - - - - - - - Leaking Underground Storage Tanks on Indian Land
CPS-SLIC - Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST - - - - - - - - - - - - - - - - - - - Underground Storage Tank Listing
AST - Aboveground Petroleum Storage Tank Facilities
INDIAN UST - - - - - - - - - - - - - - - - - - Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP - - - - - - - - - - - - - - - - - Voluntary Cleanup Priority Listing
VCP - Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS - - - - - - - - - - - - - - Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS - - - - - - - - - - - A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT - - - - - - - - - - - - - - Waste Management Unit Database
SWRCY - Recycler Database
HAULERS - Registered Waste Tire Haulers Listing
INDIAN ODI - - - - - - - - - - - - - - - - - - Report on the Status of Open Dumps on Indian Lands
ODI - Open Dump Inventory
DEBRIS REGION 9 - - - - - - - - - - - Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS - - - - - - - - - - - Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL - - - - - - - - - - - - - - - - Delisted National Clandestine Laboratory Register

HIST Cal-Sites Historical Calsites Database
SCH School Property Evaluation Program
CDL Clandestine Drug Labs
Toxic Pits Toxic Pits Cleanup Act Sites
US CDL National Clandestine Laboratory Register
PFAS PFAS Contamination Site Location Listing

Local Land Records

LIENS Environmental Liens Listing
LIENS 2 CERCLA Lien Information
DEED Deed Restriction Listing

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System
CHMIRS California Hazardous Material Incident Report System
LDS Land Disposal Sites Listing
MCS Military Cleanup Sites Listing
SPILLS 90 SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS Formerly Used Defense Sites
DOD Department of Defense Sites
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR Financial Assurance Information
EPA WATCH LIST EPA WATCH LIST
2020 COR ACTION 2020 Corrective Action Program List
TSCA Toxic Substances Control Act
TRIS Toxic Chemical Release Inventory System
SSTS Section 7 Tracking Systems
ROD Records Of Decision
RMP Risk Management Plans
RAATS RCRA Administrative Action Tracking System
PRP Potentially Responsible Parties
PADS PCB Activity Database System
ICIS Integrated Compliance Information System
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS Material Licensing Tracking System
COAL ASH DOE Steam-Electric Plant Operation Data
COAL ASH EPA Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER PCB Transformer Registration Database
RADINFO Radiation Information Database
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS Incident and Accident Data
CONSENT Superfund (CERCLA) Consent Decrees
INDIAN RESERV Indian Reservations
FUSRAP Formerly Utilized Sites Remedial Action Program
UMTRA Uranium Mill Tailings Sites
LEAD SMELTERS Lead Smelter Sites
US AIRS Aerometric Information Retrieval System Facility Subsystem
US MINES Mines Master Index File
ABANDONED MINES Abandoned Mines

EXECUTIVE SUMMARY

FINDS........................ Facility Index System/Facility Registry System
UXO........................ Unexploded Ordnance Sites
DOCKET HWC........................ Hazardous Waste Compliance Docket Listing
ECHO........................ Enforcement & Compliance History Information
FUELS PROGRAM........................ EPA Fuels Program Registered Listing
CA BOND EXP. PLAN........................ Bond Expenditure Plan
CUPA Listings........................ CUPA Resources List
DRYCLEANERS........................ Cleaner Facilities
EMI........................ Emissions Inventory Data
ENF........................ Enforcement Action Listing
Financial Assurance........................ Financial Assurance Information Listing
HAZNET........................ Facility and Manifest Data
ICE........................ ICE
HWP........................ EnviroStor Permitted Facilities Listing
HWT........................ Registered Hazardous Waste Transporter Database
MINES........................ Mines Site Location Listing
MWMP........................ Medical Waste Management Program Listing
NPDES........................ NPDES Permits Listing
PEST LIC........................ Pesticide Regulation Licenses Listing
PROC........................ Certified Processors Database
UIC........................ UIC Listing
UIC GEO........................ UIC GEO (GEOTRACKER)
WASTEWATER PITS........................ Oil Wastewater Pits Listing
WDS........................ Waste Discharge System
WIP........................ Well Investigation Program Case List
MILITARY PRIV SITES........................ MILITARY PRIV SITES (GEOTRACKER)
PROJECT........................ PROJECT (GEOTRACKER)
WDR........................ Waste Discharge Requirements Listing
CIWQS........................ California Integrated Water Quality System
CERS........................ CERS
NON-CASE INFO........................ NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS........................ OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS........................ PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT........................ SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ........................ Well Stimulation Project (GEOTRACKER)
MINES MRDS........................ Mineral Resources Data System
HWTS........................ Hazardous Waste Tracking System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP........................ EDR Proprietary Manufactured Gas Plants
EDR Hist Auto........................ EDR Exclusive Historical Auto Stations
EDR Hist Cleaner........................ EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF........................ Recovered Government Archive Solid Waste Facilities List
RGA LUST........................ Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/14/2020 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CALIFORNIA REDIDATE EPA ID:: CAR000071035	***87500 AVE 56***	***WSW 1/8 - 1/4 (0.126 mi.)***	***A2***	***12***

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 9 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GTE THERMAL Database: LUST REG 7, Date of Government Version: 02/26/2004 Status: 9 - Case Closed Global ID: T0606501074	***56189 HIGHWAY 111***	***SSW 1/8 - 1/4 (0.216 mi.)***	***B5***	***20***
GTE - THERMAL Database: LUST, Date of Government Version: 09/08/2020 Status: Completed - Case Closed Global Id: T0606501074	***56189 111***	***SSW 1/8 - 1/4 (0.216 mi.)***	***B6***	***21***
JOE'S TUNE UP Database: LUST, Date of Government Version: 09/08/2020 Database: RIVERSIDE CO. LUST, Date of Government Version: 10/06/2020 Status: Completed - Case Closed Facility Id: 89619	***55951 HIGHWAY 111***	***SW 1/8 - 1/4 (0.236 mi.)***	***C7***	***23***

Global Id: T0606501080
Facility Status: 0

OE S TUNE UP	55951 HIGHWAY 111	SW 1/8 - 1/4 (0.236 mi.)	C8	31

Database: LUST REG 7, Date of Government Version: 02/26/2004
Status: 5C - Pollution Characterization
Global ID: T0606501080

APPLE MARKET ONE	***56491 HIGHWAY 111***	***S 1/8 - 1/4 (0.242 mi.)***	***D9***	***31***

Database: LUST REG 7, Date of Government Version: 02/26/2004
Database: LUST, Date of Government Version: 09/08/2020
Database: RIVERSIDE CO. LUST, Date of Government Version: 10/06/2020
Status: Completed - Case Closed
Status: 5C - Pollution Characterization
Facility Id: 9814706
Global Id: T0606501089
Facility Status: 9
Global ID: T0606501089

COACHELLA VALLEY ORG	***55591 HIGHWAY 111***	***W 1/4 - 1/2 (0.287 mi.)***	***E14***	***82***

Database: LUST REG 7, Date of Government Version: 02/26/2004
Status: 9 - Case Closed
Global ID: T0606501083

COACHELLA VALLEY ORG	***55591 HIGHWAY 111***	***W 1/4 - 1/2 (0.287 mi.)***	***E15***	***83***

Database: LUST, Date of Government Version: 09/08/2020
Status: Completed - Case Closed
Global Id: T0606501083

CVUSD - BUS BARN	***87-150 CHURCH ST***	***SSW 1/4 - 1/2 (0.424 mi.)***	***16***	***84***

Database: LUST REG 7, Date of Government Version: 02/26/2004
Database: LUST, Date of Government Version: 09/08/2020
Status: Completed - Case Closed
Status: 9 - Case Closed
Global Id: T0606501075
Global ID: T0606501075

Lower Elevation	Address	Direction / Distance	Map ID	Page
RVSD CO ROAD YARD TH	***87495 AIRPORT BLVD***	***S 0 - 1/8 (0.108 mi.)***	***1***	***9***

Database: LUST REG 7, Date of Government Version: 02/26/2004
Database: LUST, Date of Government Version: 09/08/2020
Database: RIVERSIDE CO. LUST, Date of Government Version: 10/06/2020
Status: Completed - Case Closed
Status: 9 - Case Closed
Facility Id: 88826
Global Id: T0606501079
Facility Status: 9
Global ID: T0606501079

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board’s Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
APPLE MARKET ONE Database: UST, Date of Government Version: 09/08/2020 Facility Id: 34	56491 HWY 111	S 1/8 - 1/4 (0.242 mi.)	D12	81
APPLE MARKET ONE Database: RIVERSIDE CO. UST, Date of Government Version: 10/06/2020 Database: UST, Date of Government Version: 09/08/2020	56491 US HIGHWAY 111	S 1/8 - 1/4 (0.242 mi.)	D13	81

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 07/20/2020 has revealed that there is 1 CERS HAZ WASTE site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
APPLE MARKET ONE	***56491 HIGHWAY 111***	***S 1/8 - 1/4 (0.242 mi.)***	***D9***	***31***

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GTE THERMAL Status: A Tank Status: A Comp Number: 67049	***56189 HIGHWAY 111***	***SSW 1/8 - 1/4 (0.216 mi.)***	***B5***	***20***
APPLE MARKET Status: A Tank Status: A Comp Number: 15	***56491 HIGHWAY 111***	***S 1/8 - 1/4 (0.242 mi.)***	***D11***	***79***

EXECUTIVE SUMMARY

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
C V ORGANIC FERTILIZ Facility Id: 00000009742	55-591 HIGHWAY 111	SW 1/8 - 1/4 (0.214 mi.)	4	18

CERS TANKS: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

A review of the CERS TANKS list, as provided by EDR, and dated 07/20/2020 has revealed that there is 1 CERS TANKS site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
APPLE MARKET ONE	***56491 HIGHWAY 111***	***S 1/8 - 1/4 (0.242 mi.)***	***D9***	***31***

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 2 CA FID UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GTE THERMAL Facility Id: 33002223 Status: A	***56189 HIGHWAY 111***	***SSW 1/8 - 1/4 (0.216 mi.)***	***B5***	***20***
APPLE MARKET Facility Id: 33006776 Status: A	***56491 HIGHWAY 111***	***S 1/8 - 1/4 (0.242 mi.)***	***D11***	***79***

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 12/14/2020 has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
THERMAL CA INDUSTRIA EPA ID:: CAP000244053	87500 AIRPORT BLVD	WSW 1/8 - 1/4 (0.126 mi.)	A3	15
APPLE MARKETS INC DB EPA ID:: CAL000288530	56491 HIGHWAY 111	S 1/8 - 1/4 (0.242 mi.)	D10	77

EXECUTIVE SUMMARY

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 06/22/2020 has revealed that there are 6 Cortese sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GTE THERMAL Cleanup Status: COMPLETED - CASE CLOSED	***56189 HIGHWAY 111***	***SSW 1/8 - 1/4 (0.216 mi.)***	***B5***	***20***
JOE'S TUNE UP Cleanup Status: COMPLETED - CASE CLOSED	***55951 HIGHWAY 111***	***SW 1/8 - 1/4 (0.236 mi.)***	***C7***	***23***
APPLE MARKET ONE Cleanup Status: COMPLETED - CASE CLOSED	***56491 HIGHWAY 111***	***S 1/8 - 1/4 (0.242 mi.)***	***D9***	***31***
COACHELLA VALLEY ORG Cleanup Status: COMPLETED - CASE CLOSED	***55591 HIGHWAY 111***	***W 1/4 - 1/2 (0.287 mi.)***	***E14***	***82***
CVUSD - BUS BARN Cleanup Status: COMPLETED - CASE CLOSED	***87-150 CHURCH ST***	***SSW 1/4 - 1/2 (0.424 mi.)***	***16***	***84***

Lower Elevation	Address	Direction / Distance	Map ID	Page
RVSD CO ROAD YARD TH Cleanup Status: COMPLETED - CASE CLOSED	***87495 AIRPORT BLVD***	***S 0 - 1/8 (0.108 mi.)***	***1***	***9***

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 4 HIST CORTESE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GTE - THERMAL Reg Id: 7T2274001	***56189 111***	***SSW 1/8 - 1/4 (0.216 mi.)***	***B6***	***21***
JOE'S TUNE UP Reg Id: 7T2274010	***55951 HIGHWAY 111***	***SW 1/8 - 1/4 (0.236 mi.)***	***C7***	***23***
COACHELLA VALLEY ORG Reg Id: 7T2274013	***55591 HIGHWAY 111***	***W 1/4 - 1/2 (0.287 mi.)***	***E15***	***83***

Lower Elevation	Address	Direction / Distance	Map ID	Page
RVSD CO ROAD YARD TH Reg Id: 7T2274007	***87495 AIRPORT BLVD***	***S 0 - 1/8 (0.108 mi.)***	***1***	***9***

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 12/07/2020 has revealed that there is 1

EXECUTIVE SUMMARY

Notify 65 site within approximately 1 mile of the target property.

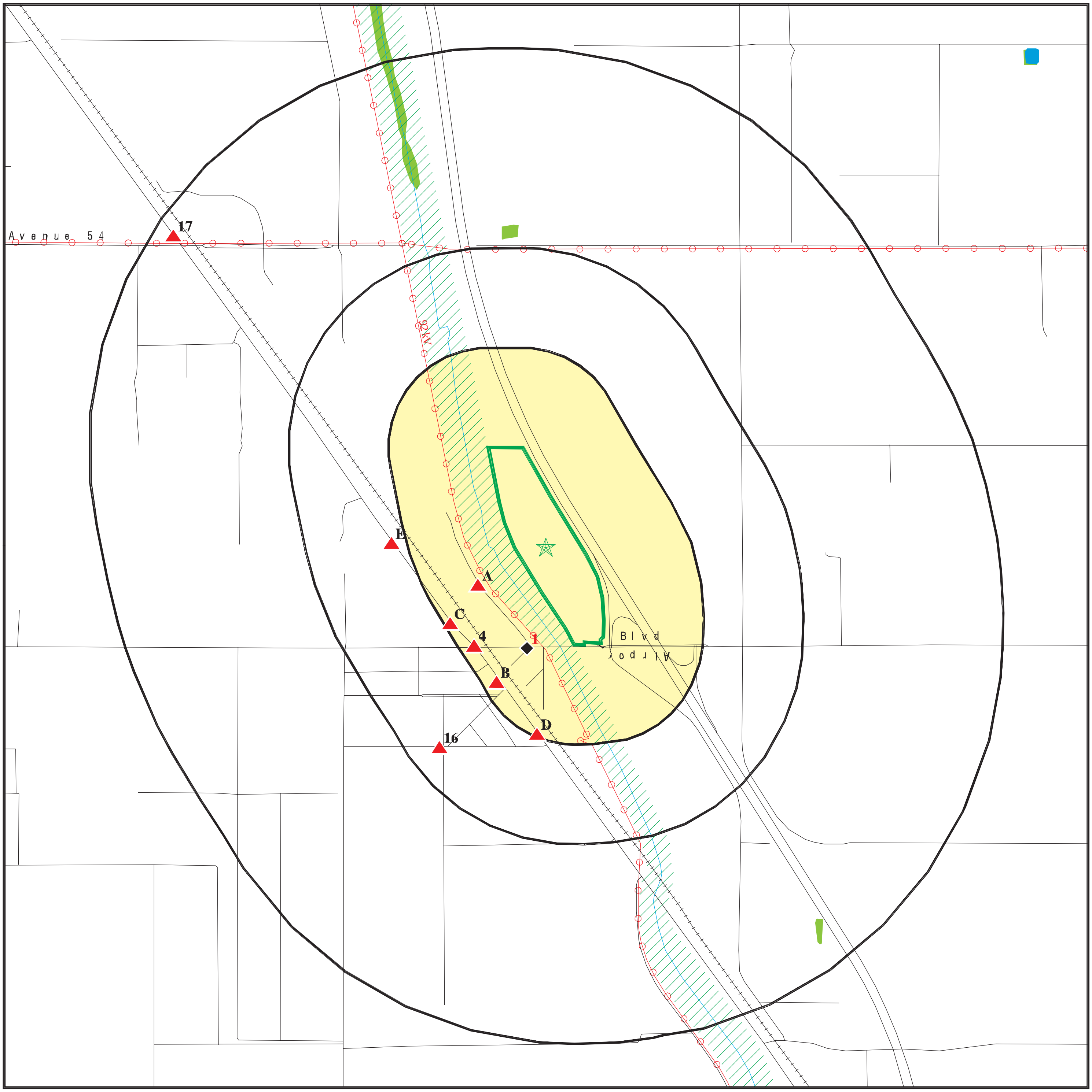
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RANCHO COACHELLA PRO	54000 HIGHWAY 111	NW 1/2 - 1 (0.952 mi.)	17	90

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 11 records.

Site Name	Database(s)
1X COACHELLA VALLEY U S D/COACHELL	HAZNET, HWTS
RIVERSIDE COUNTY OFFICE OF EDUCATI	HWTS
COACHELLA HORSE PARK	HAZNET, HWTS
CVUSD-H.S. BUS BARN /COACHELLA	RGA LUST
COACHELLA VALLEY USD TRANS	RGA LUST
COACHELLA VALLEY USD TRANS.	RGA LUST
COACHELLA VALLEY HIGH SCHOOL	HIST UST
COACHELLA HORSE PARK	RCRA NonGen / NLR
COACHELLA HORSE PARK	FINDS
COACHELLA VALLEY UNI SCH DIST	EMI
COACHELLA HORSE PARK	ECHO

OVERVIEW MAP - 6323743.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
National Priority List Sites
Dept. Defense Sites

0 1/4 1/2 1 Miles

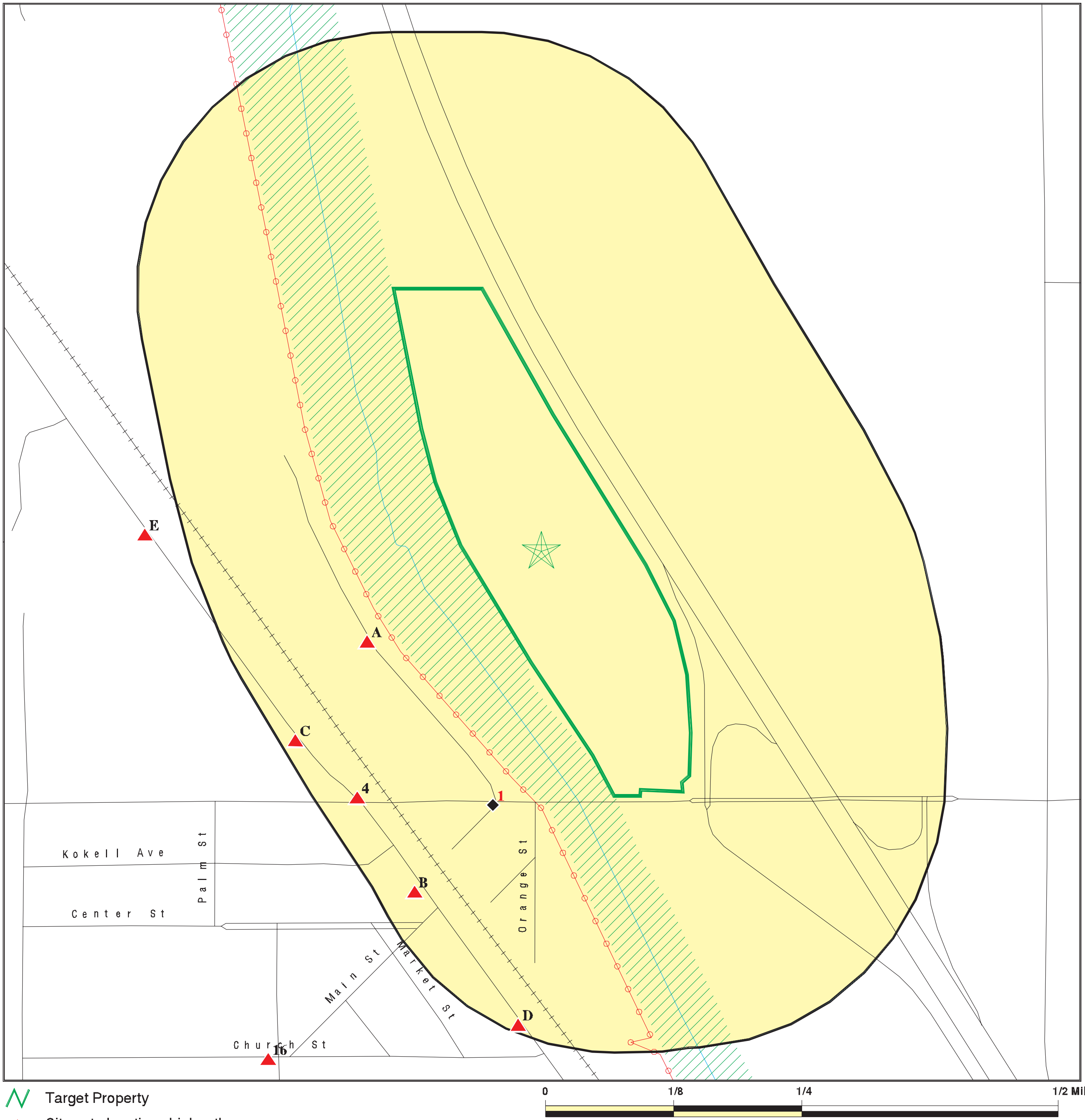
Indian Reservations BIA
Power transmission lines
Special Flood Hazard Area (1%)
0.2% Annual Chance Flood Hazard
National Wetland Inventory
State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Haagen Coachella	CLIENT: Altec Testing & Engineering
ADDRESS: 87630 Airport Road	CONTACT: Lynn Laborde
Thermal CA 92274	INQUIRY #: 6323743.2s
LAT/LONG: 33.645645 / 116.137741	DATE: January 07, 2021 4:35 pm

DETAIL MAP - 6323743.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Haagen Coachella ADDRESS: 87630 Airport Road Thermal CA 92274 LAT/LONG: 33.645645 / 116.137741	CLIENT: Altec Testing & Engineering CONTACT: Lynn Laborde INQUIRY #: 6323743.2s DATE: January 07, 2021 4:37 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	1	NR	NR	NR	1
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		1	5	3	NR	NR	9

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	2	NR	NR	NR	2
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0

ADDITIONAL ENVIRONMENTAL RECORDS

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	1	NR	NR	NR	1
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	2	NR	NR	NR	2
HIST UST	0.250		0	1	NR	NR	NR	1
CERS TANKS	0.250		0	1	NR	NR	NR	1
CA FID UST	0.250		0	2	NR	NR	NR	2
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	2	NR	NR	NR	2
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		1	3	2	NR	NR	6
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		1	2	1	NR	NR	4
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	1	NR	1
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	3	22	6	1	0	32

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 **South** **< 1/8** **0.108 mi.** **569 ft.**	**RVSD CO ROAD YARD THERMAL** **87495 AIRPORT BLVD** **THERMAL, CA 92274**	**LUST** **Cortese** **HIST CORTESE** **CERS**	**S101300632** **N/A**

Relative:
Lower

Actual:
-121 ft.

LUST REG 7:

Region:	7
Status:	9 - Case Closed
Case Num:	7T2274007
Substance:	Gasoline - Automotive
ID:	1107
Global ID:	T0606501079
Lead Agency:	Local Agency
Case Worker:	KO

RIVERSIDE CO. LUST:

Name:	RVSD CO ROAD YARD THERMAL
Address:	87495 AIRPORT BLVD
City,State,Zip:	THERMAL, CA
Region:	RIVERSIDE
Facility ID:	88826
Employee:	Shurlow-LOP
Site Closed:	Yes
Case Type:	Other ground water affected
Facility Status:	closed/action completed
Casetype Decode:	Other Ground Water. Any other actual or potential use other than Drinking water or not beneficial use.
Fstatus Decode:	Closed/Action completed

LUST:

Name:	RVSD CO ROAD YARD THERMAL
Address:	87495 AIRPORT BLVD
City,State,Zip:	THERMAL, CA 92274
Lead Agency:	RIVERSIDE COUNTY LOP
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606501079
Global Id:	T0606501079
Latitude:	33.6415200712671
Longitude:	-116.138212303809
Status:	Completed - Case Closed
Status Date:	12/03/1997
Case Worker:	RIV
RB Case Number:	7T2274007
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Local Agency Warehouse
Local Case Number:	88826
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

LUST:

Global Id:	T0606501079
Contact Type:	Regional Board Caseworker
Contact Name:	Phan Le
Organization Name:	COLORADO RIVER BASIN RWQCB (REGION 7)
Address:	73720 FRED WARING DRIVE SUITE #100
City:	PALM DESERT
Email:	phan.le@waterboards.ca.gov
Phone Number:	7607768974

RVSD CO ROAD YARD THERMAL (Continued) **S101300632**

Global Id:	T0606501079
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

LUST:

Global Id:	T0606501079
Action Type:	ENFORCEMENT
Date:	12/31/1997
Action:	Closure/No Further Action Letter - #Site Closure
Global Id:	T0606501079
Action Type:	Other
Date:	11/08/1988
Action:	Leak Reported
Global Id:	T0606501079
Action Type:	ENFORCEMENT
Date:	12/30/1997
Action:	File review - #RCDEH Upload Site File 10/28/2015
Global Id:	T0606501079
Action Type:	Other
Date:	11/18/1988
Action:	Leak Discovery
Global Id:	T0606501079
Action Type:	Other
Date:	10/18/1988
Action:	Leak Stopped

LUST:

Global Id:	T0606501079
Status:	Open - Case Begin Date
Status Date:	10/18/1988
Global Id:	T0606501079
Status:	Open - Site Assessment
Status Date:	11/08/1988
Global Id:	T0606501079
Status:	Open - Site Assessment
Status Date:	06/30/1989
Global Id:	T0606501079
Status:	Open - Site Assessment
Status Date:	07/21/1989
Global Id:	T0606501079
Status:	Open - Site Assessment
Status Date:	05/10/1990

RVSD CO ROAD YARD THERMAL (Continued) **S101300632**

Global Id:	T0606501079
Status:	Open - Remediation
Status Date:	12/12/1991
Global Id:	T0606501079
Status:	Open - Verification Monitoring
Status Date:	10/18/1995
Global Id:	T0606501079
Status:	Completed - Case Closed
Status Date:	12/03/1997

CORTESE:

Name:	RVSD CO ROAD YARD THERMAL
Address:	87495 AIRPORT BLVD
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606501079
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

HIST CORTESE:

edr_fname:	RIV CO ROAD YARD
edr_fadd1:	87495 AIRPORT
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	7T2274007

CERS:

Name:	RVSD CO ROAD YARD THERMAL
Address:	87495 AIRPORT BLVD
City,State,Zip:	THERMAL, CA 92274
Site ID:	245312
CERS ID:	T0606501079
CERS Description:	Leaking Underground Storage Tank Cleanup Site

RVSD CO ROAD YARD THERMAL (Continued) **S101300632**

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	Phan Le - COLORADO RIVER BASIN RWQCB (REGION 7)
Entity Title:	Not reported
Affiliation Address:	73720 FRED WARING DRIVE SUITE #100
Affiliation City:	PALM DESERT
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	7607768974

A2
WSW
1/8-1/4
0.126 mi.
667 ft.

CALIFORNIA REDIDATE L L C
87500 AVE 56
THERMAL, CA 92274

RCRA-SQG **1001967605**
FINDS **CAR000071035**
ECHO

Site 1 of 2 in cluster A

Relative:
Higher

Actual:
-116 ft.

RCRA-SQG:

Date Form Received by Agency:	2000-04-19 00:00:00.0
Handler Name:	CALIFORNIA REDIDATE L L C
Handler Address:	87500 AVE 56
Handler City,State,Zip:	THERMAL, CA 92274
EPA ID:	CAR000071035
Contact Name:	JACK STUTZ
Contact Address:	P O BOX 728
Contact City,State,Zip:	THERMAL, CA 92274
Contact Telephone:	760-399-5026
Contact Fax:	Not reported
Contact Email:	Not reported
Contact Title:	Not reported
EPA Region:	09
Land Type:	Private
Federal Waste Generator Description:	Small Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	P O BOX 728
Mailing City,State,Zip:	THERMAL, CA 92274
Owner Name:	CALIFORNIA REDI DATE L L C
Owner Type:	Private
Operator Name:	Not reported
Operator Type:	Not reported
Short-Term Generator Activity:	No

CALIFORNIA REDIDATE L L C (Continued) **1001967605**

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2002-10-07 16:36:52.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	Not reported

CALIFORNIA REDIDATE L L C (Continued) **1001967605**

Hazardous Waste Summary:
Waste Code: D000
Waste Description: Not Defined

Waste Code: D039
Waste Description: TETRACHLOROETHYLENE

Handler - Owner Operator:
Owner/Operator Indicator: Owner
Owner/Operator Name: CALIFORNIA REDI DATE L L C
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: P O BOX 728
Owner/Operator City,State,Zip: THERMAL, CA 92274
Owner/Operator Telephone: 760-399-5026
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 2000-04-19 00:00:00.0
Handler Name: CALIFORNIA REDIDATE L L C
Federal Waste Generator Description: Small Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Codes: No NAICS Codes Found

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110002935655

Click Here:

Environmental Interest/Information System:
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

CALIFORNIA REDIDATE L L C (Continued) **1001967605**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001967605
Registry ID:	110002935655
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110002935655
Name:	CALIFORNIA REDIDATE L L C
Address:	87500 AVE 56
City,State,Zip:	THERMAL, CA 92274

A3
WSW
1/8-1/4
0.126 mi.
667 ft.

THERMAL CA INDUSTRIAL
87500 AIRPORT BLVD
THERMAL, CA 92274

Site 2 of 2 in cluster A

RCRA NonGen / NLR **1025881548** **CAP000244053**

Relative: **Higher**
Actual: **-116 ft.**

RCRA NonGen / NLR:

Date Form Received by Agency:	2014-05-25 00:00:00.0
Handler Name:	THERMAL CA INDUSTRIAL
Handler Address:	87500 AIRPORT BLVD
Handler City,State,Zip:	THERMAL, CA 92274
EPA ID:	CAP000244053
Contact Name:	TODD CANSLER
Contact Address:	7195 DALLAS PKWY
Contact City,State,Zip:	PLANO, TX 75024
Contact Telephone:	469-467-5558
Contact Fax:	Not reported
Contact Email:	TCANSLER@CLMGCORP.COM
Contact Title:	COMMERCIAL REO ASSET MGR
EPA Region:	09
Land Type:	Private
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	7195 DALLAS PKWY
Mailing City,State,Zip:	PLANO, TX 75024
Owner Name:	CXA 16 CORP
Owner Type:	Private
Operator Name:	CXA 16 CORPORATION
Operator Type:	Private
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No

THERMAL CA INDUSTRIAL (Continued) **1025881548**

Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2014-06-03 17:39:00.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Hazardous Waste Summary:

Waste Code:	D001
Waste Description:	IGNITABLE WASTE
Waste Code:	D002
Waste Description:	CORROSIVE WASTE

THERMAL CA INDUSTRIAL (Continued) **1025881548**

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	CXA 16 CORPORATION
Legal Status:	Private
Date Became Current:	2013-03-01 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	Not reported
Owner/Operator City,State,Zip:	Not reported
Owner/Operator Telephone:	Not reported
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CXA 16 CORP
Legal Status:	Private
Date Became Current:	2013-03-01 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	6000 LEGACY DR
Owner/Operator City,State,Zip:	PLANO, TX 75024
Owner/Operator Telephone:	469-467-5558
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	CXA 16 CORPORATION
Legal Status:	Private
Date Became Current:	2013-03-01 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	Not reported
Owner/Operator City,State,Zip:	Not reported
Owner/Operator Telephone:	Not reported
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CXA 16 CORP
Legal Status:	Private
Date Became Current:	2013-03-01 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	6000 LEGACY DR
Owner/Operator City,State,Zip:	PLANO, TX 75024
Owner/Operator Telephone:	469-467-5558
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2014-05-25 00:00:00.0
Handler Name: THERMAL CA INDUSTRIAL	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No

THERMAL CA INDUSTRIAL (Continued) **1025881548**

Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported
Receive Date:	2014-02-19 00:00:00.0
Handler Name:	THERMAL CA INDUSTRIAL
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	115114
NAICS Description:	POSTHARVEST CROP ACTIVITIES (EXCEPT COTTON GINNING)

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

4
SW
1/8-1/4
0.214 mi.
1130 ft.

C V ORGANIC FERTILIZERS CO
55-591 HIGHWAY 111
THERMAL, CA 92274

HIST UST **U001574192**
N/A

Relative:
Higher

Actual:
-116 ft.

HIST UST:

Name:	C V ORGANIC FERTILIZERS CO
Address:	55-591 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
File Number:	0001F55A
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F55A.pdf
Region:	STATE
Facility ID:	00000009742
Facility Type:	Other
Other Type:	FERTILIZER SUPPLIER
Contact Name:	R. JACK BURKETT
Telephone:	6193995123
Owner Name:	COACHELLA VALLEY ORGANIC FERTI
Owner Address:	55-591 HIGHWAY 111
Owner City,St,Zip:	THERMAL, CA 92274
Total Tanks:	0003
Tank Num:	001
Container Num:	ONE

C V ORGANIC FERTILIZERS CO (Continued) **U001574192**

Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	001
Container Num:	ONE
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	TWO
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	None
Tank Num:	002
Container Num:	TWO
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	None
Tank Num:	003
Container Num:	THREE
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	THREE
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

B5 SSW 1/8-1/4 0.216 mi. 1138 ft.	**GTE THERMAL 56189 HIGHWAY 111 THERMAL, CA 92274** **Site 1 of 2 in cluster B**	**LUST SWEEPS UST CA FID UST Cortese**	**S101590002 N/A**

Relative: **Higher**
Actual: **-116 ft.**

LUST REG 7:

Region:	7
Status:	9 - Case Closed
Case Num:	7T2274001
Substance:	Diesel fuel oil and additives
ID:	814
Global ID:	T0606501074
Lead Agency:	Regional Board
Case Worker:	KO

SWEEPS UST:

Name:	GTE THERMAL C O
Address:	56189 HIGHWAY 111
City:	THERMAL
Status:	Active
Comp Number:	67049
Number:	1
Board Of Equalization:	44-018497
Referral Date:	10-29-92
Action Date:	10-29-92
Created Date:	02-16-89
Owner Tank Id:	000549
SWRCB Tank Id:	33-000-067049-000001
Tank Status:	A
Capacity:	1000
Active Date:	10-29-92
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	1

CA FID UST:

Facility ID:	33002223
Regulated By:	UTNKA
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	7146276261
Mail To:	Not reported
Mailing Address:	P O BOX 725 RC1603
Mailing Address 2:	Not reported
Mailing City,St,Zip:	THERMAL 92274
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

CORTESE:

Name:	GTE THERMAL

GTE THERMAL (Continued) **S101590002**

Address:	56189 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606501074
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

B6
SSW
1/8-1/4
0.216 mi.
1138 ft.

GTE - THERMAL
56189 111
THERMAL, CA 92274

LUST
HIST CORTESE
CERS

S105027064
N/A

Site 2 of 2 in cluster B

Relative:
Higher

Actual:
-116 ft.

LUST:

Name:	GTE THERMAL
Address:	56189 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Lead Agency:	COLORADO RIVER BASIN RWQCB (REGION 7)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606501074
Global Id:	T0606501074
Latitude:	33.6405165
Longitude:	-116.1393894
Status:	Completed - Case Closed
Status Date:	09/16/1988
Case Worker:	PL
RB Case Number:	7T2274001
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Not reported
Local Case Number:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

LUST:

Global Id:	T0606501074
Contact Type:	Regional Board Caseworker
Contact Name:	Phan Le
Organization Name:	COLORADO RIVER BASIN RWQCB (REGION 7)
Address:	73720 FRED WARING DRIVE SUITE #100
City:	PALM DESERT

GTE - THERMAL (Continued) **S105027064**

Email:	phan.le@waterboards.ca.gov
Phone Number:	7607768974
Global Id:	T0606501074
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

LUST:

Global Id:	T0606501074
Action Type:	Other
Date:	10/08/1987
Action:	Leak Reported
Global Id:	T0606501074
Action Type:	Other
Date:	10/01/1987
Action:	Leak Discovery
Global Id:	T0606501074
Action Type:	Other
Date:	10/01/1987
Action:	Leak Stopped

LUST:

Global Id:	T0606501074
Status:	Open - Case Begin Date
Status Date:	10/01/1987
Global Id:	T0606501074
Status:	Completed - Case Closed
Status Date:	09/16/1988

HIST CORTESE:

edr_fname:	GTE - THERMAL
edr_fadd1:	56189 111
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	7T2274001

CERS:

Name:	GTE THERMAL
Address:	56189 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Site ID:	199695
CERS ID:	T0606501074
CERS Description:	Leaking Underground Storage Tank Cleanup Site

GTE - THERMAL (Continued) **S105027064**

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980
Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	Phan Le - COLORADO RIVER BASIN RWQCB (REGION 7)
Entity Title:	Not reported
Affiliation Address:	73720 FRED WARING DRIVE SUITE #100
Affiliation City:	PALM DESERT
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	7607768974

C7 **JOE'S TUNE UP** **LUST** **S101300638**
SW **55951 HIGHWAY 111** **Cortese** **N/A**
1/8-1/4 **THERMAL, CA 92274** **HIST CORTESE**
0.236 mi.
1245 ft. **Site 1 of 2 in cluster C**

Relative:
Higher

Actual:
-116 ft.

RIVERSIDE CO. LUST:

Name:	JOE'S TUNE UP
Address:	55951 HWY 111
City,State,Zip:	THERMAL, CA
Region:	RIVERSIDE
Facility ID:	89619
Employee:	Shurlow-LOP
Site Closed:	Referred to Water Board
Case Type:	Other ground water affected
Facility Status:	0
Casetype Decode:	Other Ground Water. Any other actual or potential use other than Drinking water or not beneficial use.
Fstatus Decode:	Not reported

LUST:

Name:	JOE'S TUNE UP
Address:	55951 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Lead Agency:	COLORADO RIVER BASIN RWQCB (REGION 7)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606501080
Global Id:	T0606501080
Latitude:	33.6426583333333
Longitude:	-116.142436333333
Status:	Completed - Case Closed
Status Date:	06/17/2014
Case Worker:	RF
RB Case Number:	7T2274010
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Regional Board

JOE'S TUNE UP (Continued) **S101300638**

Local Case Number:	89619
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	In 5/1989 two 10,000 gallon gasoline underground storage tanks (UST) and one 6,000 gasoline UST were removed from the site. During the excavation soil and water samples were collected from beneath the tank locations. Results of this sampling indicated soil and groundwater contamination above regulatory limits. Soil and ground water was remediated using air sparge and/or soil vapor extraction from 2/2013 - 05/2014. Borings were advanced to confirm cleanup. The case was close 06/17/2014. The source area of petroleum hydrocarbons appears to be adequately remediated. There appears to be low likelihood that the presence of residual petroleum hydrocarbons in the subsurface will further impact groundwater beneath the site. It is likely that the residual petroleum hydrocarbons in soil beneath the site will decrease by natural attenuation. The results of groundwater monitoring and sampling demonstrates that petroleum hydrocarbons in groundwater have been reduced to concentrations that mostly meet SWRCB low threat cleanup, water quality objectives. The remaining plume of petroleum hydrocarbons in the groundwater is neither expanding , nor migrating and is considered stable. The site is going to be the location of a railway overpass. No buildings are planned to be constructed at the site now or in the future. A risk management plan is to be in place for construction/utility work.

LUST:

Global Id:	T0606501080
Contact Type:	Regional Board Caseworker
Contact Name:	ROSALYN FLEMING
Organization Name:	COLORADO RIVER BASIN RWQCB (REGION 7)
Address:	73-720 Fred Waring Drive
City:	PALM DESERT
Email:	rosalyn.fleming@waterboards.ca.gov
Phone Number:	7607768948
Global Id:	T0606501080
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

LUST:

Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	08/26/2008
Action:	File review
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	04/11/2012
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE

JOE'S TUNE UP (Continued) **S101300638**

Date:	06/14/2012
Action:	Soil and Water Investigation Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	07/30/2012
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	09/09/2008
Action:	Staff Letter
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	08/28/2008
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0606501080
Action Type:	Other
Date:	05/29/1989
Action:	Leak Reported
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	09/12/2012
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	01/15/2013
Action:	Monitoring Report - Quarterly
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	04/15/2013
Action:	Monitoring Report - Quarterly
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	04/15/2013
Action:	Remedial Progress Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	07/15/2013
Action:	Monitoring Report - Semi-Annually
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	02/28/2013
Action:	Soil and Water Investigation Report
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	10/09/2003
Action:	Technical Correspondence / Assistance / Other

JOE'S TUNE UP (Continued) **S101300638**

Global Id: T0606501080
Action Type: ENFORCEMENT
Date: 08/04/2009
Action: Staff Letter

Global Id: T0606501080
Action Type: ENFORCEMENT
Date: 03/28/2011
Action: File review - #RCDEH uploaded site files 6/4/2015

Global Id: T0606501080
Action Type: RESPONSE
Date: 09/04/2009
Action: Monitoring Report - Quarterly

Global Id: T0606501080
Action Type: RESPONSE
Date: 10/15/2013
Action: Monitoring Report - Quarterly

Global Id: T0606501080
Action Type: RESPONSE
Date: 07/15/2013
Action: Monitoring Report - Quarterly

Global Id: T0606501080
Action Type: ENFORCEMENT
Date: 06/17/2014
Action: Closure/No Further Action Letter

Global Id: T0606501080
Action Type: RESPONSE
Date: 09/15/2008
Action: Verbal Communication

Global Id: T0606501080
Action Type: RESPONSE
Date: 07/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606501080
Action Type: RESPONSE
Date: 01/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606501080
Action Type: RESPONSE
Date: 09/21/2009
Action: Soil and Water Investigation Workplan

Global Id: T0606501080
Action Type: RESPONSE
Date: 04/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606501080
Action Type: ENFORCEMENT

JOE'S TUNE UP (Continued) **S101300638**

Date:	02/23/2006
Action:	File review
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	03/09/2006
Action:	File review
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	03/16/2006
Action:	File review
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	02/17/2011
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	02/17/2011
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0606501080
Action Type:	Other
Date:	05/16/1989
Action:	Leak Discovery
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	12/22/2010
Action:	Soil and Water Investigation Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	12/09/2010
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	11/15/2010
Action:	Monitoring Report - Quarterly
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	01/31/2011
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	02/01/2011
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	01/15/2011
Action:	Monitoring Report - Quarterly

JOE'S TUNE UP (Continued) **S101300638**

Global Id:	T0606501080
Action Type:	RESPONSE
Date:	02/04/2011
Action:	Soil and Water Investigation Workplan - Regulator Responded
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	02/04/2011
Action:	Other Report / Document - Regulator Responded
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	04/02/2011
Action:	Well Installation Report - Regulator Responded
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	01/06/2014
Action:	Other Workplan - Regulator Responded
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	03/05/2014
Action:	Site Investigation Workplan - Regulator Responded
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	05/19/2014
Action:	Request for Closure - Regulator Responded
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	03/28/2011
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	04/15/2011
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	03/15/2012
Action:	Staff Letter
Global Id:	T0606501080
Action Type:	ENFORCEMENT
Date:	10/15/2012
Action:	Staff Letter
Global Id:	T0606501080
Action Type:	Other
Date:	05/16/1989
Action:	Leak Stopped
Global Id:	T0606501080
Action Type:	RESPONSE

JOE'S TUNE UP (Continued) **S101300638**

Date:	01/15/2012
Action:	Monitoring Report - Quarterly
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	11/15/2011
Action:	Monitoring Report - Quarterly
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	12/22/2011
Action:	Soil and Water Investigation Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	02/09/2012
Action:	Soil and Water Investigation Workplan
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	02/09/2012
Action:	Well Installation Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	12/23/2011
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	01/03/2012
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	01/20/2012
Action:	Other Report / Document
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	10/15/2011
Action:	Monitoring Report - Other
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	12/23/2011
Action:	CAP/RAP - Other Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	12/30/2011
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	04/25/2012
Action:	CAP/RAP - Other Report

JOE'S TUNE UP (Continued) **S101300638**

Global Id:	T0606501080
Action Type:	RESPONSE
Date:	04/15/2012
Action:	Monitoring Report - Quarterly
Global Id:	T0606501080
Action Type:	RESPONSE
Date:	06/14/2012
Action:	Well Installation Report

LUST:

Global Id:	T0606501080
Status:	Open - Case Begin Date
Status Date:	05/16/1989
Global Id:	T0606501080
Status:	Open - Site Assessment
Status Date:	05/29/1989
Global Id:	T0606501080
Status:	Open - Site Assessment
Status Date:	08/22/1989
Global Id:	T0606501080
Status:	Open - Site Assessment
Status Date:	10/25/1989
Global Id:	T0606501080
Status:	Open - Site Assessment
Status Date:	04/14/1994
Global Id:	T0606501080
Status:	Open - Site Assessment
Status Date:	03/20/2009
Global Id:	T0606501080
Status:	Open - Site Assessment
Status Date:	04/02/2009
Global Id:	T0606501080
Status:	Completed - Case Closed
Status Date:	06/17/2014

CORTESE:

Name:	JOE'S TUNE UP
Address:	55951 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606501080
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported

JOE'S TUNE UP (Continued) **S101300638**

Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

HIST CORTESE:

edr_fname:	JOE'S TUNE UP
edr_fadd1:	55951 111
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	7T2274010

C8 **OE S TUNE UP** **LUST** **S106152931**
SW **55951 HIGHWAY 111** **N/A**
1/8-1/4 **THERMAL, CA**
0.236 mi.
1245 ft. **Site 2 of 2 in cluster C**

Relative:
Higher
Actual:
-116 ft.

LUST REG 7:

Region:	7
Status:	5C - Pollution Characterization
Case Num:	7T2274010
Substance:	Gasoline - Automotive
ID:	870
Global ID:	T0606501080
Lead Agency:	Local Agency
Case Worker:	YO

D9 **APPLE MARKET ONE** **LUST** **S103618799**
South **56491 HIGHWAY 111** **CERS HAZ WASTE** **N/A**
1/8-1/4 **THERMAL, CA 92274** **CERS TANKS**
0.242 mi. **Cortese**
1277 ft. **Site 1 of 5 in cluster D** **CERS**

Relative:
Higher
Actual:
-120 ft.

LUST REG 7:

Region:	7
Status:	5C - Pollution Characterization
Case Num:	7T2274019
Substance:	Gasoline - Automotive
ID:	411
Global ID:	T0606501089
Lead Agency:	Local Agency
Case Worker:	YO

APPLE MARKET ONE (Continued) **S103618799**

RIVERSIDE CO. LUST:

Name:	APPLE MARKET ONE
Address:	56491 HWY 111
City,State,Zip:	THERMAL, CA
Region:	RIVERSIDE
Facility ID:	9814706
Employee:	Shurlow-LOP
Site Closed:	Referred to Water Board
Case Type:	Other ground water affected
Facility Status:	closed/action completed
Casetype Decode:	Other Ground Water. Any other actual or potential use other than Drinking water or not beneficial use.
Fstatus Decode:	Closed/Action completed

LUST:

Name:	APPLE MARKET ONE
Address:	56491 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Lead Agency:	COLORADO RIVER BASIN RWQCB (REGION 7)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606501089
Global Id:	T0606501089
Latitude:	33.638582291
Longitude:	-116.138046027
Status:	Completed - Case Closed
Status Date:	06/11/2018
Case Worker:	PL
RB Case Number:	7T2274019
Local Agency:	Not reported
File Location:	Local Agency
Local Case Number:	Not reported
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	***Data prior to 2005 does not appear in GeoTracker. Consult agency file for all site data*** On October 20, 2998 2 gasoline tanks were removed. TPHg ranged from ND to 3000 ppm. MTBE ranged from ND to 8,400 ppb. 3 wells installed March 18, 2003 and sampled April 10, 2003. Groundwater at 10. MW-1 had highest TPHg in soil at 940 ppm at 10, 12 ppm benzene, and 7.1 ppm MTBE. Wells sampled 4/9/03. Well 1 had 69 ppm TPHg, 15 ppm benzene, 8.9 ppm TBA and 33 ppm MTBE. Well 2 had 12 ppm TPHg, 0.49 ppm benzene, 1.1 ppm TBA and 4 ppm MTBE. Well 3 had 5.5 ppm TPHg, 0.23 ppm TBA and 1 ppm MTBE. Well MW-3 had up to 0.77free product starting in December 2003 until September 2007. Well 1 had free up to 0.64 product from June 2006 until September 2007. A skimmer was installed in each well in April 2004 and changed quarterly or as needed until free product was no longer detected. On May 31 through June 2, 2011, soil borings MW-4 through MW9, VE1 through VE3 and AS1 and AS2 were drilled to depths ranging from 14.5 to 24.5. Soil samples were taken every 5 of the monitoring and vapor extraction wells. Groundwater was encountered between 15 and 20. Soil samples were taken every 5 from 5 to 15 and then continuously to the bottom of the air sparge wells. The monitoring wells were screened from 5 to 25, the vapor wells were screened from 3 to 13 and the air sparge wells were screened from 17 to 22. TPHg was detected in the soil of all the vapor and air sparge wells, ranging from 9.6 to 1200 ppm. BTEX was detected in the vapor and air sparge wells with the majority of the concentrations between 5 and 15. MTBE was detected up

APPLE MARKET ONE (Continued) **S103618799**

to 2.1 ppm. A vapor extraction test was conducted October 26, 2011. The ROI for determined to be between 55 and 75. TPHg and BTEX increased throughout the test. SVE was determined to be feasible. 2-two step air sparge tests were conducted May 5 and 6, 2012. The pressure zone of influence was estimated to be 25 feet. The air sparge zone on influence is ~51 feet. Base on the test results, air sparge combined with soil vapor extraction was recommended. Additional air sparge wells with a maximum spacing of 30 feet are recommended. A CAP written in December 2012 recommended SVE and air sparge. On September 23 and 24, 2013, groundwater monitoring wells MW10 and MW11, vapor well VE4, and air sparge wells AS3 through AS5 were drilled. MW10 and MW11 were drilled to 25 and screened from 5 to 25 bg. VE4 was drilled to 13 and screened from 4 to 13 bg. AS3 through AS5 were drilled to 25 and screened from 20 to 25 bg. Groundwater was encountered at 15 bgs. Soil samples from VE4 and AS3 through AS5 were taken every 5 and analyzed. VE4 had 14 ppm TPHg, 0.013 ppm benzene, 0.043 ppm toluene, 0.1 ppm ethylbenzene and 0.73 ppm xylenes at 10 bgs. Up to 230 TPHg, 0.17 benzene, 2.8 ppm toluene, 4.6 ppm ethylbenzene, and 24 ppm xylenes were detected in the air sparge wells with the highest of all the constituents at 10 in AS5. On December 2, 2014, VES was started using all four extraction wells and monitoring wells MW1, MW2 and MW3. Influent SVE TPHg vapor samples ranged from 340 to 1100 ppmV. Benzene ranged from 4.2 to 4.4 ppmV. MTBE ranged from 4.2 to 5.3 ppmV. TBA ranged from 14 to 19 ppmV. MW3 had the highest vapor levels with 1800 ppmV TPHg, 5.6 ppmV benzene, 56 ppmV toluene, 32 ppmV ethylbenzene, 160 ppmV xylenes, 8.3 ppmV MTBE and 56 ppmV TBA. The system was operated until December 2, 2015 when TPHg vapor samples ranged from <5 to 100 ppmV. Benzene ranged from <0.005 to 0.29 ppmV. MTBE was <0.01 ppmV. TBA ranged from <0.1 to 0.054 ppmV. The SVE systems was shut down October 2, 2015. All individual wells were <5 ppmV for TPHg except for VE1 which had 27 ppmV and MW2 which had 100 ppmV. Only 2 well had benzene at 0.013, and 0.29 ppmV. No MTBE was detected in the individual wells. TBA was detected in 2 wells at 0.028 and 0.054 ppmV. A total of 2259 lbs of hydrocarbons were removed. On December 30, 2014, the AS system was started using all five air sparge wells and operated until December 2, 2015. Rebound testing was completed between March 14 and 25, 2016. Total influent TPHg went from 17 ppmV before the rebound testing to <5ppmV up to 19 ppmV and ended at <5 ppmV. Benzene went from 0.04 ppmV before the rebound testing to <0.005 then to 0.03 and ended at <0.005 ppmV. MTBE went from <0.01 before the rebound testing to <0.005, up to 0.0082 and ended at 0.0054 ppmV. None of the individual wells had any rebound. On August 31, 2016, confirmation soil borings PR1 through PR4 were advanced to depths ranging from approximately 15 feet to 20 feet bgs. Soil samples were collected in borings PR1 through PR3 at five foot depth intervals from approximately 5 feet bgs to 15 feet bgs. Boring PR4 was advanced without sampling to a final depth of 20 feet bgs where a grab water sample was taken. TPPH was detected in soil sampled in borings PR1 and PR3 at 10 at 0.63 and 71 ppm. TBA was detected in soil samples from PR1, PR2 and PR3 at 15 at 0.26, 0.16 and 5.6 ppm. No other VOCs were detected. MTBE was detected in the groundwater of PR4 at 1.9 ppb. No other hydrocarbons were detected.

LUST:

Global Id:	T0606501089
Contact Type:	Regional Board Caseworker
Contact Name:	Phan Le

APPLE MARKET ONE (Continued) **S103618799**

Organization Name: COLORADO RIVER BASIN RWQCB (REGION 7)
Address: 73720 FRED WARING DRIVE SUITE #100
City: PALM DESERT
Email: phan.le@waterboards.ca.gov
Phone Number: 7607768974

LUST:

Global Id: T0606501089
Action Type: ENFORCEMENT
Date: 09/02/2008
Action: Staff Letter

Global Id: T0606501089
Action Type: ENFORCEMENT
Date: 08/19/2008
Action: File review

Global Id: T0606501089
Action Type: ENFORCEMENT
Date: 12/06/2012
Action: Staff Letter - #RCDEH 120612

Global Id: T0606501089
Action Type: RESPONSE
Date: 10/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0606501089
Action Type: RESPONSE
Date: 04/30/2005
Action: Monitoring Report - Quarterly

Global Id: T0606501089
Action Type: RESPONSE
Date: 09/27/2012
Action: CAP/RAP - Other Report

Global Id: T0606501089
Action Type: RESPONSE
Date: 04/15/2012
Action: Monitoring Report - Annually

Global Id: T0606501089
Action Type: ENFORCEMENT
Date: 02/05/2009
Action: File review

Global Id: T0606501089
Action Type: ENFORCEMENT
Date: 02/26/2016
Action: File review - #RCDEH File

Global Id: T0606501089
Action Type: ENFORCEMENT
Date: 11/03/2017
Action: Staff Letter

APPLE MARKET ONE (Continued) **S103618799**

Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	02/06/2018
Action:	Staff Letter
Global Id:	T0606501089
Action Type:	Other
Date:	11/12/1998
Action:	Leak Reported
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2012
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	04/28/2006
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	11/03/2008
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	06/05/2009
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	12/04/2017
Action:	Notification - Public Notice of Case Closure
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	07/01/2017
Action:	Referral to Regional Board - #RCDEH referral letters
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	06/27/2013
Action:	Well Installation Report
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	04/15/2013
Action:	Monitoring Report - Annually
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/03/2013
Action:	Remedial Progress Report
Global Id:	T0606501089
Action Type:	RESPONSE

APPLE MARKET ONE (Continued) **S103618799**

Date:	07/15/2014
Action:	Monitoring Report - Other
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	07/29/2003
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	10/05/2009
Action:	Technical Correspondence / Assistance / Other - #Riv Co 100509
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	07/30/2009
Action:	Staff Letter - #RCDEH072909
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2013
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	01/09/2009
Action:	Staff Letter - #RCDEH 010910
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/17/2008
Action:	Interim Remedial Action Plan
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	03/19/2009
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	07/15/2015
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	04/15/2015
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2014
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	02/22/2007
Action:	Staff Letter - #022207

APPLE MARKET ONE (Continued) **S103618799**

Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	08/12/2005
Action:	File review - #08417-02
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	11/28/2016
Action:	Clean Up Fund - Case Closure Review Summary Report (RSR)
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2009
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	05/15/2010
Action:	Monitoring Report - Annually
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	07/15/2010
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2010
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/15/2015
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/15/2015
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	06/23/2005
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	01/18/2006
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	12/29/2005
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT

APPLE MARKET ONE (Continued) **S103618799**

Date:	04/19/2006
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	06/23/2011
Action:	Clean Up Fund - Case Closure Review Summary Report (RSR)
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	04/29/2010
Action:	Clean Up Fund - Case Closure Review Summary Report (RSR)
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	03/29/2016
Action:	Remedial Progress Report
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2015
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/15/2015
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	04/15/2017
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	03/30/2018
Action:	Well Destruction Report
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	06/07/2007
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	07/31/2007
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	10/31/2007
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	07/25/2007
Action:	Staff Letter - #072507

APPLE MARKET ONE (Continued) **S103618799**

Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	10/20/2010
Action:	Staff Letter - #RCDEH 102010
Global Id:	T0606501089
Action Type:	Other
Date:	11/12/1998
Action:	Leak Discovery
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	12/22/2010
Action:	Well Installation Report
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2016
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2012
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/31/2013
Action:	CAP/RAP - Feasibility Study Report - Regulator Responded
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/31/2013
Action:	Soil and Water Investigation Workplan - Regulator Responded
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	04/15/2014
Action:	Monitoring Report - Quarterly - Regulator Responded
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	12/30/2015
Action:	Other Workplan - Regulator Responded
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	05/30/2008
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	01/28/2008
Action:	File review
Global Id:	T0606501089
Action Type:	ENFORCEMENT

APPLE MARKET ONE (Continued) **S103618799**

Date:	01/24/2012
Action:	Staff Letter - #RCDEH 012412
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	04/23/2013
Action:	Notification - Public Notice of ROD/RAP/CAP - #RCDEH 042313
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/15/2011
Action:	Monitoring Report - Other
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	04/15/2011
Action:	Monitoring Report - Annually
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	06/08/2015
Action:	Soil and Water Investigation Workplan - Regulator Responded
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/05/2017
Action:	Request for Closure - Regulator Responded
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/05/2017
Action:	Request for Closure - Regulator Responded
Global Id:	T0606501089
Action Type:	REMEDIATION
Date:	04/01/2004
Action:	Free Product Removal
Global Id:	T0606501089
Action Type:	REMEDIATION
Date:	12/02/2014
Action:	Soil Vapor Extraction (SVE)
Global Id:	T0606501089
Action Type:	REMEDIATION
Date:	12/30/2014
Action:	Other (Use Description Field)
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	10/06/2003
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	11/24/2003
Action:	Technical Correspondence / Assistance / Other

APPLE MARKET ONE (Continued) **S103618799**

Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	08/06/2012
Action:	Staff Letter - #RCDEH 080612
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	04/22/2013
Action:	Staff Letter - #RCDEH 042213
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	04/24/2013
Action:	Staff Letter - #RCDEH 042413
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	07/01/2017
Action:	File review - #RCDEH site summary
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	08/22/2008
Action:	Clean Up Fund - Case Closure Review Summary Report (RSR)
Global Id:	T0606501089
Action Type:	ENFORCEMENT
Date:	06/11/2018
Action:	Closure/No Further Action Letter
Global Id:	T0606501089
Action Type:	Other
Date:	10/20/1998
Action:	Leak Stopped
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/15/2005
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	03/16/2012
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	01/15/2012
Action:	Monitoring Report - Quarterly
Global Id:	T0606501089
Action Type:	RESPONSE
Date:	10/15/2011
Action:	Monitoring Report - Quarterly

LUST:

Global Id:	T0606501089

APPLE MARKET ONE (Continued) **S103618799**

Status:	Open - Case Begin Date
Status Date:	10/20/1998
Global Id:	T0606501089
Status:	Open - Site Assessment
Status Date:	11/12/1998
Global Id:	T0606501089
Status:	Open - Site Assessment
Status Date:	12/18/2001
Global Id:	T0606501089
Status:	Open - Remediation
Status Date:	04/01/2004
Global Id:	T0606501089
Status:	Open - Verification Monitoring
Status Date:	05/24/2016
Global Id:	T0606501089
Status:	Open - Eligible for Closure
Status Date:	12/04/2017
Global Id:	T0606501089
Status:	Completed - Case Closed
Status Date:	06/11/2018

CERS HAZ WASTE:

Name:	APPLE MARKET ONE
Address:	56491 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Site ID:	92661
CERS ID:	10317679
CERS Description:	Hazardous Waste Generator

CERS TANKS:

Name:	APPLE MARKET ONE
Address:	56491 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Site ID:	92661
CERS ID:	10317679
CERS Description:	Underground Storage Tank

CORTESE:

Name:	APPLE MARKET ONE
Address:	56491 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606501089
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported

APPLE MARKET ONE (Continued) **S103618799**

Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CERS:

Name:	APPLE MARKET ONE
Address:	56491 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Site ID:	92661
CERS ID:	10317679
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2712(i), 2632(d)(2), 2634(e), 2641(h) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i), 2632(d)(2), 2634(e), 2641(h)
Violation Description:	Failure to submit a current UST Response Plan available on site.
Violation Notes:	Returned to compliance on 07/10/2019. OBSERVATION: No UST Response Plan available on site during inspection. CORRECTIVE ACTION: Owner/operator shall maintain a current UST Response Plan on site that has been accepted in CERS and make available for review. A copy of the approved response plan provided.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	9/10/2019
Citation:	23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)
Violation Description:	Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet

APPLE MARKET ONE (Continued) **S103618799**

overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after October 1,- 2018. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. For USTs installed on and after October- 1,- 2018, perform an inspection at installation and every 36 months thereafter. Inspected within 30 days after a repair to the overfill prevention equipment. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Inspected by a certified UST service technician. Maintain records of overfill prevention equipment inspection for 36 months.

Violation Notes: Returned to compliance on 02/27/2020. OBSERVATION: The overfill test results submitted to the department doesn't meet the minimum standards. CORRECTIVE ACTION: Owner/operator shall immediately schedule and complete an overfill equipment inspection providing the required 48 hour notification prior to conducting the inspection. Inspection results and all supporting documentation (inspection procedures used, tank charts, printouts, etc.) must be submitted to this Department within 30 days upon completion of the inspection.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 7/15/2015
Citation: HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description: Business Plan Program - Administration/Documentation - General
Violation Notes: Returned to compliance on 08/04/2015. [LOCAL ORDINANCE VIOLATION 104A] NFPA 704 sign(s) have been posted appropriately.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 7/15/2015
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description: Failure to annually review and electronically certify that the business plan is complete, accurate, and up-to-date.
Violation Notes: Returned to compliance on 08/10/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 8/14/2019
Citation: 23 CCR 16 2712(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)
Violation Description: Failure to maintain records of repairs and upgrades on site, or off site if approved by the UPA, for the life of the UST.
Violation Notes: Returned to compliance on 09/10/2019. OBSERVATION: OBSERVATION: Owner/operator failed to maintain test results onsite: 1) 2018 UST Monitoring System Certification test result 2) 2018 Overfill

APPLE MARKET ONE (Continued) **S103618799**

	prevention equipment test result CORRECTIVE ACTION: Owner/operator shall provide all maintenance, monitoring, repair and/or upgrade records. Maintain copies on site and available for review. CORRECTIVE ACTION: Owner/operator shall provide all maintenance, monitoring, repair and/or upgrade records. Maintain copies on site and available for review. SUbmit missing documentation to the CUPA.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/15/2015
Citation:	HSC 6.7 25292.1(a) - California Health and Safety Code, Chapter 6.7, Section(s) 25292.1(a)
Violation Description:	Failure to operate the UST system to prevent spills and/or overfills.
Violation Notes:	Returned to compliance on 08/06/2015. 87 Tank
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 07/10/2019. OBSERVATION: Current Certification of Financial Responsibility documents have not been submitted to the California Environmental Reporting System and was not available onsite. CORRECTIVE ACTION: Owner/operator shall submit a current and complete Certification of Financial Responsibility in CERS and maintain a current copy onsite.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	23 CCR 16 2715(a) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(a)
Violation Description:	Failure to submit the UPA. of the designated operator (DO) identification and/or change of the DO within 30 days.
Violation Notes:	Returned to compliance on 07/10/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	8/14/2019
Citation:	23 CCR 16 2715(c)(4) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)(4)
Violation Description:	Failure to maintain a list of employees trained by the designated operator on-site or off-site at a readily available location, if

APPLE MARKET ONE (Continued) **S103618799**

	approved by the UPA. For training that occurs on or after October 1, 2018, failure to maintain a copy of the "Facility Employee Training Certificate" on-site or off-site at a readily available location, if approved by the UPA.
Violation Notes:	Returned to compliance on 09/10/2019. OBSERVATION: Owner/operator unable to produce a current list of employees trained by the designated operator. CORRECTIVE ACTION: Owner/operator shall provide list of employees trained by the designated operator and maintain on site readily available for review. Employees are required to be trained within 30 days of hire. Employees hired on/after 10/13/2018 are required to be trained before assuming their duties.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	23 CCR 16 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1)
Violation Description:	Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes:	Returned to compliance on 07/11/2017. 87 product
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2641(h) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2641(h)
Violation Description:	Failure to have an approved UST Monitoring Plan.
Violation Notes:	Returned to compliance on 08/13/2019. OBSERVATION: Observed UST Monitoring Plan(s) for Tank T1 (unleaded) and Tank T2 (premium unleaded) state "YES" to Under Dispenser Containment (UDC) monitoring stop flow of product at dispenser. CORRECTIVE ACTION: Owner/operator shall make the following corrections in CERS: Tank T1 and Tank T2 should state "NO" to UDC monitoring stop flow of product at dispenser in the monitoring plans.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020
Citation:	HSC 6.7 25284.2 - California Health and Safety Code, Chapter 6.7, Section(s) 25284.2
Violation Description:	"Failure to meet one or more of the following requirements: Install or maintain a liquid-tight spill container. Have a minimum capacity of five gallons. Have a functional drain valve or other method for the removal of liquid from the spill container. Be resistant to galvanic corrosion. Perform a tightness test at installation, every 12 months thereafter, or within 30 days after a repair to the spill container. Tested using applicable manufacturer guidelines, industry codes,

APPLE MARKET ONE (Continued) **S103618799**

	engineering standards, or a method approved by a professional engineer. Tested by a certified UST service technician. Maintain records of spill containment testing for 36 months. "
Violation Notes:	OBSERVATION: Spill buckets for 87 unleaded and 91 premium failed to hold 5 gallon of liquid for a minimum of one hour. Per Technician, the gasket for both of the spill buckets are broken. CORRECTIVE ACTION: Owner/operator shall repair/replace the leaking spill buckets for 87 unleaded and 91 premium so that bucket is able to hold liquid and contain release until detected.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Description:	Failure to have current UST Monitoring Plan available on site.
Violation Notes:	Returned to compliance on 08/14/2019. OBSERVATION: No UST Monitoring Plan available on site during inspection. CORRECTIVE ACTION: Owner/operator shall maintain a current UST Monitoring Plan on site that has been accepted in CERS and make available for review.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	23 CCR 16 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1)
Violation Description:	Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes:	Returned to compliance on 07/11/2017. 91 product
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 08/13/2019.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34

APPLE MARKET ONE (Continued) **S103618799**

Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 09/12/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020
Citation:	23 CCR 16 2715(c)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)(2)
Violation Description:	Failure to have at least one facility employee present during operating hours that has been trained in the proper operation and maintenance of the UST system by a designated operator (DO).
Violation Notes:	OBSERVATION: Observed that the facility is in operation and that the two employees (Yolanda Rivas and Rosalia Marroquin) onsite had not received designated operator training according to the UST training paperwork dated 1/30/2020. CORRECTIVE ACTION: Owner/operator shall ensure that at least one employee who has received designated operator training is on site during operating hours. Training shall consist of proper operation and maintenance of the UST system.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	23 CCR 16 2712 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712
Violation Description:	Failure to comply with any of the applicable requirements of the permit issued for the operation of the UST system.
Violation Notes:	Returned to compliance on 09/12/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2715(c)(4) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)(4)
Violation Description:	Failure to maintain a list of employees trained by the designated operator on-site or off-site at a readily available location, if approved by the UPA. For training that occurs on or after October 1, 2018, failure to maintain a copy of the "Facility Employee Training Certificate" on-site or off-site at a readily available location, if approved by the UPA.
Violation Notes:	Returned to compliance on 09/10/2019. OBSERVATION: Owner/operator unable to produce a current list of employees trained by the designated operator. CORRECTIVE ACTION: Owner/operator shall provide list of employees trained by the designated operator and maintain on site readily available for review. Employees are required to be trained within 30 days of hire. Employees hired on/after 10/13/2018 are required to be trained before assuming their duties.
Violation Division:	Riverside County Department of Env Health

APPLE MARKET ONE (Continued) **S103618799**

Violation Program: UST
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 7/10/2019
Citation: 23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)
Violation Description: Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after October 1,- 2018. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. For USTs installed on and after October- 1,- 2018, perform an inspection at installation and every 36 months thereafter. Inspected within 30 days after a repair to the overfill prevention equipment. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Inspected by a certified UST service technician. Maintain records of overfill prevention equipment inspection for 36 months.
Violation Notes: Returned to compliance on 02/27/2020. OBSERVATION: The overfill test results provided to the department doesn't meet the current requirements. According to the test result, the ball float is set at 97% for Tank T1 and Tank T2, which is above the allowable limit. CORRECTIVE ACTION: Owner/operator shall install a drop tube shut off device for Tank T1 and Tank T2. Flow restrictors no longer satisfy this requirement. Plan submittal will be required for installation of new overfill prevention equipment.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 7/10/2019
Citation: 23 CCR 16 2712(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)
Violation Description: Failure to maintain records of repairs and upgrades on site, or off site if approved by the UPA, for the life of the UST.
Violation Notes: Returned to compliance on 09/10/2019. OBSERVATION: Owner/operator failed to maintain test results onsite: 1) 2018 UST Monitoring System Certification test result 2) 2018 Overfill prevention equipment test result CORRECTIVE ACTION: Owner/operator shall provide all maintenance, monitoring, repair and/or upgrade records. Maintain copies on site and available for review.

APPLE MARKET ONE (Continued) **S103618799**

Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 7/10/2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes: Returned to compliance on 07/10/2018. OBSERVATION: The most recent business plan submission in the statewide information management system (CERS) failed to contain a chemical inventory description page for a 55 gallon drum of HiTec Fuel Additive. CORRECTIVE ACTION: Owner/operator shall complete a chemical inventory page for all reportable hazardous materials on site and submit to the statewide information management system at http://cers.calepa.ca.gov.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 7/9/2013
Citation: HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description: UST Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 07/23/2013. Missing February 2013 D/O inspection report.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 7/10/2018
Citation: 23 CCR 16 2712(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)
Violation Description: Failure to maintain records of repairs, lining, and upgrades on site, or off site if approved by the UPA, for the life of the UST.
Violation Notes: Returned to compliance on 07/10/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 92661
Site Name: Apple Market One
Violation Date: 8/14/2019
Citation: 23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)
Violation Description: Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided

APPLE MARKET ONE (Continued) **S103618799**

	the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after October 1,- 2018. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. For USTs installed on and after October- 1,- 2018, perform an inspection at installation and every 36 months thereafter. Inspected within 30 days after a repair to the overfill prevention equipment. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Inspected by a certified UST service technician. Maintain records of overfill prevention equipment inspection for 36 months.
Violation Notes:	Returned to compliance on 02/27/2020. Violation Description: Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; orProvide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is [Truncated]
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/12/2016
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 08/11/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	23 CCR 16 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1)

APPLE MARKET ONE (Continued) **S103618799**

Violation Description:	Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes:	Returned to compliance on 07/10/2018. 91 STP 208
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/9/2013
Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 07/23/2013.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020
Citation:	23 CCR 16 2712(b)(1) and (2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1) and (2)
Violation Description:	Failure to maintain monitoring records for release detection and/or maintain records of appropriate follow-up actions.
Violation Notes:	OBSERVATION: Observed a sensor out alarm on L10: UDC 5-6 on 8/14/2019. Records of alarms and/or records of appropriate follow-up action indicating how alarm conditions were cleared were not available for review. CORRECTIVE ACTION: Owner/operator shall ensure records of appropriate follow-up action for alarm conditions are documented and maintained on site readily available for review.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/8/2014
Citation:	23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Description:	Failure of the double wall pressurized piping in the turbine sump to be continuously monitored with a system that activates an audible and visual alarm or restricts or stops flow at dispenser when a leak is detected.
Violation Notes:	Returned to compliance on 07/08/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/9/2013
Citation:	22 CCR 12 66262.34(a) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(a)

APPLE MARKET ONE (Continued) **S103618799**

Violation Description:	Failure to obtain a permit or grant of interim status to accumulate hazardous waste longer than 90 days.
Violation Notes:	Returned to compliance on 07/23/2013.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020
Citation:	23 CCR 16 2636(f)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(2)
Violation Description:	Failure of the functional line leak detector (LLD) monitoring pressurized piping to meet one or more of the following requirements: Monitored at least hourly with the capability of detecting a release of 3.0 gallons per hour leak at 10 pounds per square inch and restrict or shut off the flow of product through the piping when a leak is detected.
Violation Notes:	OBSERVATION: Observed mechanical line leak detector for 87 unleaded fail to detect a 3.0 gallon per hour leak and restrict or shut off flow of product when tested. CORRECTIVE ACTION: Owner/operator shall repair/replace failed leak detector and certify that leak detector is capable of detecting a 3.0 gallon per hour leak and slowing/stopping the flow of product. 48 hour notification required to be submitted to this Department prior to re-testing failed leak detector.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/15/2015
Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 08/04/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-09-2013
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-11-2017
Violations Found:	Yes
Eval Type:	Routine done by local agency

APPLE MARKET ONE (Continued) **S103618799**

Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-15-2015
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-08-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-09-2013
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-10-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Facility is a gas station w/C-store, producing associated hazardous waste streams.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-10-2018
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	This facility is a fuel station w/C-store. Hazmat onsite includes gasoline, propane, fuel additive & CO2.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-12-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection

APPLE MARKET ONE (Continued) **S103618799**

Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-15-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Routine Inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-15-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Routine Inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-07-2020
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: An annual monitoring certification conducted today with Valley Petroleum Equipment, Inc.
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-09-2013
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Routine Inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-10-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-14-2019
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST

APPLE MARKET ONE (Continued) **S103618799**

Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-10-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: An annual monitoring certification conducted today. The company onsite to perform the monitoring certification was Valley Petroleum Equipment, Inc. Note: Line leak detector test in progress. Ensure to submit passing line leak detector test results to the department.
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 09-10-2019
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Enforcement Action:
Site ID: 92661
Site Name: Apple Market One
Site Address: 56491 HIGHWAY 111
Site City: THERMAL
Site Zip: 92274
Enf Action Date: 07-08-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS

Site ID: 92661
Site Name: Apple Market One
Site Address: 56491 HIGHWAY 111
Site City: THERMAL
Site Zip: 92274
Enf Action Date: 07-09-2013
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HW
Enf Action Source: CERS

Site ID: 92661
Site Name: Apple Market One
Site Address: 56491 HIGHWAY 111
Site City: THERMAL
Site Zip: 92274
Enf Action Date: 07-09-2013
Enf Action Type: Notice of Violation (Unified Program)

APPLE MARKET ONE (Continued) **S103618799**

Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST
Enf Action Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-15-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HMRRP
Enf Action Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-15-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HW
Enf Action Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-15-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST
Enf Action Source:	CERS

Coordinates:

Site ID:	92661
Facility Name:	Apple Market One
Env Int Type Code:	HWG
Program ID:	10317679
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.638650
Longitude:	-116.138110

Affiliation:

APPLE MARKET ONE (Continued) **S103618799**

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

Affiliation Type Desc:	Document Preparer
Entity Name:	David Sanchez
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	Phan Le - COLORADO RIVER BASIN RWQCB (REGION 7)
Entity Title:	Not reported
Affiliation Address:	73720 FRED WARING DRIVE SUITE #100
Affiliation City:	PALM DESERT
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	7607768974

Affiliation Type Desc:	UST Tank Operator
Entity Name:	David M. Sanchez
Entity Title:	Not reported
Affiliation Address:	65959 Harrison St.
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 397-4279

Affiliation Type Desc:	Identification Signer
Entity Name:	David M. Sanchez
Entity Title:	President
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Operator
Entity Name:	David M. Sanchez
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported

APPLE MARKET ONE (Continued) **S103618799**

Affiliation Zip:	Not reported
Affiliation Phone:	(760) 397-4279
Affiliation Type Desc:	Parent Corporation
Entity Name:	Apple Market One
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	UST Property Owner Name
Entity Name:	Apple Markets, Inc.
Entity Title:	Not reported
Affiliation Address:	65959 Hwy. 86
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 399-5955
Affiliation Type Desc:	UST Tank Owner
Entity Name:	Apple Markets, Inc.
Entity Title:	Not reported
Affiliation Address:	65959 Harrison St.
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 397-4279
Affiliation Type Desc:	Environmental Contact
Entity Name:	David M. Sanchez
Entity Title:	Not reported
Affiliation Address:	65959 Harrison St.
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92274
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	65959 Hwy 86
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92274
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Apple Markets, Inc.
Entity Title:	Not reported
Affiliation Address:	65959 Hwy 86

APPLE MARKET ONE (Continued) **S103618799**

Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 397-4279

Name:	APPLE MARKET ONE
Address:	56491 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Site ID:	92661
CERS ID:	T0606501089
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Violations:

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2712(i), 2632(d)(2), 2634(e), 2641(h) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i), 2632(d)(2), 2634(e), 2641(h)
Violation Description:	Failure to submit a current UST Response Plan available on site.
Violation Notes:	Returned to compliance on 07/10/2019. OBSERVATION: No UST Response Plan available on site during inspection. CORRECTIVE ACTION: Owner/operator shall maintain a current UST Response Plan on site that has been accepted in CERS and make available for review. A copy of the approved response plan provided.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	9/10/2019
Citation:	23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)
Violation Description:	Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after October 1,- 2018. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. For USTs installed on and after October- 1,- 2018, perform an inspection at installation and every 36 months thereafter. Inspected within 30 days after a repair to the overfill prevention equipment. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional

APPLE MARKET ONE (Continued) **S103618799**

	engineer. Inspected by a certified UST service technician. Maintain records of overfill prevention equipment inspection for 36 months.
Violation Notes:	Returned to compliance on 02/27/2020. OBSERVATION: The overfill test results submitted to the department doesn’t meet the minimum standards. CORRECTIVE ACTION: Owner/operator shall immediately schedule and complete an overfill equipment inspection providing the required 48 hour notification prior to conducting the inspection. Inspection results and all supporting documentation (inspection procedures used, tank charts, printouts, etc.) must be submitted to this Department within 30 days upon completion of the inspection.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/15/2015
Citation:	HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description:	Business Plan Program - Administration/Documentation - General
Violation Notes:	Returned to compliance on 08/04/2015. [LOCAL ORDINANCE VIOLATION 104A] NFPA 704 sign(s) have been posted appropriately.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/15/2015
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete, accurate, and up-to-date.
Violation Notes:	Returned to compliance on 08/10/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	8/14/2019
Citation:	23 CCR 16 2712(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)
Violation Description:	Failure to maintain records of repairs and upgrades on site, or off site if approved by the UPA, for the life of the UST.
Violation Notes:	Returned to compliance on 09/10/2019. OBSERVATION: OBSERVATION: Owner/operator failed to maintain test results onsite: 1) 2018 UST Monitoring System Certification test result 2) 2018 Overfill prevention equipment test result CORRECTIVE ACTION: Owner/operator shall provide all maintenance, monitoring, repair and/or upgrade records. Maintain copies on site and available for review. CORRECTIVE ACTION: Owner/operator shall provide all maintenance, monitoring, repair and/or upgrade records. Maintain copies on site and available for review. SUbmit missing documentation to the CUPA.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

APPLE MARKET ONE (Continued) **S103618799**

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/15/2015
Citation:	HSC 6.7 25292.1(a) - California Health and Safety Code, Chapter 6.7, Section(s) 25292.1(a)
Violation Description:	Failure to operate the UST system to prevent spills and/or overfills.
Violation Notes:	Returned to compliance on 08/06/2015. 87 Tank
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 07/10/2019. OBSERVATION: Current Certification of Financial Responsibility documents have not been submitted to the California Environmental Reporting System and was not available onsite. CORRECTIVE ACTION: Owner/operator shall submit a current and complete Certification of Financial Responsibility in CERS and maintain a current copy onsite.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	23 CCR 16 2715(a) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(a)
Violation Description:	Failure to submit the UPA. of the designated operator (DO) identification and/or change of the DO within 30 days.
Violation Notes:	Returned to compliance on 07/10/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	8/14/2019
Citation:	23 CCR 16 2715(c)(4) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)(4)
Violation Description:	Failure to maintain a list of employees trained by the designated operator on-site or off-site at a readily available location, if approved by the UPA. For training that occurs on or after October 1, 2018, failure to maintain a copy of the "Facility Employee Training Certificate" on-site or off-site at a readily available location, if approved by the UPA.
Violation Notes:	Returned to compliance on 09/10/2019. OBSERVATION: Owner/operator unable to produce a current list of employees trained by the designated operator. CORRECTIVE ACTION: Owner/operator shall provide list of employees trained by the designated operator and maintain on site readily available for review. Employees are required to be trained within 30 days of hire. Employees hired on/after 10/13/2018

APPLE MARKET ONE (Continued) **S103618799**

	are required to be trained before assuming their duties.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	23 CCR 16 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1)
Violation Description:	Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes:	Returned to compliance on 07/11/2017. 87 product
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2641(h) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2641(h)
Violation Description:	Failure to have an approved UST Monitoring Plan.
Violation Notes:	Returned to compliance on 08/13/2019. OBSERVATION: Observed UST Monitoring Plan(s) for Tank T1 (unleaded) and Tank T2 (premium unleaded) state "YES" to Under Dispenser Containment (UDC) monitoring stop flow of product at dispenser. CORRECTIVE ACTION: Owner/operator shall make the following corrections in CERS: Tank T1 and Tank T2 should state "NO" to UDC monitoring stop flow of product at dispenser in the monitoring plans.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020
Citation:	HSC 6.7 25284.2 - California Health and Safety Code, Chapter 6.7, Section(s) 25284.2
Violation Description:	"Failure to meet one or more of the following requirements: Install or maintain a liquid-tight spill container. Have a minimum capacity of five gallons. Have a functional drain valve or other method for the removal of liquid from the spill container. Be resistant to galvanic corrosion. Perform a tightness test at installation, every 12 months thereafter, or within 30 days after a repair to the spill container. Tested using applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Tested by a certified UST service technician. Maintain records of spill containment testing for 36 months. "
Violation Notes:	OBSERVATION: Spill buckets for 87 unleaded and 91 premium failed to hold 5 gallon of liquid for a minimum of one hour. Per Technician, the gasket for both of the spill buckets are broken. CORRECTIVE ACTION: Owner/operator shall repair/replace the leaking spill buckets for 87 unleaded and 91 premium so that bucket is able to hold liquid and contain release until detected.
Violation Division:	Riverside County Department of Env Health

APPLE MARKET ONE (Continued) **S103618799**

Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Description:	Failure to have current UST Monitoring Plan available on site.
Violation Notes:	Returned to compliance on 08/14/2019. OBSERVATION: No UST Monitoring Plan available on site during inspection. CORRECTIVE ACTION: Owner/operator shall maintain a current UST Monitoring Plan on site that has been accepted in CERS and make available for review.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	23 CCR 16 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1)
Violation Description:	Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes:	Returned to compliance on 07/11/2017. 91 product
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 08/13/2019.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 09/12/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020

APPLE MARKET ONE (Continued) **S103618799**

Citation:	23 CCR 16 2715(c)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)(2)
Violation Description:	Failure to have at least one facility employee present during operating hours that has been trained in the proper operation and maintenance of the UST system by a designated operator (DO).
Violation Notes:	OBSERVATION: Observed that the facility is in operation and that the two employees (Yolanda Rivas and Rosalia Marroquin) onsite had not received designated operator training according to the UST training paperwork dated 1/30/2020. CORRECTIVE ACTION: Owner/operator shall ensure that at least one employee who has received designated operator training is on site during operating hours. Training shall consist of proper operation and maintenance of the UST system.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/11/2017
Citation:	23 CCR 16 2712 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712
Violation Description:	Failure to comply with any of the applicable requirements of the permit issued for the operation of the UST system.
Violation Notes:	Returned to compliance on 09/12/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2715(c)(4) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)(4)
Violation Description:	Failure to maintain a list of employees trained by the designated operator on-site or off-site at a readily available location, if approved by the UPA. For training that occurs on or after October 1, 2018, failure to maintain a copy of the "Facility Employee Training Certificate" on-site or off-site at a readily available location, if approved by the UPA.
Violation Notes:	Returned to compliance on 09/10/2019. OBSERVATION: Owner/operator unable to produce a current list of employees trained by the designated operator. CORRECTIVE ACTION: Owner/operator shall provide list of employees trained by the designated operator and maintain on site readily available for review. Employees are required to be trained within 30 days of hire. Employees hired on/after 10/13/2018 are required to be trained before assuming their duties.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)
Violation Description:	Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when

APPLE MARKET ONE (Continued) **S103618799**

	the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after October 1,- 2018. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. For USTs installed on and after October- 1,- 2018, perform an inspection at installation and every 36 months thereafter. Inspected within 30 days after a repair to the overfill prevention equipment. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Inspected by a certified UST service technician. Maintain records of overfill prevention equipment inspection for 36 months.
Violation Notes:	Returned to compliance on 02/27/2020. OBSERVATION: The overfill test results provided to the department doesn’t meet the current requirements. According to the test result, the ball float is set at 97% for Tank T1 and Tank T2, which is above the allowable limit. CORRECTIVE ACTION: Owner/operator shall install a drop tube shut off device for Tank T1 and Tank T2. Flow restrictors no longer satisfy this requirement. Plan submittal will be required for installation of new overfill prevention equipment.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2019
Citation:	23 CCR 16 2712(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)
Violation Description:	Failure to maintain records of repairs and upgrades on site, or off site if approved by the UPA, for the life of the UST.
Violation Notes:	Returned to compliance on 09/10/2019. OBSERVATION: Owner/operator failed to maintain test results onsite: 1) 2018 UST Monitoring System Certification test result 2) 2018 Overfill prevention equipment test result CORRECTIVE ACTION: Owner/operator shall provide all maintenance, monitoring, repair and/or upgrade records. Maintain copies on site and available for review.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material

APPLE MARKET ONE (Continued) **S103618799**

	inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	Returned to compliance on 07/10/2018. OBSERVATION: The most recent business plan submission in the statewide information management system (CERS) failed to contain a chemical inventory description page for a 55 gallon drum of HiTec Fuel Additive. CORRECTIVE ACTION: Owner/operator shall complete a chemical inventory page for all reportable hazardous materials on site and submit to the statewide information management system at http://cers.calepa.ca.gov.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/9/2013
Citation:	HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description:	UST Program - Operations/Maintenance - General
Violation Notes:	Returned to compliance on 07/23/2013. Missing February 2013 D/O inspection report.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	23 CCR 16 2712(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)
Violation Description:	Failure to maintain records of repairs, lining, and upgrades on site, or off site if approved by the UPA, for the life of the UST.
Violation Notes:	Returned to compliance on 07/10/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Violation Date:	8/14/2019
Citation:	23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)
Violation Description:	Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after

APPLE MARKET ONE (Continued) **S103618799**

	October 1,- 2018. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. For USTs installed on and after October- 1,- 2018, perform an inspection at installation and every 36 months thereafter. Inspected within 30 days after a repair to the overfill prevention equipment. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Inspected by a certified UST service technician. Maintain records of overfill prevention equipment inspection for 36 months.
Violation Notes:	Returned to compliance on 02/27/2020. Violation Description: Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; orProvide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is [Truncated]
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/12/2016
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 08/11/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/10/2018
Citation:	23 CCR 16 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1)
Violation Description:	Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes:	Returned to compliance on 07/10/2018. 91 STP 208
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/9/2013

APPLE MARKET ONE (Continued) **S103618799**

Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 07/23/2013.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020
Citation:	23 CCR 16 2712(b)(1) and (2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1) and (2)
Violation Description:	Failure to maintain monitoring records for release detection and/or maintain records of appropriate follow-up actions.
Violation Notes:	OBSERVATION: Observed a sensor out alarm on L10: UDC 5-6 on 8/14/2019. Records of alarms and/or records of appropriate follow-up action indicating how alarm conditions were cleared were not available for review. CORRECTIVE ACTION: Owner/operator shall ensure records of appropriate follow-up action for alarm conditions are documented and maintained on site readily available for review.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/8/2014
Citation:	23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Description:	Failure of the double wall pressurized piping in the turbine sump to be continuously monitored with a system that activates an audible and visual alarm or restricts or stops flow at dispenser when a leak is detected.
Violation Notes:	Returned to compliance on 07/08/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/9/2013
Citation:	22 CCR 12 66262.34(a) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(a)
Violation Description:	Failure to obtain a permit or grant of interim status to accumulate hazardous waste longer than 90 days.
Violation Notes:	Returned to compliance on 07/23/2013.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/7/2020

APPLE MARKET ONE (Continued) **S103618799**

Citation:	23 CCR 16 2636(f)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(2)
Violation Description:	Failure of the functional line leak detector (LLD) monitoring pressurized piping to meet one or more of the following requirements: Monitored at least hourly with the capability of detecting a release of 3.0 gallons per hour leak at 10 pounds per square inch and restrict or shut off the flow of product through the piping when a leak is detected.
Violation Notes:	OBSERVATION: Observed mechanical line leak detector for 87 unleaded fail to detect a 3.0 gallon per hour leak and restrict or shut off flow of product when tested. CORRECTIVE ACTION: Owner/operator shall repair/replace failed leak detector and certify that leak detector is capable of detecting a 3.0 gallon per hour leak and slowing/stopping the flow of product. 48 hour notification required to be submitted to this Department prior to re-testing failed leak detector.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Violation Date:	7/15/2015
Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 08/04/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-09-2013
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-11-2017
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-15-2015
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection

APPLE MARKET ONE (Continued) **S103618799**

Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-08-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-09-2013
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-10-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Facility is a gas station w/C-store, producing associated hazardous waste streams.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-10-2018
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	This facility is a fuel station w/C-store. Hazmat onsite includes gasoline, propane, fuel additive & CO2.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-12-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-15-2015
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health

APPLE MARKET ONE (Continued) **S103618799**

Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-15-2015
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-07-2020
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	An annual monitoring certification conducted today with Valley Petroleum Equipment, Inc.
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-09-2013
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Routine Inspection
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-10-2018
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	08-14-2019
Violations Found:	Yes
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-10-2019
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	An annual monitoring certification conducted today. The company onsite to perform the monitoring certification was Valley Petroleum Equipment, Inc. Note: Line leak detector test in progress. Ensure to submit passing line leak detector test results to the department.

APPLE MARKET ONE (Continued) **S103618799**

Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	09-10-2019
Violations Found:	Yes
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS

Enforcement Action:

Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-08-2014
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST
Enf Action Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-09-2013
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HW
Enf Action Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-09-2013
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST
Enf Action Source:	CERS
Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL

APPLE MARKET ONE (Continued) **S103618799**

Site Zip:	92274
Enf Action Date:	07-15-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HMRRP
Enf Action Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-15-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HW
Enf Action Source:	CERS

Site ID:	92661
Site Name:	Apple Market One
Site Address:	56491 HIGHWAY 111
Site City:	THERMAL
Site Zip:	92274
Enf Action Date:	07-15-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST
Enf Action Source:	CERS

Coordinates:

Site ID:	92661
Facility Name:	Apple Market One
Env Int Type Code:	HWG
Program ID:	10317679
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.638650
Longitude:	-116.138110

Affiliation:

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

APPLE MARKET ONE (Continued) **S103618799**

Affiliation Type Desc:	Document Preparer
Entity Name:	David Sanchez
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	Phan Le - COLORADO RIVER BASIN RWQCB (REGION 7)
Entity Title:	Not reported
Affiliation Address:	73720 FRED WARING DRIVE SUITE #100
Affiliation City:	PALM DESERT
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	7607768974

Affiliation Type Desc:	UST Tank Operator
Entity Name:	David M. Sanchez
Entity Title:	Not reported
Affiliation Address:	65959 Harrison St.
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 397-4279

Affiliation Type Desc:	Identification Signer
Entity Name:	David M. Sanchez
Entity Title:	President
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Operator
Entity Name:	David M. Sanchez
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(760) 397-4279

Affiliation Type Desc:	Parent Corporation
Entity Name:	Apple Market One
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported

APPLE MARKET ONE (Continued) **S103618799**

Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	UST Property Owner Name
Entity Name:	Apple Markets, Inc.
Entity Title:	Not reported
Affiliation Address:	65959 Hwy. 86
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 399-5955
Affiliation Type Desc:	UST Tank Owner
Entity Name:	Apple Markets, Inc.
Entity Title:	Not reported
Affiliation Address:	65959 Harrison St.
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 397-4279
Affiliation Type Desc:	Environmental Contact
Entity Name:	David M. Sanchez
Entity Title:	Not reported
Affiliation Address:	65959 Harrison St.
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92274
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	65959 Hwy 86
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92274
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Apple Markets, Inc.
Entity Title:	Not reported
Affiliation Address:	65959 Hwy 86
Affiliation City:	Thermal
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92274
Affiliation Phone:	(760) 397-4279

D10 **APPLE MARKETS INC DBA APPLE MARKET ONE** **RCRA NonGen / NLR** **1024810213**
South **56491 HIGHWAY 111** **CAL000288530**
1/8-1/4 **THERMAL, CA 92274**
0.242 mi.
1277 ft. **Site 2 of 5 in cluster D**

Relative: **Higher**
Actual: **-120 ft.**

RCRA NonGen / NLR:

Date Form Received by Agency:	2004-11-29 00:00:00.0
Handler Name:	APPLE MARKETS INC DBA APPLE MARKET ONE
Handler Address:	56491 HIGHWAY 111
Handler City,State,Zip:	THERMAL, CA 92274
EPA ID:	CAL000288530
Contact Name:	DAVID SANCHEZ
Contact Address:	65959 HARRISON ST
Contact City,State,Zip:	THERMAL, CA 92274
Contact Telephone:	760-397-4279
Contact Fax:	760-397-2819
Contact Email:	A123PPLE@AOL.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	65959 HARRISON ST
Mailing City,State,Zip:	THERMAL, CA 92274-0000
Owner Name:	APPLE MARKETS INC
Owner Type:	Other
Operator Name:	DAVID SANCHEZ
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported

APPLE MARKETS INC DBA APPLE MARKET ONE (Continued) **1024810213**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-09-05 20:26:10.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	DAVID SANCHEZ
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	65959 HARRISON ST
Owner/Operator City,State,Zip:	THERMAL, CA 92274
Owner/Operator Telephone:	760-397-4279
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	APPLE MARKETS INC
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	65959 HARRISON ST
Owner/Operator City,State,Zip:	THERMAL, CA 92274-0000
Owner/Operator Telephone:	760-397-4279
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

APPLE MARKETS INC DBA APPLE MARKET ONE (Continued) **1024810213**

Historic Generators:

Receive Date:	2004-11-29 00:00:00.0
Handler Name:	APPLE MARKETS INC DBA APPLE MARKET ONE
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	44719
NAICS Description:	OTHER GASOLINE STATIONS

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

D11
South
1/8-1/4
0.242 mi.
1277 ft.

APPLE MARKET
56491 HIGHWAY 111
THERMAL, CA 92274

Site 3 of 5 in cluster D

SWEEPS UST **U002095224**
CA FID UST **N/A**

Relative:
Higher
Actual:
-120 ft.

SWEEPS UST:

Name:	APPLE MARKET
Address:	56491 HIGHWAY 111
City:	THERMAL
Status:	Active
Comp Number:	15
Number:	1
Board Of Equalization:	44-017794
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	09-08-88
Owner Tank Id:	000072
SWRCB Tank Id:	33-000-000015-000001
Tank Status:	A
Capacity:	10000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	3

Name:	APPLE MARKET
Address:	56491 HIGHWAY 111
City:	THERMAL
Status:	Active

APPLE MARKET (Continued) **U002095224**

Comp Number:	15
Number:	1
Board Of Equalization:	44-017794
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	09-08-88
Owner Tank Id:	000072
SWRCB Tank Id:	33-000-000015-000002
Tank Status:	A
Capacity:	6000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

Name:	APPLE MARKET
Address:	56491 HIGHWAY 111
City:	THERMAL
Status:	Active
Comp Number:	15
Number:	1
Board Of Equalization:	44-017794
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	09-08-88
Owner Tank Id:	000072
SWRCB Tank Id:	33-000-000015-000003
Tank Status:	A
Capacity:	6000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

CA FID UST:

Facility ID:	33006776
Regulated By:	UTNKA
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	6193974279
Mail To:	Not reported
Mailing Address:	56491 HIGHWAY 111
Mailing Address 2:	Not reported
Mailing City,St,Zip:	THERMAL 92274
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

D12 **APPLE MARKET ONE** **UST** **U004282412**
South **56491 HWY 111** **N/A**
1/8-1/4 **THERMAL, CA 92274**
0.242 mi.
1277 ft. **Site 4 of 5 in cluster D**

Relative: **Higher**
Actual: **-120 ft.**

UST:

Name:	APPLE MARKET ONE
Address:	56491 HWY 111
City,State,Zip:	THERMAL, CA 92274
Facility ID:	34
Permitting Agency:	RIVERSIDE COUNTY
Latitude:	33.639998
Longitude:	-116.136769

D13 **APPLE MARKET ONE** **UST** **U004282449**
South **56491 US HIGHWAY 111** **N/A**
1/8-1/4 **THERMAL, CA 92274**
0.242 mi.
1277 ft. **Site 5 of 5 in cluster D**

Relative: **Higher**
Actual: **-120 ft.**

UST:

Name:	APPLE MARKET ONE
Address:	56491 US HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Facility ID:	Not reported
Permitting Agency:	Riverside County Department of Environmental Health
Latitude:	33.63865
Longitude:	-116.13811

Name:	APPLE MARKET ONE
Address:	56491 US HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Facility ID:	Not reported
Permitting Agency:	Riverside County Department of Environme
Latitude:	33.63865
Longitude:	-116.13811

Name:	APPLE MARKET ONE
Address:	56491 US HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Facility ID:	Not reported
Permitting Agency:	Riverside County Department of Environmental Health
Latitude:	33.63865
Longitude:	-116.13811

RIVERSIDE CO. UST:

Name:	APPLE MARKET ONE
Address:	56491 US HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Region:	RIVERSIDE
Total Tanks:	2

E14 | **COACHELLA VALLEY ORGANIC FERTI** | **LUST** | **S102428160**
West | **55591 HIGHWAY 111** | **Cortese** | **N/A**
1/4-1/2 | **THERMAL, CA 92274** | **CERS**
0.287 mi.
1513 ft. | **Site 1 of 2 in cluster E**

Relative:
Higher

Actual:
-114 ft.

LUST REG 7:

Region:	7
Status:	9 - Case Closed
Case Num:	7T2274013
Substance:	Gasoline - Automotive
ID:	659
Global ID:	T0606501083
Lead Agency:	Local Agency
Case Worker:	KO

CORTESE:

Name:	COACHELLA VALLEY ORGANIC FERTI
Address:	55591 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606501083
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CERS:

Name:	COACHELLA VALLEY ORGANIC FERTI
Address:	55591 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Site ID:	216048
CERS ID:	T0606501083
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Affiliation:

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	Phan Le - COLORADO RIVER BASIN RWQCB (REGION 7)
Entity Title:	Not reported
Affiliation Address:	73720 FRED WARING DRIVE SUITE #100
Affiliation City:	PALM DESERT
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported

COACHELLA VALLEY ORGANIC FERTI (Continued) **S102428160**

Affiliation Phone:	7607768974
Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980

E15
West
1/4-1/2
0.287 mi.
1513 ft.

COACHELLA VALLEY ORGANIC FERTI
55591 HIGHWAY 111
THERMAL, CA 92274

LUST **S105027063**
HIST CORTESE **N/A**

Site 2 of 2 in cluster E

Relative:
Higher

Actual:
-114 ft.

LUST:

Name:	COACHELLA VALLEY ORGANIC FERTI
Address:	55591 HIGHWAY 111
City,State,Zip:	THERMAL, CA 92274
Lead Agency:	COLORADO RIVER BASIN RWQCB (REGION 7)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606501083
Global Id:	T0606501083
Latitude:	33.645414
Longitude:	-116.144735
Status:	Completed - Case Closed
Status Date:	08/24/1992
Case Worker:	PL
RB Case Number:	7T2274013
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Not reported
Local Case Number:	Not reported
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

LUST:

Global Id:	T0606501083
Contact Type:	Regional Board Caseworker
Contact Name:	Phan Le
Organization Name:	COLORADO RIVER BASIN RWQCB (REGION 7)
Address:	73720 FRED WARING DRIVE SUITE #100
City:	PALM DESERT
Email:	phan.le@waterboards.ca.gov
Phone Number:	7607768974
Global Id:	T0606501083
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

COACHELLA VALLEY ORGANIC FERTI (Continued) **S105027063**

LUST:

Global Id:	T0606501083
Action Type:	Other
Date:	09/29/1988
Action:	Leak Reported
Global Id:	T0606501083
Action Type:	Other
Date:	09/29/1988
Action:	Leak Discovery
Global Id:	T0606501083
Action Type:	Other
Date:	09/07/1988
Action:	Leak Stopped

LUST:

Global Id:	T0606501083
Status:	Open - Case Begin Date
Status Date:	09/07/1988
Global Id:	T0606501083
Status:	Completed - Case Closed
Status Date:	08/24/1992

HIST CORTESE:

edr_fname:	COACHELLA VALLEY ORGANIC
edr_fadd1:	55591 111
City,State,Zip:	THERMAL, CA 92274
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	7T2274013

16
SSW
1/4-1/2
0.424 mi.
2237 ft.

CVUSD - BUS BARN
87-150 CHURCH ST
THERMAL, CA 92274

LUST
Cortese
ENF
CERS

S101300633
N/A

Relative:
Higher

Actual:
-119 ft.

LUST REG 7:

Region:	7
Status:	9 - Case Closed
Case Num:	7T2274002
Substance:	Gasoline - Automotive
ID:	684
Global ID:	T0606501075
Lead Agency:	Local Agency
Case Worker:	KO

LUST:

Name:	CVSD - SURPLUS YARD
Address:	87-150 CHURCH STREET
City,State,Zip:	THERMAL, CA 92274
Lead Agency:	RIVERSIDE COUNTY LOP

CVUSD - BUS BARN (Continued) **S101300633**

Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606501075
Global Id:	T0606501075
Latitude:	33.6384348671665
Longitude:	-116.145386063615
Status:	Completed - Case Closed
Status Date:	01/05/1996
Case Worker:	RIV
RB Case Number:	7T2274002
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Local Agency Warehouse
Local Case Number:	88702
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

LUST:

Global Id:	T0606501075
Contact Type:	Regional Board Caseworker
Contact Name:	Phan Le
Organization Name:	COLORADO RIVER BASIN RWQCB (REGION 7)
Address:	73720 FRED WARING DRIVE SUITE #100
City:	PALM DESERT
Email:	phan.le@waterboards.ca.gov
Phone Number:	7607768974

Global Id:	T0606501075
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

LUST:

Global Id:	T0606501075
Action Type:	ENFORCEMENT
Date:	01/05/1996
Action:	Closure/No Further Action Letter - #Riv Co Closure

Global Id:	T0606501075
Action Type:	Other
Date:	12/01/1987
Action:	Leak Reported

Global Id:	T0606501075
Action Type:	ENFORCEMENT
Date:	08/14/1992
Action:	* Historical Enforcement

Global Id:	T0606501075
Action Type:	ENFORCEMENT
Date:	01/04/1996
Action:	File review - #RCDEH Upload Site File 5/29/2015

Global Id:	T0606501075

CVUSD - BUS BARN (Continued) **S101300633**

Action Type: Other
Date: 12/01/1987
Action: Leak Discovery

Global Id: T0606501075
Action Type: Other
Date: 12/01/1987
Action: Leak Stopped

LUST:
Global Id: T0606501075
Status: Open - Case Begin Date
Status Date: 12/01/1987

Global Id: T0606501075
Status: Open - Site Assessment
Status Date: 12/01/1987

Global Id: T0606501075
Status: Open - Site Assessment
Status Date: 10/01/1992

Global Id: T0606501075
Status: Open - Site Assessment
Status Date: 02/26/1993

Global Id: T0606501075
Status: Completed - Case Closed
Status Date: 01/05/1996

CORTESE:
Name: CVSD - SURPLUS YARD
Address: 87-150 CHURCH STREET
City,State,Zip: THERMAL, CA 92274
Region: CORTESE
Envirostor Id: Not reported
Global ID: T0606501075
Site/Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Status Date: Not reported
Site Code: Not reported
Latitude: Not reported
Longitude: Not reported
Owner: Not reported
Enf Type: Not reported
Swat R: Not reported
Flag: active
Order No: Not reported
Waste Discharge System No: Not reported
Effective Date: Not reported
Region 2: Not reported
WID Id: Not reported
Solid Waste Id No: Not reported
Waste Management Uit Name: Not reported
File Name: Active Open

CVUSD - BUS BARN (Continued) **S101300633**

ENF:

Name:	CVUSD - BUS BARN
Address:	87-150 CHURCH ST
City,State,Zip:	THERMAL, CA 92274
Region:	7
Facility Id:	216442
Agency Name:	CVUSD
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Municipal/Domestic
Agency Type:	Special District
# Of Agencies:	1
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	8211
SIC Desc 1:	Elementary and Secondary Schools
SIC Code 2:	5541
SIC Desc 2:	Gasoline Service Stations
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	UST
Program Category1:	TANKS
Program Category2:	TANKS
# Of Programs:	1
WDID:	7A334025N01
Reg Measure Id:	155089
Reg Measure Type:	Unregulated
Region:	7
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	06/17/2005
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported

CVUSD - BUS BARN (Continued) **S101300633**

WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	223721
Region:	7
Order / Resolution Number:	LT940728
Enforcement Action Type:	Clean-up and Abatement Order
Effective Date:	07/28/1994
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 7A334025N01
Description:	Not reported
Program:	UST
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

Name:	CVUSD - BUS BARN
Address:	87-150 CHURCH ST
City,State,Zip:	THERMAL, CA 92274
Region:	7
Facility Id:	216442
Agency Name:	CVUSD
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Municipal/Domestic
Agency Type:	Special District
# Of Agencies:	1
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	8211
SIC Desc 1:	Elementary and Secondary Schools
SIC Code 2:	5541
SIC Desc 2:	Gasoline Service Stations
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported

CVUSD - BUS BARN (Continued) **S101300633**

NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	UST
Program Category1:	TANKS
Program Category2:	TANKS
# Of Programs:	1
WDID:	7A334025N01
Reg Measure Id:	155089
Reg Measure Type:	Unregulated
Region:	7
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	06/17/2005
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	222233
Region:	7
Order / Resolution Number:	92-036
Enforcement Action Type:	Clean-up and Abatement Order
Effective Date:	08/12/1992
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 7A334025N01
Description:	LEAKING TANK
Program:	UST

CVUSD - BUS BARN (Continued) **S101300633**

Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

CERS:

Name:	CVSD - SURPLUS YARD
Address:	87-150 CHURCH STREET
City,State,Zip:	THERMAL, CA 92274
Site ID:	259223
CERS ID:	T0606501075
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	Phan Le - COLORADO RIVER BASIN RWQCB (REGION 7)
Entity Title:	Not reported
Affiliation Address:	73720 FRED WARING DRIVE SUITE #100
Affiliation City:	PALM DESERT
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	7607768974

17
NW
1/2-1
0.952 mi.
5024 ft.

RANCHO COACHELLA PROPERTIES
54000 HIGHWAY 111
COACHELLA, CA 92236

Notify 65 **S100225026**
N/A

Relative:
Higher

Actual:
-99 ft.

NOTIFY 65:

Name:	RANCHO COACHELLA PROPERTIES
Address:	54000 HIGHWAY 111
City,State,Zip:	COACHELLA, CA 92236
Date Reported:	Not reported
Staff Initials:	Not reported
Board File Number:	Not reported
Facility Type:	Not reported
Discharge Date:	Not reported
Issue Date:	Not reported
Incident Description:	Not reported
Global ID:	Not reported

RANCHO COACHELLA PROPERTIES (Continued) **S100225026**

Status: Not reported

Count: 11 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
COACHELLA	S114608613	CVUSD-H.S. BUS BARN /COACHELLA	83800 AIRPORT BOULEVARD		RGA LUST
COACHELLA	S114604302	COACHELLA VALLEY USD TRANS	83800 AIRPORT BLVD		RGA LUST
COACHELLA	S114604301	COACHELLA VALLEY USD TRANS.	83800 AIRPORT BOULEVARD		RGA LUST
COACHELLA	S112838535	1X COACHELLA VALLEY U S D/COACHELL	83-800 AIRPORT BLVD	92236	HAZNET, HWTS
THERMAL	S124795788	RIVERSIDE COUNTY OFFICE OF EDUCATI	83-800 AIRPORT BLVD	92274	HWTS
THERMAL	1025850612	COACHELLA HORSE PARK	85-555 AIRPORT BLVD	92274	RCRA NonGen / NLR
THERMAL	1025929787	COACHELLA HORSE PARK	85-555 AIRPORT BLVD	92274	ECHO
THERMAL	S118408787	COACHELLA VALLEY HIGH SCHOOL	83-800 AIRPORT BOULEVARD	92274	HIST UST
THERMAL	1026090860	COACHELLA HORSE PARK	85-555 AIRPORT BLVD	92274	FINDS
THERMAL	S106828875	COACHELLA VALLEY UNI SCH DIST	82-225 AIRPORT BL.	92274	EMI
THERMAL	S125536555	COACHELLA HORSE PARK	85-555 AIRPORT BLVD	92274	HAZNET, HWTS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 12/02/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 12/02/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/28/2020	Source: EPA
Date Data Arrived at EDR: 11/05/2020	Telephone: N/A
Date Made Active in Reports: 11/25/2020	Last EDR Contact: 12/02/2020
Number of Days to Update: 20	Next Scheduled EDR Contact: 04/12/2021
	Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/05/2019	Telephone: 703-603-8704
Date Made Active in Reports: 05/14/2019	Last EDR Contact: 12/23/2020
Number of Days to Update: 39	Next Scheduled EDR Contact: 04/12/2021
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/28/2020	Source: EPA
Date Data Arrived at EDR: 11/05/2020	Telephone: 800-424-9346
Date Made Active in Reports: 11/25/2020	Last EDR Contact: 12/02/2020
Number of Days to Update: 20	Next Scheduled EDR Contact: 01/25/2021
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/02/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/06/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/11/2020
Number of Days to Update: 82

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/18/2020
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/18/2020
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/15/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 7

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/27/2020
Date Data Arrived at EDR: 07/27/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/26/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/27/2020
Date Data Arrived at EDR: 07/27/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/26/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/10/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001	Source: California Regional Water Quality Control Board San Diego Region (9)
Date Data Arrived at EDR: 04/23/2001	Telephone: 858-637-5595
Date Made Active in Reports: 05/21/2001	Last EDR Contact: 09/26/2011
Number of Days to Update: 28	Next Scheduled EDR Contact: 01/09/2012
	Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/08/2020	Telephone: see region list
Date Made Active in Reports: 11/30/2020	Last EDR Contact: 12/04/2020
Number of Days to Update: 83	Next Scheduled EDR Contact: 03/22/2021
	Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/19/2003	Telephone: 805-542-4786
Date Made Active in Reports: 06/02/2003	Last EDR Contact: 07/18/2011
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/31/2011
	Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008	Source: California Regional Water Quality Control Board Central Valley Region (5)
Date Data Arrived at EDR: 07/22/2008	Telephone: 916-464-4834
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 07/01/2011
Number of Days to Update: 9	Next Scheduled EDR Contact: 10/17/2011
	Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/14/2020	Source: EPA Region 10
Date Data Arrived at EDR: 05/20/2020	Telephone: 206-553-2857
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 12/16/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 02/01/2021
	Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/29/2020	Source: EPA Region 1
Date Data Arrived at EDR: 05/20/2020	Telephone: 617-918-1313
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 12/16/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 02/01/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/26/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 78

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/15/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 07/21/2020
Date Data Arrived at EDR: 09/03/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 83

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 09/03/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/03/2020
Number of Days to Update: 86

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Semi-Annually

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/03/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/26/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 78

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC’s costs.

Date of Government Version: 07/27/2020
Date Data Arrived at EDR: 07/27/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/26/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/21/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/11/2020
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/14/2020
Date Data Arrived at EDR: 09/15/2020
Date Made Active in Reports: 12/10/2020
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/11/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 10/20/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/20/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 10/30/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/27/2020
Date Data Arrived at EDR: 07/27/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/26/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2019
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 07/20/2020
Date Data Arrived at EDR: 07/21/2020
Date Made Active in Reports: 10/07/2020
Number of Days to Update: 78

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing
A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 05/20/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/06/2020
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing
Aboveground storage tank sites

Date of Government Version: 08/03/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/22/2020
Number of Days to Update: 78

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 07/20/2020
Date Data Arrived at EDR: 07/21/2020
Date Made Active in Reports: 10/07/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/26/2020
Date Data Arrived at EDR: 08/28/2020
Date Made Active in Reports: 11/17/2020
Number of Days to Update: 81

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 12/02/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 81

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/20/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/14/2020
Number of Days to Update: 83

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/30/2020
Date Data Arrived at EDR: 07/21/2020
Date Made Active in Reports: 10/07/2020
Number of Days to Update: 78

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/05/2020
Date Data Arrived at EDR: 08/13/2020
Date Made Active in Reports: 10/21/2020
Number of Days to Update: 69

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/17/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/08/2020
Next Scheduled EDR Contact: 01/18/2021
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/09/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/21/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/14/2020
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 11/02/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/06/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/17/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/02/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 07/24/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 10/21/2020
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/14/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 34

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 12/02/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/09/2019
Date Data Arrived at EDR: 10/11/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 70

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/02/2020
Next Scheduled EDR Contact: 01/18/2021
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/05/2020
Date Data Arrived at EDR: 08/10/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 59

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 10/12/2020
Next Scheduled EDR Contact: 01/31/2021
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2018	Source: Department of Energy
Date Data Arrived at EDR: 12/04/2019	Telephone: 202-586-8719
Date Made Active in Reports: 01/15/2020	Last EDR Contact: 12/01/2020
Number of Days to Update: 42	Next Scheduled EDR Contact: 03/15/2021
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/05/2019	Telephone: N/A
Date Made Active in Reports: 11/11/2019	Last EDR Contact: 11/30/2020
Number of Days to Update: 251	Next Scheduled EDR Contact: 03/15/2021
	Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/06/2019	Telephone: 202-566-0517
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 11/06/2021
Number of Days to Update: 96	Next Scheduled EDR Contact: 02/15/2021
	Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/01/2019	Telephone: 202-343-9775
Date Made Active in Reports: 09/23/2019	Last EDR Contact: 09/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 01/11/2021
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020	Source: Department of Transporation, Office of Pipeline Safety
Date Data Arrived at EDR: 01/28/2020	Telephone: 202-366-4595
Date Made Active in Reports: 04/17/2020	Last EDR Contact: 10/27/2020
Number of Days to Update: 80	Next Scheduled EDR Contact: 02/08/2021
	Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2020	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 10/08/2020	Telephone: Varies
Date Made Active in Reports: 01/04/2021	Last EDR Contact: 01/04/2021
Number of Days to Update: 88	Next Scheduled EDR Contact: 04/19/2021
	Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2017	Source: EPA/NTIS
Date Data Arrived at EDR: 06/22/2020	Telephone: 800-424-9346
Date Made Active in Reports: 11/20/2020	Last EDR Contact: 12/23/2020
Number of Days to Update: 151	Next Scheduled EDR Contact: 04/05/2021
	Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014	Source: USGS
Date Data Arrived at EDR: 07/14/2015	Telephone: 202-208-3710
Date Made Active in Reports: 01/10/2017	Last EDR Contact: 10/06/2020
Number of Days to Update: 546	Next Scheduled EDR Contact: 01/18/2021
	Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017	Source: Department of Energy
Date Data Arrived at EDR: 09/11/2018	Telephone: 202-586-3559
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 11/06/2020
Number of Days to Update: 3	Next Scheduled EDR Contact: 02/15/2021
	Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/20/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 12/02/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/04/2020
Date Data Arrived at EDR: 08/25/2020
Date Made Active in Reports: 11/18/2020
Number of Days to Update: 85

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 09/10/2020
Date Data Arrived at EDR: 09/15/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 66

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 11/24/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/25/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/25/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/16/2020
Date Data Arrived at EDR: 09/17/2020
Date Made Active in Reports: 12/10/2020
Number of Days to Update: 84

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/10/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 09/04/2020
Date Data Arrived at EDR: 09/15/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 66

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 77

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/08/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 10/03/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 10/06/2020
Next Scheduled EDR Contact: 01/18/2021
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/17/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/17/2020
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 10/21/2020
Number of Days to Update: 65

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/22/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 74

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 08/19/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 14

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 08/25/2020
Date Data Arrived at EDR: 08/26/2020
Date Made Active in Reports: 11/13/2020
Number of Days to Update: 79

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner’s agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/06/2020
Date Data Arrived at EDR: 08/28/2020
Date Made Active in Reports: 11/17/2020
Number of Days to Update: 81

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 06/16/2020
Date Made Active in Reports: 08/28/2020
Number of Days to Update: 73

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/20/2020
Date Data Arrived at EDR: 07/21/2020
Date Made Active in Reports: 10/07/2020
Number of Days to Update: 78

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 10/13/2020
Date Data Arrived at EDR: 10/14/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/05/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 79

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/04/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/05/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/17/2020
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/17/2020
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/05/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/05/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 81

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/10/2020
Date Made Active in Reports: 10/29/2020
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/09/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 81

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/09/2020
Date Made Active in Reports: 12/10/2020
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/07/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region’s active disposal pits are operating without permission.

Date of Government Version: 11/19/2019
Date Data Arrived at EDR: 01/07/2020
Date Made Active in Reports: 03/09/2020
Number of Days to Update: 62

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/09/2020
Next Scheduled EDR Contact: 01/18/2021
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 09/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/08/2020	Telephone: 866-480-1028
Date Made Active in Reports: 11/30/2020	Last EDR Contact: 12/04/2020
Number of Days to Update: 83	Next Scheduled EDR Contact: 03/22/2021
	Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 09/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/08/2020	Telephone: 916-341-5810
Date Made Active in Reports: 12/01/2020	Last EDR Contact: 12/08/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 03/22/2021
	Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 08/31/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/31/2020	Telephone: 866-794-4977
Date Made Active in Reports: 11/20/2020	Last EDR Contact: 12/01/2020
Number of Days to Update: 81	Next Scheduled EDR Contact: 03/01/2021
	Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 07/20/2020	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/21/2020	Telephone: 916-323-2514
Date Made Active in Reports: 10/07/2020	Last EDR Contact: 10/19/2020
Number of Days to Update: 78	Next Scheduled EDR Contact: 02/01/2021
	Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 09/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/08/2020	Telephone: 866-480-1028
Date Made Active in Reports: 11/30/2020	Last EDR Contact: 12/04/2020
Number of Days to Update: 83	Next Scheduled EDR Contact: 03/22/2021
	Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 09/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/08/2020	Telephone: 866-480-1028
Date Made Active in Reports: 11/30/2020	Last EDR Contact: 12/04/2020
Number of Days to Update: 83	Next Scheduled EDR Contact: 03/22/2021
	Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 11/25/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 10/13/2020
Date Data Arrived at EDR: 10/14/2020
Date Made Active in Reports: 11/03/2020
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR’s researchers. Manufactured gas sites were used in the United States from the 1800’s to 1950’s to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 78

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 06/01/2020
Number of Days to Update: 13

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/15/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 12/24/2020
Number of Days to Update: 8

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 07/16/2020
Date Data Arrived at EDR: 07/22/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 78

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 10/20/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 08/13/2020
Date Made Active in Reports: 10/22/2020
Number of Days to Update: 70

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 10/20/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/13/2020
Date Data Arrived at EDR: 08/13/2020
Date Made Active in Reports: 10/22/2020
Number of Days to Update: 70

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 10/20/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/02/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 77

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 12/22/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/13/2020
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/14/2020
Date Data Arrived at EDR: 10/15/2020
Date Made Active in Reports: 01/05/2021
Number of Days to Update: 82

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 07/28/2020
Date Data Arrived at EDR: 07/30/2020
Date Made Active in Reports: 10/13/2020
Number of Days to Update: 75

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/28/2020
Date Data Arrived at EDR: 07/30/2020
Date Made Active in Reports: 10/14/2020
Number of Days to Update: 76

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 08/13/2020
Date Data Arrived at EDR: 08/13/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 71

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/07/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/06/2020
Date Data Arrived at EDR: 07/10/2020
Date Made Active in Reports: 09/28/2020
Number of Days to Update: 80

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/09/2020
Date Data Arrived at EDR: 10/09/2020
Date Made Active in Reports: 12/29/2020
Number of Days to Update: 81

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/09/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/07/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 42

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 10/12/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/20/2020
Date Data Arrived at EDR: 10/09/2020
Date Made Active in Reports: 12/29/2020
Number of Days to Update: 81

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/09/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/07/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 09/11/2020
Date Data Arrived at EDR: 10/07/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 77

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/05/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/28/2020
Date Data Arrived at EDR: 07/30/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 1

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 08/20/2020
Date Data Arrived at EDR: 08/24/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 77

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/15/2020
Next Scheduled EDR Contact: 03/08/3021
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 16

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 07/30/2020
Date Made Active in Reports: 10/13/2020
Number of Days to Update: 75

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 10/20/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 06/10/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 10/19/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/02/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 07/02/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 79

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/02/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 07/01/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 10/19/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 11/24/2020
Date Data Arrived at EDR: 11/24/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 1

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/06/2020
Date Data Arrived at EDR: 10/07/2020
Date Made Active in Reports: 11/03/2020
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/06/2020
Date Data Arrived at EDR: 10/07/2020
Date Made Active in Reports: 11/03/2020
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/18/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 76

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/24/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/17/2020
Number of Days to Update: 78

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 08/04/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/22/2020
Number of Days to Update: 78

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/04/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 82

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/23/2020
Number of Days to Update: 84

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 08/03/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/22/2020
Number of Days to Update: 78

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 08/03/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 82

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 07/27/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 75

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/11/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List

Cupa facility list

Date of Government Version: 08/20/2020
Date Data Arrived at EDR: 08/20/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 81

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 07/30/2020
Date Data Arrived at EDR: 07/31/2020
Date Made Active in Reports: 10/16/2020
Number of Days to Update: 77

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/03/2019
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 08/25/2020
Date Data Arrived at EDR: 08/26/2020
Date Made Active in Reports: 09/16/2020
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/03/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 12/15/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 7

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 09/18/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/14/2020
Number of Days to Update: 83

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 77

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/02/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/25/2020
Date Data Arrived at EDR: 08/26/2020
Date Made Active in Reports: 11/17/2020
Number of Days to Update: 83

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 08/11/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 75

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/14/2020
Date Data Arrived at EDR: 10/15/2020
Date Made Active in Reports: 01/05/2021
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 08/06/2020
Date Data Arrived at EDR: 08/06/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 81

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/13/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Varies

VENTURA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 07/10/2020
Date Data Arrived at EDR: 07/22/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 78

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 07/10/2020
Date Data Arrived at EDR: 07/22/2020
Date Made Active in Reports: 10/07/2020
Number of Days to Update: 77

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/01/2021
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/26/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/21/2020
Date Data Arrived at EDR: 12/23/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 12

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/20/2020
Next Scheduled EDR Contact: 04/11/2021
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 08/06/2020
Date Data Arrived at EDR: 08/07/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 80

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 11/03/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 10/20/2020
Date Made Active in Reports: 11/02/2020
Number of Days to Update: 13

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/09/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/09/2020
Next Scheduled EDR Contact: 01/18/2021
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 72

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 10/30/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/07/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 10/02/2019
Date Made Active in Reports: 12/10/2019
Number of Days to Update: 69

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/03/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

HAAGEN COACHELLA
87630 AIRPORT ROAD
THERMAL, CA 92274

TARGET PROPERTY COORDINATES

Latitude (North):	33.645645 - 33˚ 38’ 44.32’’
Longitude (West):	116.137741 - 116˚ 8’ 15.87’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	579959.8
UTM Y (Meters):	3723007.0
Elevation:	120 ft. below sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5641206 INDIO, CA
Version Date:	2012
Northeast Map:	5639302 THERMAL CANYON, CA
Version Date:	2012

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

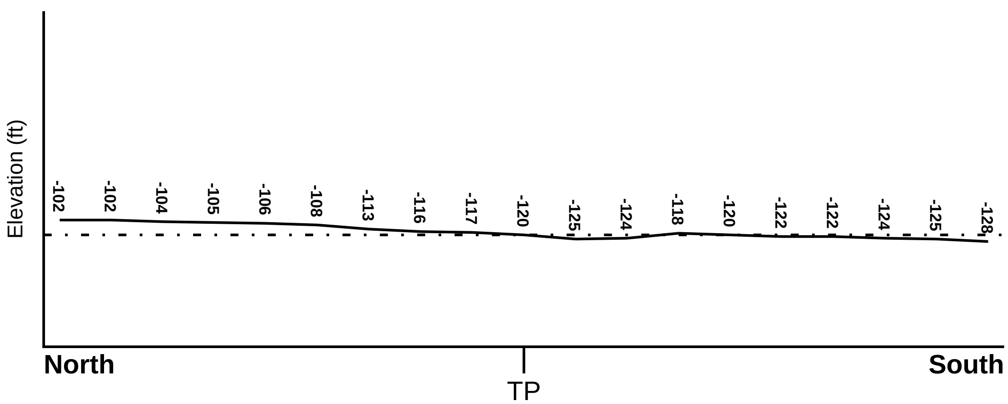
TOPOGRAPHIC INFORMATION

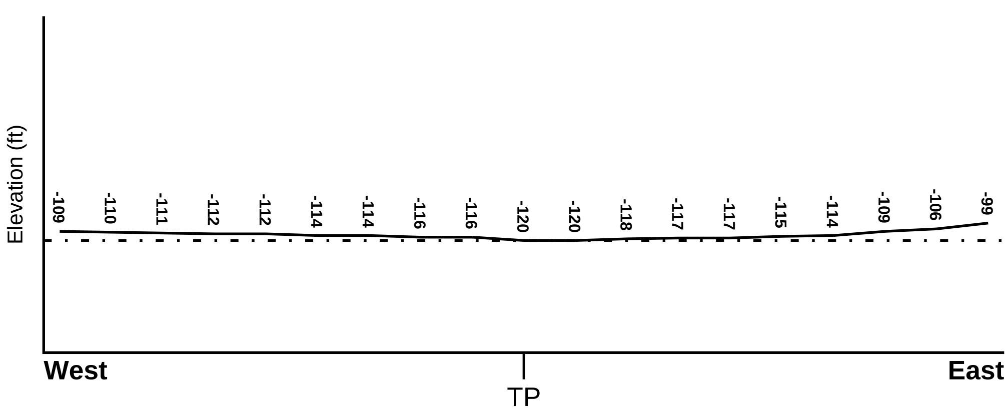
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: -120 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C2270G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C2300G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
INDIO	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

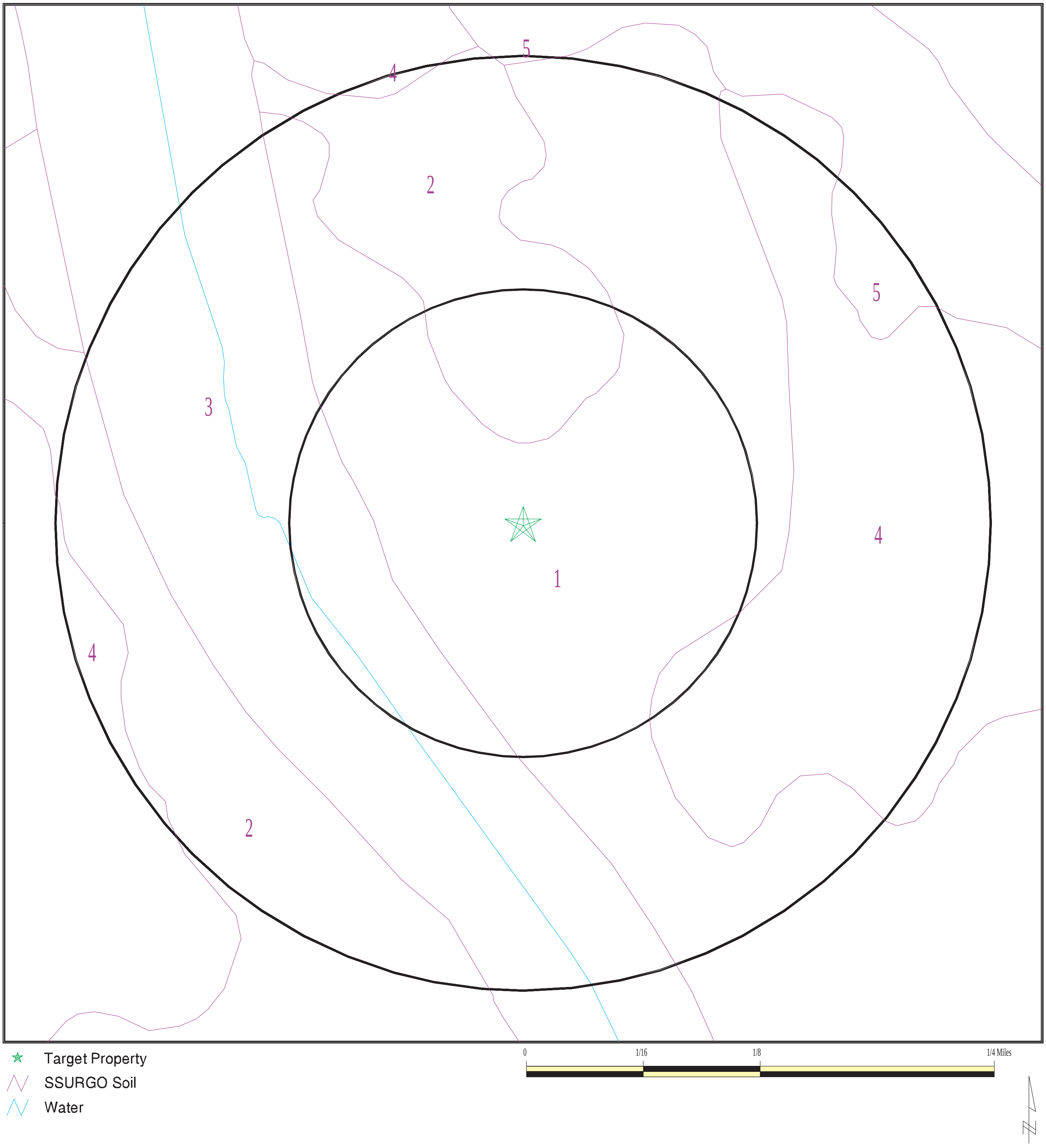
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 6323743.2s



SITE NAME: Haagen Coachella ADDRESS: 87630 Airport Road Thermal CA 92274 LAT/LONG: 33.645645 / 116.137741	CLIENT: Altec Testing & Engineering CONTACT: Lynn Laborde INQUIRY #: 6323743.2s DATE: January 07, 2021 4:37 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Gilman

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	
Layer	**Upper**	**Lower**	**Soil Texture Class**	**AASHTO Group**	**Unified Soil**		**Soil Reaction (pH)**
1	0 inches	7 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.9
2	7 inches	59 inches	stratified loamy sand to silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: Coachella

Soil Surface Texture: fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information

	Boundary			Classification			
Layer	**Upper**	**Lower**	**Soil Texture Class**	**AASHTO Group**	**Unified Soil**	**Saturated hydraulic conductivity micro m/sec**	**Soil Reaction (pH)**
1	0 inches	11 inches	fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.9
2	11 inches	59 inches	stratified sand to loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.9

Soil Map ID: 3

Soil Component Name: Fluvents

Soil Surface Texture: sand

Hydrologic Group: Class A/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class:
Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	9 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	9 inches	29 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
3	29 inches	59 inches	gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 4

Soil Component Name: Indio

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.9
2	9 inches	59 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.9

Soil Map ID: 5

Soil Component Name: Indio

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.9

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	9 inches	59 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.9

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
F29	USGS40000136278	1/4 - 1/2 Mile SW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
23	CA3301373	1/4 - 1/2 Mile SSW

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CADWR0000013934	1/4 - 1/2 Mile SW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

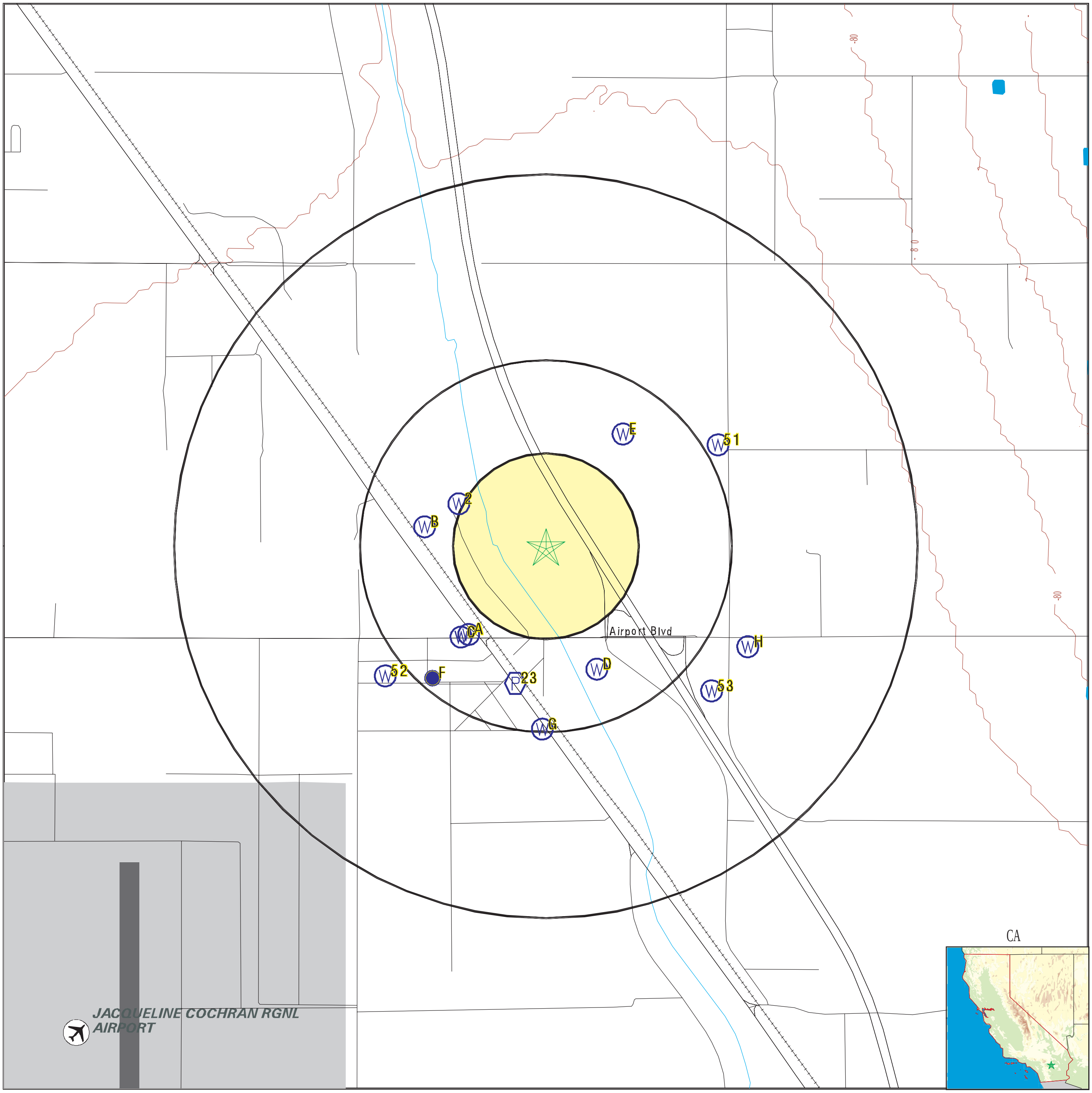
MAP ID	WELL ID	LOCATION FROM TP
2	CADDW0000022335	1/4 - 1/2 Mile WNW
A3	CAEDF0000081958	1/4 - 1/2 Mile SW
A4	CAEDF0000131253	1/4 - 1/2 Mile SW
A5	CAEDF0000142254	1/4 - 1/2 Mile SW
A6	CAEDF0000013515	1/4 - 1/2 Mile SW
A7	CAEDF0000056924	1/4 - 1/2 Mile SW
A8	CAEDF0000120228	1/4 - 1/2 Mile SW
A9	CAEDF0000081411	1/4 - 1/2 Mile SW
A10	CAEDF0000047178	1/4 - 1/2 Mile SW
A11	CAEDF0000006017	1/4 - 1/2 Mile SW
A12	CAEDF0000132072	1/4 - 1/2 Mile SW
A13	CAEDF0000013023	1/4 - 1/2 Mile SW
B14	CADDW0000021798	1/4 - 1/2 Mile West
B15	CADDW0000013386	1/4 - 1/2 Mile West
A16	CAEDF0000031759	1/4 - 1/2 Mile SW
C17	CAEDF0000049188	1/4 - 1/2 Mile SW
C18	CAEDF0000006599	1/4 - 1/2 Mile SW
D19	CADDW0000010143	1/4 - 1/2 Mile SSE
D20	7027	1/4 - 1/2 Mile SSE
E21	7029	1/4 - 1/2 Mile NE
E22	7028	1/4 - 1/2 Mile NE
D24	7030	1/4 - 1/2 Mile SSE
F25	CADWR8000004656	1/4 - 1/2 Mile SW
G26	CAEDF0000040188	1/4 - 1/2 Mile South
G27	CAEDF0000081082	1/4 - 1/2 Mile South
G28	CAEDF0000138591	1/4 - 1/2 Mile South
G30	CAEDF0000059043	1/4 - 1/2 Mile South
G31	CAEDF0000111659	1/4 - 1/2 Mile South
G32	CAEDF0000047687	1/4 - 1/2 Mile South
G33	CAEDF0000098937	1/4 - 1/2 Mile South
G34	CAEDF0000016126	1/4 - 1/2 Mile South
G35	CAEDF0000094963	1/4 - 1/2 Mile South
G36	CAEDF0000116531	1/4 - 1/2 Mile South
G37	CAEDF0000060846	1/4 - 1/2 Mile South
G38	CAEDF0000056336	1/4 - 1/2 Mile South
G39	CAEDF0000008760	1/4 - 1/2 Mile South
G40	CAEDF0000041328	1/4 - 1/2 Mile South
G41	CAEDF0000043652	1/4 - 1/2 Mile South
G42	CAEDF0000142174	1/4 - 1/2 Mile South
G43	CAEDF0000056618	1/4 - 1/2 Mile South
G44	CAEDF0000011408	1/4 - 1/2 Mile South
G45	CAEDF0000099177	1/4 - 1/2 Mile South
G46	CAEDF0000094959	1/2 - 1 Mile South
G47	CAEDF0000132832	1/2 - 1 Mile South
G48	CAEDF0000126312	1/2 - 1 Mile South
G49	CAEDF0000072710	1/2 - 1 Mile South
G50	CAEDF0000040841	1/2 - 1 Mile South
51	CADDW0000007429	1/2 - 1 Mile ENE
52	7031	1/2 - 1 Mile SW
53	CADDW0000010863	1/2 - 1 Mile SE
H54	7034	1/2 - 1 Mile ESE
H55	CADDW0000021080	1/2 - 1 Mile ESE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
H56	CADDW0000003747	1/2 - 1 Mile ESE

PHYSICAL SETTING SOURCE MAP - 6323743.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Haagen Coachella	CLIENT:	Altec Testing & Engineering
ADDRESS:	87630 Airport Road Thermal CA 92274	CONTACT:	Lynn Laborde
		INQUIRY #:	6323743.2s
LAT/LONG:	33.645645 / 116.137741	DATE:	January 07, 2021 4:37 pm

Map ID Direction Distance Elevation		Database	EDR ID Number
A1 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CADWR0000013934**

Well ID:	06S08E22D001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	06S08E22D001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=06S08E22D001S&store_num=		
GeoTracker Data:	Not Reported		

		Database	EDR ID Number
2 **WNW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CADDW0000022335**

Well ID:	3301305-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WEST WELL	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301305-001&store_num=		
GeoTracker Data:	Not Reported		

		Database	EDR ID Number
A3 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000081958**

Well ID:	T0606501080-MW8	Well Type:	MONITORING
Source:	EDF	Other Name:	MW8
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW8&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW8		

		Database	EDR ID Number
A4 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000131253**

Well ID:	T0606501080-MW7	Well Type:	MONITORING
Source:	EDF	Other Name:	MW7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW7&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW7		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A5
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CAEDF0000142254**

Well ID:	T0606501080-MW1	Well Type:	MONITORING
Source:	EDF	Other Name:	MW1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW1		

A6
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CAEDF0000013515**

Well ID:	T0606501080-MW4	Well Type:	MONITORING
Source:	EDF	Other Name:	MW4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW4		

A7
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CAEDF0000056924**

Well ID:	T0606501080-VE1	Well Type:	MONITORING
Source:	EDF	Other Name:	VE1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=VE1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=VE1		

A8
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CAEDF0000120228**

Well ID:	T0606501080-MW3	Well Type:	MONITORING
Source:	EDF	Other Name:	MW3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW3		

Map ID Direction Distance Elevation		Database	EDR ID Number
A9 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000081411**

Well ID: T0606501080-MW6
Well Type: MONITORING
Source: EDF
Other Name: MW6
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW6&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW6

A10 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000047178**

Well ID: T0606501080-MW5
Well Type: MONITORING
Source: EDF
Other Name: MW5
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW5&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW5

A11 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000006017**

Well ID: T0606501080-VE2
Well Type: MONITORING
Source: EDF
Other Name: VE2
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=VE2&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=VE2

A12 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000132072**

Well ID: T0606501080-VE3
Well Type: MONITORING
Source: EDF
Other Name: VE3
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=VE3&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=VE3

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A13
SW
1/4 - 1/2 Mile
Higher | **CA WELLS** | **CAEDF0000013023**

Well ID:	T0606501080-MW11	Well Type:	MONITORING
Source:	EDF	Other Name:	MW11
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW11&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW11		

B14
West
1/4 - 1/2 Mile
Higher | **CA WELLS** | **CADDW0000021798**

Well ID:	3301305-002	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	EAST WELL	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301305-002&store_num=		
GeoTracker Data:	Not Reported		

B15
West
1/4 - 1/2 Mile
Higher | **CA WELLS** | **CADDW0000013386**

Well ID:	3301717-002	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 02 (NOT HOOKED TO SYSTEM)		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301717-002&store_num=		
GeoTracker Data:	Not Reported		

A16
SW
1/4 - 1/2 Mile
Higher | **CA WELLS** | **CAEDF0000031759**

Well ID:	T0606501080-MW2	Well Type:	MONITORING
Source:	EDF	Other Name:	MW2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW2		

Map ID Direction Distance Elevation	Database	EDR ID Number
C17 **SW** **1/4 - 1/2 Mile** **Higher**	**CA WELLS**	**CAEDF0000049188**

Well ID:	T0606501080-MW9	Well Type:	MONITORING
Source:	EDF	Other Name:	MW9
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW9&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW9		

C18 **SW** **1/4 - 1/2 Mile** **Higher**	**CA WELLS**	**CAEDF0000006599**

Well ID:	T0606501080-MW10	Well Type:	MONITORING
Source:	EDF	Other Name:	MW10
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501080&assigned_name=MW10&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501080&assigned_name=MW10		

D19 **SSE** **1/4 - 1/2 Mile** **Lower**	**CA WELLS**	**CADDW0000010143**

Well ID:	3301209-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 01 SOUTH	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301209-001&store_num=		
GeoTracker Data:	Not Reported		

D20 **SSE** **1/4 - 1/2 Mile** **Lower**	**CA WELLS**	**7027**

Seq:	7027	Prim sta c:	06S/08E-22B02 S
Frds no:	3301209001	County:	33
District:	63	User id:	33C
System no:	3301209	Water type:	G
Source nam:	WELL 01 SOUTH	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	333828.0	Longitude:	1160804.0
Precision:	3	Status:	AR
Comment 1:	87-629 AVE 56 THERMAL CA 92274		
Comment 2:	WELL LOCATED ON PROPERTY SOUTH OF TRAILER PARK		
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported

Comment 7:	Not Reported		
System no:	3301209	System nam:	Desert View Trailer Park
Hqname:	Not Reported	Address:	Not Reported
City:	Not Reported	State:	Not Reported
Zip:	Not Reported	Zip ext:	Not Reported
Pop serv:	0	Connection:	0
Area serve:	Not Reported		
Sample date:	06-NOV-17	Finding:	1.2
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	08-DEC-16	Finding:	15.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	0.3
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	08-DEC-16	Finding:	160.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	280.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	8.5
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	88.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	100.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	39.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	47.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	2.8
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	8.5
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	08-DEC-16	Finding:	34.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	08-DEC-16	Finding:	1.3

Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	08-DEC-16	Finding:	5.9
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	08-DEC-16	Finding:	6.9
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	07-AUG-16	Finding:	1.4
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	18-MAY-16	Finding:	1.3
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	24-FEB-16	Finding:	1.2
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	14-DEC-15	Finding:	400.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	7.9
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	78.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	95.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	73.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	29.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	51.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	3.4
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	18.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	67.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		

Sample date:	14-DEC-15	Finding:	1.4
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	14-DEC-15	Finding:	3.
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	14-DEC-15	Finding:	34.
Chemical:	BARIUM	Report units:	UG/L
Dlr:	100.		
Sample date:	14-DEC-15	Finding:	64.
Chemical:	ZINC	Report units:	UG/L
Dlr:	50.		
Sample date:	14-DEC-15	Finding:	220.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	14-DEC-15	Finding:	0.16
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	17-NOV-15	Finding:	1.2
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	25-AUG-15	Finding:	1.1
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	09-FEB-15	Finding:	1.3
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	01-OCT-14	Finding:	1.3
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	22-SEP-14	Finding:	6.9
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	02-JUL-14	Finding:	1.4
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	18-JUN-14	Finding:	1.4
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	21-APR-14	Finding:	1.8
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	22-JAN-14	Finding:	1.6
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	22-OCT-13	Finding:	1.6
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L

Dlr:	0.1		
Sample date:	22-JUL-13	Finding:	2.8
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	22-APR-13	Finding:	1.8
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	14-JAN-13	Finding:	3.93
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	14-JAN-13	Finding:	1.12
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-JAN-13	Finding:	3.08
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	14-JAN-13	Finding:	1.8
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	14-JAN-13	Finding:	0.72
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-OCT-12	Finding:	0.68
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-OCT-12	Finding:	1.35
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-OCT-12	Finding:	4.57
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	22-OCT-12	Finding:	3.51
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	16-JUL-12	Finding:	0.71
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JUL-12	Finding:	1.2
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JUL-12	Finding:	4.21
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	16-JUL-12	Finding:	0.569
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	16-JUL-12	Finding:	0.25
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	16-JUL-12	Finding:	3.65
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		

Sample date:	22-MAR-12	Finding:	1.18
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	22-MAR-12	Finding:	3.41
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		

Sample date:	22-MAR-12	Finding:	3.61
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		

Sample date:	22-MAR-12	Finding:	0.76
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	22-MAR-12	Finding:	0.401
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	22-MAR-12	Finding:	0.206
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	22-MAR-12	Finding:	0.195
Chemical:	RA-226 OR TOTAL RA BY 903.0 C.E.	Report units:	PCI/L
Dlr:	0.		

Sample date:	22-MAR-12	Finding:	0.439
Chemical:	RADIUM, TOTAL, MDA95-NTNC ONLY, BY 903.0		
Report units:	PCI/L	Dlr:	0.

Sample date:	22-MAR-12	Finding:	5.8e-002
Chemical:	RA-226 FOR CWS OR TOTAL RA FOR NTNC BY 903.0		
Report units:	PCI/L	Dlr:	0.

E21
NE
1/4 - 1/2 Mile
Higher

CA WELLS 7029

Seq:	7029	Prim sta c:	06S/08E-22C02 S
Frds no:	3310068002	County:	33
District:	14	User id:	WAT
System no:	3310068	Water type:	G
Source nam:	WELL 6802 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	333900.0	Longitude:	1160800.0
Precision:	8	Status:	IU
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3310068	System nam:	Coachella Vwd: Thermal
Hqname:	COACHELLA VALLEY WTR DIST	Address:	P.O. BOX 1058
City:	Coachella	State:	CA
Zip:	92236	Zip ext:	Not Reported
Pop serv:	518	Connection:	157
Area serve:	THERMAL		

E22
NE
1/4 - 1/2 Mile
Higher

CA WELLS 7028

Seq:	7028	Prim sta c:	06S/08E-22C01 S
Frds no:	3310068001	County:	33
District:	14	User id:	WAT
System no:	3310068	Water type:	G
Source nam:	WELL 6801 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	333900.0	Longitude:	1160800.0
Precision:	8	Status:	IU
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3310068	System nam:	Coachella Vwd: Thermal
Hqname:	COACHELLA VALLEY WTR DIST	Address:	P.O. BOX 1058
City:	Coachella	State:	CA
Zip:	92236	Zip ext:	Not Reported
Pop serv:	518	Connection:	157
Area serve:	THERMAL		

23
SSW
1/4 - 1/2 Mile
Higher

FRDS PWS CA3301373

Epa region:	09	State:	CA
Pwsid:	CA3301373	Pwsname:	Oasis Date Gardens
Cityserved:	Not Reported	Stateserved:	CA
Zipserved:	Not Reported	Fipscounty:	06065
Status:	Active	Retpopsrvd:	250
Pwssvcconn:	4	Psource longname:	Groundwater
Pwstype:	NTNCWS	Owner:	Private
Contact:	TIM BURKE	Contactorgname:	Oasis Date Gardens
Contactphone:	6193995665	Contactaddress1:	P O BOX 757
Contactaddress2:	Not Reported	Contactcity:	THERMAL
Contactstate:	CA	Contactzip:	92274
Pwsactivitycode:	A		

PWS ID:	CA3301373	PWS type:	System Owner/Responsible Party
PWS name:	ARABIAN DATE GARDENS	PWS address:	Not Reported
PWS city:	THERMAL	PWS state:	CA
PWS zip:	92274	PWS name:	OASIS DATE GARDENS
PWS type code:	NC	Retail population served:	250
Contact:	Gary Root	Contact address:	P.O. Box 7600
Contact address:	4065 County Circle Dr.	Contact city:	Riverside
Contact state:	CA	Contact zip:	92513
Contact telephone:	9093585316		

PWS ID:	CA3301373	Activity status:	Active

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Date system activated:	7706	Date system deactivated:	Not Reported
Retail population:	00000033	System name:	ARABIAN DATE GARDENS
System address:	ARABIAN DATE GARDENS	System address:	HWY 11
System city:	THERMAL	System state:	CA
System zip:	92274		
Population served:	Under 101 Persons	Treatment:	Untreated
Latitude:	333825	Longitude:	1160818
Violation id:	0000002	Orig code:	S
State:	CA	Violation Year:	2000
Contamination code:	3100	Contamination Name:	Coliform (TCR)
Violation code:	22	Violation name:	MCL, Monthly (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	11/01/2000
Cmp edt:	11/30/2000		
Violation id:	0000003	Orig code:	S
State:	CA	Violation Year:	2000
Contamination code:	3100	Contamination Name:	Coliform (TCR)
Violation code:	26	Violation name:	Monitoring, Repeat Minor (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	11/01/2000
Cmp edt:	11/30/2000		
Violation id:	1300004	Orig code:	S
State:	CA	Violation Year:	2013
Contamination code:	7000	Contamination Name:	Consumer Confidence Rule
Violation code:	71	Violation name:	CCR Complete Failure to Report
Rule code:	420	Rule name:	CCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2013
Cmp edt:	Not Reported		
Violation id:	1400005	Orig code:	S
State:	CA	Violation Year:	2013
Contamination code:	1040	Contamination Name:	Nitrate
Violation code:	03	Violation name:	Monitoring, Regular
Rule code:	331	Rule name:	Nitrates
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	01/01/2013
Cmp edt:	12/31/2013		
PWS name:	OASIS DATE GARDENS	Population served:	250
PWS type code:	NC	Violation ID:	0000002
Contaminant:	COLIFORM (TCR)		
Violation type:	Max Contaminant Level, Monthly (TCR)		
Compliance start date:	11/1/2000 0:00:00	Compliance end date:	11/30/2000 0:00:00
Enforcement date:	No Enf Action as of	Enforcement action:	7/8/2009 0:00:00
Violation measurement:	Not Reported		
PWS name:	OASIS DATE GARDENS	Population served:	250
PWS type code:	NC	Violation ID:	0000003
Contaminant:	COLIFORM (TCR)	Violation type:	Monitoring, Repeat Minor (TCR)
Compliance start date:	11/1/2000 0:00:00	Compliance end date:	11/30/2000 0:00:00
Enforcement date:	No Enf Action as of	Enforcement action:	7/8/2009 0:00:00
Violation measurement:	Not Reported		

Map ID Direction Distance Elevation		Database	EDR ID Number
D24 **SSE** **1/4 - 1/2 Mile** **Lower**		**CA WELLS**	**7030**

Seq:	7030	Prim sta c:	06S/08E-22C04 S
Frds no:	3301823001	County:	33
District:	63	User id:	33C
System no:	3301823	Water type:	G
Source nam:	WELL 01	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	333825.0	Longitude:	1160804.0
Precision:	2	Status:	AR
Comment 1:	CA 92274 15		
Comment 2:	Not Reported	Comment 3:	Not Reported
Comment 4:	Not Reported	Comment 5:	Not Reported
Comment 6:	Not Reported	Comment 7:	Not Reported

System no:	3301823	System nam:	Triple A Water Co
Hqname:	Not Reported	Address:	Not Reported
City:	Not Reported	State:	Not Reported
Zip:	Not Reported	Zip ext:	Not Reported
Pop serv:	0	Connection:	0
Area serve:	Not Reported		

F25 **SW** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CADWR8000004656**

State Well #:	06S08E22D002S	Station ID:	47728
Well Name:	06S08E22D002S	Well Use:	Observation
Well Type:	Single Well	Well Depth:	1100
Basin Name:	Indio	Well Completion Rpt #:	37980

G26 **South** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000040188**

Well ID:	T0606501089-MW8	Well Type:	MONITORING
Source:	EDF	Other Name:	MW8
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW8&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW8		

G27 **South** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000081082**

Well ID:	T0606501089-VE3	Well Type:	MONITORING
Source:	EDF	Other Name:	VE3
GAMA PFAS Testing:	Not Reported		

Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=VE3&store_num=
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=VE3

G28
South
1/4 - 1/2 Mile
Lower

CA WELLS **CAEDF0000138591**

Well ID:	T0606501089-MW7	Well Type:	MONITORING
Source:	EDF	Other Name:	MW7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW7&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW7		

F29
SW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000136278**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S008E22D001S	Type:	Well
Description:	Not Reported	HUC:	18100200
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Basin and Range basin-fill aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	1100
Well Depth Units:	ft	Well Hole Depth:	1110
Well Hole Depth Units:	ft		

G30
South
1/4 - 1/2 Mile
Lower

CA WELLS **CAEDF0000059043**

Well ID:	T0606501089-VE4	Well Type:	MONITORING
Source:	EDF	Other Name:	VE4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=VE4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=VE4		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G31
South
1/4 - 1/2 Mile
Lower

CA WELLS **CAEDF0000111659**

Well ID:	T0606501089-AS3	Well Type:	MONITORING
Source:	EDF	Other Name:	AS3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=AS3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=AS3		

G32
South
1/4 - 1/2 Mile
Higher

CA WELLS **CAEDF0000047687**

Well ID:	T0606501089-MW-3	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW-3		

G33
South
1/4 - 1/2 Mile
Higher

CA WELLS **CAEDF0000098937**

Well ID:	T0606501089-MW3	Well Type:	MONITORING
Source:	EDF	Other Name:	MW3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW3		

G34
South
1/4 - 1/2 Mile
Lower

CA WELLS **CAEDF0000016126**

Well ID:	T0606501089-AS5	Well Type:	MONITORING
Source:	EDF	Other Name:	AS5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=AS5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=AS5		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G35
South
1/4 - 1/2 Mile
Lower | **CA WELLS** | **CAEDF0000094963**

Well ID:	T0606501089-MW-1	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW-1		

G36
South
1/4 - 1/2 Mile
Lower | **CA WELLS** | **CAEDF0000116531**

Well ID:	T0606501089-AS4	Well Type:	MONITORING
Source:	EDF	Other Name:	AS4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=AS4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=AS4		

G37
South
1/4 - 1/2 Mile
Lower | **CA WELLS** | **CAEDF0000060846**

Well ID:	T0606501089-AS1	Well Type:	MONITORING
Source:	EDF	Other Name:	AS1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=AS1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=AS1		

G38
South
1/4 - 1/2 Mile
Lower | **CA WELLS** | **CAEDF0000056336**

Well ID:	T0606501089-VE2	Well Type:	MONITORING
Source:	EDF	Other Name:	VE2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=VE2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=VE2		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G39
South
1/4 - 1/2 Mile
Lower

CA WELLS **CAEDF0000008760**

Well ID:	T0606501089-MW1	Well Type:	MONITORING
Source:	EDF	Other Name:	MW1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW1		

G40
South
1/4 - 1/2 Mile
Lower

CA WELLS **CAEDF0000041328**

Well ID:	T0606501089-MW6	Well Type:	MONITORING
Source:	EDF	Other Name:	MW6
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW6&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW6		

G41
South
1/4 - 1/2 Mile
Lower

CA WELLS **CAEDF0000043652**

Well ID:	T0606501089-AS2	Well Type:	MONITORING
Source:	EDF	Other Name:	AS2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=AS2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=AS2		

G42
South
1/4 - 1/2 Mile
Higher

CA WELLS **CAEDF0000142174**

Well ID:	T0606501089-MW-2	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW-2		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
G43 **South** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000056618**

Well ID:	T0606501089-VE1	Well Type:	MONITORING
Source:	EDF	Other Name:	VE1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=VE1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=VE1		

G44 **South** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000011408**

Well ID:	T0606501089-MW2	Well Type:	MONITORING
Source:	EDF	Other Name:	MW2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW2		

G45 **South** **1/4 - 1/2 Mile** **Higher**		**CA WELLS**	**CAEDF0000099177**

Well ID:	T0606501089-MW4	Well Type:	MONITORING
Source:	EDF	Other Name:	MW4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW4		

G46 **South** **1/2 - 1 Mile** **Lower**		**CA WELLS**	**CAEDF0000094959**

Well ID:	T0606501089-MW5	Well Type:	MONITORING
Source:	EDF	Other Name:	MW5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW5		

Map ID
Direction
Distance
Elevation

Database | EDR ID Number

G47
South
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000132832**

Well ID:	T0606501089-MW11	Well Type:	MONITORING
Source:	EDF	Other Name:	MW11
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW11&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW11		

G48
South
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000126312**

Well ID:	T0606501089-MW12	Well Type:	MONITORING
Source:	EDF	Other Name:	MW12
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW12&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW12		

G49
South
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000072710**

Well ID:	T0606501089-MW9	Well Type:	MONITORING
Source:	EDF	Other Name:	MW9
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW9&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW9		

G50
South
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000040841**

Well ID:	T0606501089-MW10	Well Type:	MONITORING
Source:	EDF	Other Name:	MW10
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0606501089&assigned_name=MW10&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606501089&assigned_name=MW10		

Map ID Direction Distance Elevation		Database	EDR ID Number
51 **ENE** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**CADDW0000007429**

Well ID:	3301176-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL #1	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301176-001&store_num=		
GeoTracker Data:	Not Reported		

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52 **SW** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**7031**

Seq:	7031	Prim sta c:	06S/08E-22D02 S
Frds no:	3310068003	County:	33
District:	14	User id:	WAT
System no:	3310068	Water type:	G
Source nam:	WELL 6803	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	333826.0	Longitude:	1160840.0
Precision:	2	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3310068	System nam:	Coachella Vwd: Thermal
Hqname:	COACHELLA VALLEY WTR DIST	Address:	P.O. BOX 1058
City:	Coachella	State:	CA
Zip:	92236	Zip ext:	Not Reported
Pop serv:	518	Connection:	157
Area serve:	THERMAL		

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53 **SE** **1/2 - 1 Mile** **Lower**		**CA WELLS**	**CADDW0000010863**

Well ID:	3301823-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 01 - INACTIVE	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301823-001&store_num=		
GeoTracker Data:	Not Reported		

H54 **ESE** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**7034**

Seq:	7034	Prim sta c:	06S/08E-23D01 S
Frds no:	3301717001	County:	33

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

District:	63	User id:	33C
System no:	3301717	Water type:	G
Source nam:	WELL 01	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	333831.0	Longitude:	1160739.0
Precision:	2	Status:	AR
Comment 1:	88-041 AVE 56		
Comment 2:	CA 92274	25	
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3301717	System nam:	Valley View Trailer Park
Hqname:	Not Reported	Address:	Not Reported
City:	Not Reported	State:	Not Reported
Zip:	Not Reported	Zip ext:	Not Reported
Pop serv:	0	Connection:	0
Area serve:	Not Reported		

Sample date:	19-OCT-16	Finding:	250.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	0.5
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	19-OCT-16	Finding:	3.1
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	19-OCT-16	Finding:	1.5
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	19-OCT-16	Finding:	74.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	19-OCT-16	Finding:	19.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	3.8
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	55.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	30.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	76.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	98.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-16	Finding:	80.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	8.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	410.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	19-OCT-16	Finding:	7.9
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	20-NOV-13	Finding:	92.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	0.41
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	20-NOV-13	Finding:	8.9
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	20-NOV-13	Finding:	200.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	140.
Chemical:	IRON	Report units:	UG/L
Dlr:	100.		
Sample date:	20-NOV-13	Finding:	3.3
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	20-NOV-13	Finding:	0.8
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	20-NOV-13	Finding:	59.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	20-NOV-13	Finding:	22.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	3.4
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	50.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	27.
Chemical:	CALCIUM	Report units:	MG/L

Dlr:	0.		
Sample date:	20-NOV-13	Finding:	69.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	75.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	8.2
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	20-NOV-13	Finding:	380.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	22-APR-13	Finding:	0.49
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-APR-13	Finding:	0.201
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-JAN-13	Finding:	0.248
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-JAN-13	Finding:	4.1
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	14-JAN-13	Finding:	1.32
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-JAN-13	Finding:	0.74
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-JAN-13	Finding:	0.821
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-JAN-13	Finding:	4.73
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	22-OCT-12	Finding:	5.71
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	22-OCT-12	Finding:	4.76
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	22-OCT-12	Finding:	1.41
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample date:	22-OCT-12	Finding:	0.78
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	29-AUG-12	Finding:	0.495
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	29-AUG-12	Finding:	0.2
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	18-JUL-12	Finding:	1.18
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	18-JUL-12	Finding:	3.25
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	18-JUL-12	Finding:	0.73
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	18-JUL-12	Finding:	4.57
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	22-MAR-12	Finding:	4.31
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	22-MAR-12	Finding:	0.82
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-MAR-12	Finding:	4.36
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	22-MAR-12	Finding:	0.203
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-MAR-12	Finding:	0.475
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-MAR-12	Finding:	5.7e-002
Chemical:	RADIUM 228	Report units:	PCI/L
Dlr:	1.		
Sample date:	22-MAR-12	Finding:	1.3
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Map ID Direction Distance Elevation	Database	EDR ID Number
H55 **ESE** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CADDW0000021080**

Well ID:	3301717-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 01	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301717-001&store_num=		
GeoTracker Data:	Not Reported		

Map ID Direction Distance Elevation	Database	EDR ID Number
H56 **ESE** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CADDW0000003747**

Well ID:	3301396-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL #3	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3301396-001&store_num=		
GeoTracker Data:	Not Reported		

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92274	1	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5’ Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5’ Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

APPENDIX D

County of Riverside
DEPARTMENT OF ENVIRONMENTAL HEALTH

www.rivcoeh.org

REQUEST FOR RECORDS

To help expedite your request, mark the program for which you are requesting records (Call 951-358-5172 if you are uncertain):

☒ Hazardous Materials / Underground Storage Tanks
☒ Land Use / Water Resources / Body Art / Medical Waste / Solid Waste
☐ Food facility / Public Pools and Water Features / Retail Tobacco

- Requests will be responded to within ten (10) business days per California Government Code, sections 6253 and 6256.
- Pursuant to California Government Code section 6254 (f), records of pending investigations and informants' names, addresses, and telephone numbers will not be released.
- **This form is for acquisition of any existing records. Any consultation in reference to these records may be subject to a consultation fee (pursuant to Riverside County Ordinance 640).**
- For access to electronic records available online, visit the public information section at www.rivcoeh.org for more details.

NAME OF REQUESTING PARTY: Lynn Laborde	DATE OF REQUEST: 2.5.2021	
BUSINESS NAME (IF ANY): Altec	TELEPHONE NUMBER: ( ) (909) 645-3626	
RETURN LEGAL MAILING ADDRESS: 6035 Fremont Street	EMAIL ADDRESS: llaborde@altectesting.com	
CITY: Riverside	STATE: CA	ZIP: 92504

The following information is required. <u>**List each street address separately.**</u>

INFORMATION REQUESTED: All Hazmat Records	PERIOD OF TIME TO BE RESEARCHED (If applicable) FROM:	TO:
SITE STREET ADDRESS (1): APN 763-33-0013	CITY: Coachella, CA	
SITE STREET ADDRESS (2): APN 763-33-0018	CITY: Coachella, CA	
SITE STREET ADDRESS (3): 763-33-0029	CITY: Coachella, CA	
SITE STREET ADDRESS (4):	CITY:	
SITE STREET ADDRESS (5):	CITY:	
SITE STREET ADDRESS (6):	CITY:	
APN (**For Land Use and Water Resources ONLY**): See above (no street addresses known)		

Email this completed form to:

Land Use/Water Resources (WEST): landuse@rivco.org
Land Use/Water Resources (DESERT): landusedesert@rivco.org
Hazardous Materials: DEHRecordsMgmt@rivco.org
All other programs: dehwebmaster@rivco.org

To mail this form, go to http://rivcoeh.org/Contactus for the address of the DEH office closest to the requested location(s).

Duplication costs for records researched and duplicated must be paid upon receipt of records.

FOR OFFICE USE ONLY		
COST OF REPRODUCTION: $____________	EACH ADDITIONAL PAGE: $____________	TOTAL: $____________
REVIEWED BY	TITLE	
RECORDS RECEIVED BY	DATE	

*** IF RECORD REQUEST IS MADE USING ALTERNATE METHOD AND NOT THIS FORM, ATTACH A COPY OF REQUEST TO THIS FORM.**

February 5, 2021

RIVERSIDE COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Management Division
4065 County Circle Drive Room 104
Riverside, California 92513-7600
951-358-5055
951-358-5017 (fax)
DEHRecordsMgmt@rivco.org

This is a request for a records review, if available.

Altec Testing & Engineering, Inc. (Altec) is conducting an investigation for the following property:

Vacant Land proposed for development as Coachella Airport Business Park
42.36 Acres
APN 763-33-0013, APN 763-33-0018 and APN 763-33-0029
Coachella, California 92274

We would like to obtain copies of any reports or documents relating to USTs, hazardous material discharge, use or storage, releases or spills that your department may have on file for this site or general area. Please search your records and advise Altec if files exist and, if so, when they can be made available for our review.

We appreciate your efforts in advance and would like to express our gratitude for your work.

Sincerely,

Lynn Laborde
Senior Project Manager
(909) 645-3826 mobile

Environmental Protection & Oversight Division
Hazardous Materials Management Branch

REQUEST FOR RECORDS INFORMATION SHEET

The Hazardous Materials Management Branch (HMMB) is responsible for processing all requests for records maintained by the HMMB. The following information is designed to assist the public in the access of those records.

Before submitting a request, please review Cal EPA's Site Portal (https://siteportal.calepa.ca.gov) for readily accessible information to assist with common reasons for public records requests, including for Phase I/II environmental site assessments, current inspection records, and compliance status.

1. All requests must be in writing and may be submitted by mail, fax, or email on the DEH Request for Records form. Requests made on the requestor's company letterhead may be delayed if not all required information is included.

2. Please provide **ONE RECORDS REQUEST** form per street address (one street per request).

3. Provide a legal mailing address. All correspondences are sent by Environmental Health via US mail or by email as needed.

4. Access to Hazardous Materials Management Branch records is by **street address only**. We are currently unable to provide information about sites based on Assessor's Parcel Numbers (APN) or similar geographic site information.

5. After the initial determination of public records within 10 days, the processing period is approximately 2–4 weeks, based on file availability, location and preparation time.

6. All requests are processed on a first come, first serve basis.

7. Some information contained in records is of a sensitive nature and is not available to the public.

8. There is a clerical records research fee of **$.50 for the first page, plus $.10 per additional page**, although other fees may apply. **Records will not be made available until this fee is paid**.

9. There is a **$18.48** flat-rate charge (per list) for information available in list form.

10. Files can be viewed in person by appointment only. A copy service can be utilized. DEH is unable to provide copies at the time of the appointment. However, the requestor is welcome to take photos, scan, or make copies with their own equipment.

11. Appointments are scheduled in 1 hour intervals, not to exceed 2 hours. Rescheduling is available.

12. Request for copying and scanning of files are limited to size, availability and time needed. Additional fees apply, including for **reproduction of records at a rate of $10.00 per each quarter hour or any portion thereof.**

13. Requestors should note that **NO INFORMATION REGARDING THE CONTENTS OF FILES IS PROVIDED VIA TELEPHONE**.

APPENDIX E

SOP – PHASE I ESA SCOPE OF WORK

Purpose

The Phase I ESA consisted of four basic components: (1) Records Review, (2) Site Reconnaissance, (3) Interviews and (4) Report. The organization of this report follows the suggested outline given in ASTM E1527.

This Phase I ESA included a site visit and area reconnaissance, historical site-use research, a review of previously prepared reports (if provided), a review of contaminated or potentially contaminated properties in the vicinity and interviews with representatives of the public, regulatory agencies, owner and buyer, to the extent necessary and practical. The purpose of this Phase I ESA was to identify RECs, HRECs and CRECs associated with the target property. These are issues that may or would require soil or groundwater investigation or cleanup activities if brought to the attention of a regulatory agency.

The term REC is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not RECs.

The term HREC means a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by the applicable regulatory authority, without subjecting the property to any required controls. Before calling the past release a HREC, the EP must determine whether the past release is a REC at the time the Phase I ESA is conducted. If the EP considers the past release to be a REC at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the Phase I ESA as a REC.

The term CRECs means a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. A condition considered by the EP to be a CREC shall be listed in the findings section of the Phase I ESA report and as an REC in the conclusions section of the Phase I ESA report.

Another purpose of the Phase I ESA process is to constitute appropriate inquiry for purposes of CERCLA's innocent landowner defense. For a definition of appropriate inquiry please refer to ASTM E1527. Qualified legal counsel should be sought for an in-depth evaluation of the CERCLA innocent landowner defense.

Significant Assumptions
Significant assumptions made in this Phase I ESA are as follows:

- Information provided by the client/user and tenants/owners, if any, is accurate,
- Information provided in interviews, if any, is accurate,
- Information in public records accessed for the Phase I ESA is accurate,
- Information in previous reports, if any, is accurate.
- The property use during time periods between historical data points (e.g. historical aerial photographs, etc.) was consistent with the available historical information.
- No information was concealed or withheld by any involved party that would change the report conclusions.

This report provides an overview of potential environmental concerns, both past and present. The details of the environmental assessment are limited by the availability of information at the time of the assessment. It is possible that unreported or undetected waste disposal, spills, leaks, or illegal activities causing impairment of or diminishing the environmental status of the target property may have occurred. The conclusions and recommendations regarding environmental conditions pertaining to this property are based on a scope of work authorized by our client. No scope of work, regardless of the level of study, can identify all contaminants or all conditions above and below ground.

Limitations and Exceptions
The report has been prepared in accordance with generally accepted environmental methodologies referenced in ASTM 1527-13, and contains the standard limitations associated with these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our agreement and included in this report.

Some of the conclusions expressed with this report are based on the information provided by others. It is possible that data provided by others may be inaccurate and may not properly represent conditions at the target property or at nearby sites. The possibility exists that unexpected environmental conditions may be encountered at the target property in locations not specifically investigated. Should information come to light that differs from any information provided by or included within this report, Altec must be notified so that we may determine if modifications to our conclusions are necessary.

The services performed and outlined in this report were based, in part, on visual observations of the target property and associated structures. Our opinion only applies to portions of the target property that were available for direct observation. Areas that were inaccessible at the time of our visit are excluded from this assessment.

This Phase I ESA does not constitute a health and safety or OSHA-compliance audit of the target property or operating businesses. Worker health and safety issues were not investigated as a part of the scope of work. Evaluation of mechanical, structural, electrical, geotechnical and seismic issues were not included. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services. Evaluating employee health and safety operations and compliance was not a part of this assessment.

Special Terms and Conditions
Special terms and conditions refer to contractually agreed items that may affect the standard scope as contemplated by ASTM Practice E 1527. An example might be the need to complete the Phase I ESA for an escrow closing in a time frame shorter than typically required to obtain the commonly required public records. There were no special terms or contractual conditions for this assessment.

User Reliance
The term User is defined in ASTM Practice E 1527 as “the party seeking to use Practice E 1527 to perform an environmental site assessment of the target property. A User may include, without limitation, a purchaser, a potential tenant, an owner, a lender or an insurer.”

ASTM Practice E 1527 also prescribes time limitations for reliance on Phase I ESAs. In general, the results of a Phase I ESA conforming to the Practice may be relied upon for a period of 180 days. Following this period, certain elements of the ESA must be updated for the ESA to be relied upon.

For this report, the term User refers to the group of interested parties including the client who commissioned this work, and lenders, developers, potential tenants and others who together constitute the stakeholders of the client’s team, and who the client determines have a valid need for the information in this ESA. These parties may rely on the results of the ESA to the extent, and within the time limits, prescribed by ASTM Practice E 1527.

Appendix G

Preliminary Hydrology Report

COACHELLA AIRPORT BUSINESS PARK

IN THE CITY OF
COACHELLA, CA

PRELIMINARY HYDROLOGY REPORT

PREPARED FOR:
HAAGEN COMPANY, LLC
12302 EXPOSITION BOULEVARD
LOS ANGELES, CA 0064
CHRIS FAHEY
(310) 820-1200

PREPARED BY:

PREPARED BY:

TheAltumGroup
73710 FRED WARING DRIVE, SUITE 219
PALM DESERT, CA 92260
(760) 346-4750

Prepared Under the Supervision of:

James R. Bazua, PE
R.C.E. 58394
Expiration Date: December 31, 2020

REGISTERED PROFESSIONAL ENGINEER
JAMES RON BAZUA
No 58394
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA

COACHELLA AIRPORT BUSINESS PARK

PRELIMINARY HYDROLOGY REPORT

TABLE OF CONTENTS:

I PROJECT DESCRIPTION

II PROJECT SCOPE AND DESIGN METHODOLOGY

III RETENTION BASIN SIZING/ SYNTHETIC UNIT HYDROGRAPH CALCULATIONS

IV RETENTION BASIN INFILTRATION STUDY

V REFERENCE MATERIAL

VI APPENDIX

I. PROJECT DESCRIPTION

Haagen Co., LLC is proposing to develop the Coachella Airport Business Park (proposed project), a mixed-use business park development which includes warehouse/commercial uses, self-storage, small business, drive thru coffee shop and service station/mini mart-related land uses in the City of Coachella, in Riverside County, California. The project site is located at the northwest corner of the intersection of State Route 86 and Airport Boulevard and is comprised of three parcels totaling approximately 42.69 acres. The proposed project will require a change of zone from M-H (Heavy Industrial) to MS-IP (Manufacturing Service – Industrial Park Overlay) to allow the proposed uses.

The project site is bordered by a vacant, undeveloped property owned by Coachella Valley Water District (CVWD) located immediately north. To the west, the project site is bordered by the Coachella Valley Stormwater Channel, to the east, bordered by SR-86 and beyond followed by agricultural land uses, and to the south, bordered by a mobile home park. A 3.44-acre right-of-way under California Department of Transportation (Caltrans) jurisdiction that is vacant and abuts the southeastern frontage of the project site. (See Preliminary Hydrology Map – Appendix).

Although the site is adjacent to the Coachella Valley Storm Channel it is currently in the flood plain Zone AE (Base Flood Elevations Provided) based on FEMA Map Number 06065C2270H, Panel 2270 of 3805, reflected in the map revised 3/6/18. Coachella Valley Water District (CVWD) maintains the existing Storm Water Channel and has proposed future channel lining improvements that will remove the entirety of existing Coachella Airport Business Park from the flood plain. However, Coachella Airport Business Park intends to go forward with development in a manner that protects the site from off-site flows by establish elevated grades along affected portion of the project perimeter. CVWD will conduct a Flood Development Review of the project development on behalf of FEMA before Final Engineering drawings are submitted to City of Coachella for first review to confirm that the project design protects the development from off-site flows. Modeling of off-site flows affecting the site under existing and proposed conditions will be submitted to CVWD for review based on the Flood Development Review requirements listed in the CVWD Development Design Guidelines. This Preliminary Hydrology Report supports the Preliminary Grading and Drainage Plan for entitlement which shows proposed conditions protecting the site from off-site flows. However, modeling of the proposed conditions and review of the proposed conditions will not occur until after project entitlement and before submittal of final engineering documents.

II. PROJECT SCOPE AND DESIGN METHODOLOGY

This Preliminary Hydrology Report was prepared in support of the Preliminary Site Grading and Drainage Plan included as part of the Conditional Use Permit Application for the Coachella Airport Business Park. The proposed Coachella Airport Business Park Development will be required to collect and store 100% of the runoff generated during the 100 year storm event on-site per City of Coachella drainage standards. The purpose of this report is to provide a study of the storm runoff generated under the post development condition, and support the design of on-site storm retention facilities in order to satisfy the City of Coachella on-site retention requirements. An analysis supporting the design and sizing of underground storm drain conduits and drain inlets will be provided during final design phase for the development.

The project can be separated into three main subareas and storm water collection system boundaries, 1.) the majority of the site is designed to surface flow to a series of drain inlets, gutters and swales where runoff can be collected and conveyed in an underground storm drain system toward retention basins located along the westerly side of the property 2.) a smaller portion of the project located at the northerly interior of the site will drain its surface runoff toward an interim retention basin location 3.) A portion of project located on the Easterly boundary will flow to a single retention basin adjacent to the project boundary. There are several depressed loading docks (0.16 acres) serving the proposed warehouse buildings on the northerly side of the project site. These loading docks will drain separately to underground storage facilities as their depth does not allow for gravity flow into the proposed storm drain retention system. The project soils report notes that underground infiltration systems are not recommended for the site due to relatively high groundwater levels. However, recommendations for infiltration systems are given to provide for separation from infrastructure. These recommendations will be adhered to and the assumed location of underground storage systems serving the loading docks are show on the Preliminary Hydrology Map. Alternate means of providing drainage for the depressed loading dock areas, such as automatic pumping systems may be considered during Final Engineering Design phase.

It is anticipated that future improvements to the adjacent Coachella Valley Storm Water Channel proposed by CVWD will lower the hydraulic grade line within the channel sufficiently to remove Coachella Airport Business Park from the flood plain and allow gravity flow of storm runoff from project site. CVWD has confirmed that this would be allowed as long as all State Water Quality Management requirements are met. The current project design is such that gravity flow to the Coachella Valley Storm Water Channel can be achieved with minor changes to the on-site storm drain system (including removal of the interim retention basin) should the Channel be improved.

The maximum depth of any on-site retention basin will be three (3) feet and will be sized to retain the entire storm volume generated on-site during the 10 year design storm. The project site will also provide sufficient capacity to contain the runoff volume generated during the 100 year design storm in combination with the retention basin and shallow ponding on surface streets and parking areas at a depth not to exceed 1.5’ in depth. In the event of an emergency flooding condition, flows exceeding the capacity of the on-site collection system will overflow at the southeasterly end of project site toward State Highway 86 right of way and onto an adjacent undeveloped parcel of land. Flows ultimately would then proceed southerly via surface flow where make their way into the Coachella Valley Storm Water Channel. Flows then continue in the channel ultimately to its terminus at the Salton Sea.

On-site retention basins shall be designed in a manner that allows the stored volume generated from the 100 year design storm event to completely evacuate via percolation into the soil within a 72 hour period assuming the maximum percolation rate allowed by City of Coachella of 10 gallons/s.f./day (0.67in./hr). Several City of Coachella drywell infiltration chambers will be used in the design of the storm drain system in order to facilitate the conveyance of the underground storm drain system into the shallow retention basin. However, any additional infiltration provided by these drywells will not be included in calculations to reduce the size of the retention basin or aid in showing that the 100 year storm volume can be evacuated within the allotted time period.

Existing soils in the project area are predominantly consistent with Soil Type B. An Antecedent Moisture Condition of II with a Runoff Index Number of 56 as defined by RCFCD is used for the 100 year design storm.

This report includes:

1) The determination of on-site drainage areas as identified on the hydrology map for the project;

2) The determination of flood volumes for the retention basin utilizing Riverside County Flood Control District (RCFCD) Synthetic Unit Hydrograph (Short-cut Method) for the 10 year and 100 year storm event. Soil Type C values and corresponding Runoff Index (RI) Numbers are assumed.

3) A discussion regarding the project’s ability to dissipate runoff stored after a 100 year storm event within a 72 hour period.

DESIGN CRITERIA

1) On-site drainage areas:

SUBAREA A –	27.65 acres commercial (85% impervious)
	0.97 perimeter landscaping (100% pervious)
	2.1 acres retention basin areas (100% impervious)
SUBAREA B –	8.18 acres commercial (85% impervious)
	1.00 acres retention basin area (100% impervious)
SUBAREA C –	2.32 acres commercial (85% impervious)
	0.10 perimeter landscaping (100% pervious)
	0.21 acres retention basin area (100% impervious)

2) The following parameters were used in the preparation of the analyses:

• Antecedant Moisture Condition – 10 year	1	
• Antecedant Moisture Condition – 100 year	2	
• 10 year – 3 hour Precipitation	0.984”	NOAA ATLAS 14
• 10 year – 6 hour Precipitation	1.28”	NOAA ATLAS 14
• 10 year – 24 hour Precipitation	2.07”	NOAA ATLAS 14
• 100 year – 3 hour Precipitation	2.03”	NOAA ATLAS 14
• 100 year – 6 hour Precipitation	2.71”	NOAA ATLAS 14
• 100 year – 24 hour Precipitation	4.24”	NOAA ATLAS 14
• Hydrologic Soil Type “B”		RCFCD Plate C-1.36
• Runoff Index Number	56	RCFCD Plate D-5.5
• 10 year Infiltration Rate	.70	RCFCD Plate E-6.2
• 100 year Infiltration Rate	.51	RCFCD Plate E-6.2
• Slope – Intensity Duration Curve	59	RCFCD Plate D-4.6

III RETENTION BASIN SIZING/ SYNTHETIC UNIT HYDROGRAPH CALCULATIONS

The proposed on-site retention system design is intended to collect design storm runoff generated on-site. Each of the proposed retention basins are a maximum of three feet deep in accordance with City of Coachella requirements. The basins provide sufficient capacity to retain the entire storm volume generated on-site during the 10 year design storm. The runoff volume generated during the 100 year design storm will be contained on-site within the retention basins and within portions of the paved access roads and parking areas with shallow ponding at a maximum depth of 1.5’. The maximum depth of ponding at the point where emergency overflow occurs is 1.0’. For the purpose of calculating the volume of ponding that occurs on-site, maximum average ponding depth is assumed to be 0.5’.

Design storm runoff volume calculations using the RCFCD Synthetic Unit Hydrograph method are included in this section.

RETENTION VOLUME

SUBAREA	BASIN VOLUME (CU.FT.)	PONDING AREA (SQ.FT.)	PONDED VOLUME (0.5’ DEEP)	TOTAL VOLUME PROVIDED (CU.FT.)
A	139,026	90,110	45,055	184,081
B	138,198	11,004	5,502	143,700
C	16,706	17,238	8,619	25,325

SUBAREA	10 YEAR VOLUME REQUIRED (CU.FT.)	100 YEAR VOLUME REQUIRED (CU.FT.)	TOTAL VOLUME PROVIDED (CU.FT.)
A	38,514	182,214	184,081
B	9,953	48,487	143,700
C	3,639	16,621	25,325

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA A - 10 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	27.87		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.87		
23	RETENTION BASIN	1.98		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	250		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	10		
37				
38	POINT RAIN			
39	3-HOUR	0.984		
40	6-HOUR	1.28		
41	24-HOUR	2.07		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		379	42516	
45		380	45027	
46		381	47609	
47		382	50263	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
BY MES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA A - 10 YEAR EVENT
[3] AREA - ACRES	30.720
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	250.00
[7] La-MILES	0.047
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.6
[17] 100% OF LAG-MINUTES	2.6
[18] 200% OF LAG-MINUTES	5.2
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 10
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
0.98	30.720	1.00	0.98	1.28	30.720	1.00	1.28	2.07	30.720	1.00	2.07
		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			0.00	0.00
SUM [5]	30.72	SUM [7]	0.98	SUM [9]	30.72	SUM [11]	1.28	SUM [13]	30.72	SUM [15]	2.07
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			0.98				1.28				2.07

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.41	0.40	0.27
FLOOD VOLUME	(cu-ft)	45,515	44,163	30,125
	(acre-ft)	1.04	1.01	0.69
REQUIRED STORAGE	(cu-ft)	38,514	33,950	8,264
	(acre-ft)	0.88	0.78	0.19
PEAK FLOW	(cfs)	23.17	19.84	2.98
MAXIMUM WSEL	(ft)	379.88	379.78	379.17

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.70	85%	0.16	27.87	0.907	0.1492
B	PAVING/HARDSCAPE	56	0.70	100%	0.07	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.70	20%	0.57	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.70	40%	0.45	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.70	50%	0.39	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.70	65%	0.29	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.70	80%	0.20	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.70	75%	0.23	0.00	0.000	0.0000
B	LANDSCAPING	56	0.70	0%	0.70	0.87	0.028	0.0198
B	RETENTION BASINS	56	0.70	0%	0.70	1.98	0.064	0.0451
B	GOLF COURSE	56	0.70	0%	0.70	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.20	90%	0.20	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	30.72	SUM	0.2142

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.107090088

C= 0.00198

Ft=C(24-(T/60))^1.55 = 0.00198 (24-(T/60))^1.55 + 0.11 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
10 YEAR - 3 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: \AMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72			
UNIT TIME-MINUTES	5			
LAG TIME - MINUTES	2.58			
UNIT TIME-PERCENT OF LAG	193.9			
TOTAL ADJUSTED STORM RAIN-INCHES	0.98			
CONSTANT LOSS RATE-in/hr	0.21			
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.66	cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.154	0.21	0.14	0.02	0.47	0.00
2	10	0.17	1.3	0.154	0.21	0.14	0.02	0.47	0.00
3	15	0.25	1.1	0.130	0.21	0.12	0.01	0.40	0.00
4	20	0.33	1.5	0.177	0.21	0.16	0.02	0.54	0.00
5	25	0.42	1.5	0.177	0.21	0.16	0.02	0.54	0.00
6	30	0.50	1.8	0.213	0.21	0.19	0.02	0.65	0.00
7	35	0.58	1.5	0.177	0.21	0.16	0.02	0.54	0.00
8	40	0.67	1.8	0.213	0.21	0.19	0.02	0.65	0.00
9	45	0.75	1.8	0.213	0.21	0.19	0.02	0.65	0.00
10	50	0.83	1.5	0.177	0.21	0.16	0.02	0.54	0.00
11	55	0.92	1.6	0.189	0.21	0.17	0.02	0.58	0.00
12	60	1.00	1.8	0.213	0.21	0.19	0.02	0.65	0.00
13	65	1.08	2.2	0.260	0.21	0.23	0.05	1.40	222.39
14	70	1.17	2.2	0.260	0.21	0.23	0.05	1.40	222.39
15	75	1.25	2.2	0.260	0.21	0.23	0.05	1.40	222.39
16	80	1.33	2.0	0.236	0.21	0.21	0.02	0.68	4.75
17	85	1.42	2.6	0.307	0.21	0.28	0.09	2.85	657.68
18	90	1.50	2.7	0.319	0.21	0.29	0.10	3.21	766.51
19	95	1.58	2.4	0.283	0.21	0.26	0.07	2.13	440.04
20	100	1.67	2.7	0.319	0.21	0.29	0.10	3.21	766.51
21	105	1.75	3.3	0.390	0.21	0.35	0.18	5.39	1419.44
22	110	1.83	3.1	0.366	0.21	0.33	0.15	4.67	1201.80
23	115	1.92	2.9	0.342	0.21	0.31	0.13	3.94	984.15
24	120	2.00	3.0	0.354	0.21	0.32	0.14	4.30	1092.97
25	125	2.08	3.1	0.366	0.21	0.33	0.15	4.67	1201.80
26	130	2.17	4.2	0.496	0.21	0.45	0.28	8.66	2398.84
27	135	2.25	5.0	0.590	0.21	0.53	0.38	11.56	3269.42
28	140	2.33	3.5	0.413	0.21	0.37	0.20	6.12	1637.09
29	145	2.42	6.8	0.803	0.21	0.72	0.59	18.09	5228.23
30	150	2.50	7.3	0.862	0.21	0.78	0.65	19.90	5772.34
31	155	2.58	8.2	0.968	0.21	0.87	0.75	23.17	6751.75
32	160	2.67	5.9	0.697	0.21	0.63	0.48	14.82	4248.83
33	165	2.75	2.0	0.236	0.21	0.21	0.02	0.68	4.75
34	170	2.83	1.8	0.213	0.21	0.19	0.02	0.65	0.00
35	175	2.92	1.8	0.213	0.21	0.19	0.02	0.65	0.00
36	180	3.00	0.6	0.071	0.21	0.06	0.01	0.22	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.41
FLOOD VOLUME (acft)	1.04
FLOOD VOLUME (cuft)	45514.84
REQUIRED STORAGE (acft)	0.88
REQUIRED STORAGE (cuft)	38514.07
PEAK FLOW RATE (cfs)	23.17

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
10 YEAR - 6 HOUR STORM EVENT

PROJECT: COACHELLA AIRPORT BUSINESS PARK
CONCENTRATION POINT: 1

BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.58
UNIT TIME-PERCENT OF LAG	193.9
TOTAL ADJUSTED STORM RAIN-INCHES	1.28
CONSTANT LOSS RATE-in/hr	0.214
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.077	0.21	0.07	0.01	0.24	0.00
2	10	0.17	0.6	0.092	0.21	0.08	0.01	0.28	0.00
3	15	0.25	0.6	0.092	0.21	0.08	0.01	0.28	0.00
4	20	0.33	0.6	0.092	0.21	0.08	0.01	0.28	0.00
5	25	0.42	0.6	0.092	0.21	0.08	0.01	0.28	0.00
6	30	0.50	0.7	0.108	0.21	0.10	0.01	0.33	0.00
7	35	0.58	0.7	0.108	0.21	0.10	0.01	0.33	0.00
8	40	0.67	0.7	0.108	0.21	0.10	0.01	0.33	0.00
9	45	0.75	0.7	0.108	0.21	0.10	0.01	0.33	0.00
10	50	0.83	0.7	0.108	0.21	0.10	0.01	0.33	0.00
11	55	0.92	0.7	0.108	0.21	0.10	0.01	0.33	0.00
12	60	1.00	0.8	0.123	0.21	0.11	0.01	0.38	0.00
13	65	1.08	0.8	0.123	0.21	0.11	0.01	0.38	0.00
14	70	1.17	0.8	0.123	0.21	0.11	0.01	0.38	0.00
15	75	1.25	0.8	0.123	0.21	0.11	0.01	0.38	0.00
16	80	1.33	0.8	0.123	0.21	0.11	0.01	0.38	0.00
17	85	1.42	0.8	0.123	0.21	0.11	0.01	0.38	0.00
18	90	1.50	0.8	0.123	0.21	0.11	0.01	0.38	0.00
19	95	1.58	0.8	0.123	0.21	0.11	0.01	0.38	0.00
20	100	1.67	0.8	0.123	0.21	0.11	0.01	0.38	0.00
21	105	1.75	0.8	0.123	0.21	0.11	0.01	0.38	0.00
22	110	1.83	0.8	0.123	0.21	0.11	0.01	0.38	0.00
23	115	1.92	0.8	0.123	0.21	0.11	0.01	0.38	0.00
24	120	2.00	0.9	0.138	0.21	0.12	0.01	0.42	0.00
25	125	2.08	0.8	0.123	0.21	0.11	0.01	0.38	0.00
26	130	2.17	0.9	0.138	0.21	0.12	0.01	0.42	0.00
27	135	2.25	0.9	0.138	0.21	0.12	0.01	0.42	0.00
28	140	2.33	0.9	0.138	0.21	0.12	0.01	0.42	0.00
29	145	2.42	0.9	0.138	0.21	0.12	0.01	0.42	0.00
30	150	2.50	0.9	0.138	0.21	0.12	0.01	0.42	0.00
31	155	2.58	0.9	0.138	0.21	0.12	0.01	0.42	0.00
32	160	2.67	0.9	0.138	0.21	0.12	0.01	0.42	0.00
33	165	2.75	1.0	0.154	0.21	0.14	0.02	0.47	0.00
34	170	2.83	1.0	0.154	0.21	0.14	0.02	0.47	0.00
35	175	2.92	1.0	0.154	0.21	0.14	0.02	0.47	0.00
36	180	3.00	1.0	0.154	0.21	0.14	0.02	0.47	0.00
37	185	3.08	1.0	0.154	0.21	0.14	0.02	0.47	0.00
38	190	3.17	1.1	0.169	0.21	0.15	0.02	0.52	0.00
39	195	3.25	1.1	0.169	0.21	0.15	0.02	0.52	0.00
40	200	3.33	1.1	0.169	0.21	0.15	0.02	0.52	0.00
41	205	3.42	1.2	0.184	0.21	0.17	0.02	0.57	0.00
42	210	3.50	1.3	0.200	0.21	0.18	0.02	0.61	0.00
43	215	3.58	1.4	0.215	0.21	0.19	0.00	0.03	0.00
44	220	3.67	1.4	0.215	0.21	0.19	0.00	0.03	0.00
45	225	3.75	1.5	0.230	0.21	0.21	0.02	0.50	0.00
46	230	3.83	1.5	0.230	0.21	0.21	0.02	0.50	0.00
47	235	3.92	1.6	0.246	0.21	0.22	0.03	0.97	93.22
48	240	4.00	1.6	0.246	0.21	0.22	0.03	0.97	93.22
49	245	4.08	1.7	0.261	0.21	0.24	0.05	1.44	234.78
50	250	4.17	1.8	0.276	0.21	0.25	0.06	1.91	376.34
51	255	4.25	1.9	0.292	0.21	0.26	0.08	2.39	517.90
52	260	4.33	2.0	0.307	0.21	0.28	0.09	2.86	659.45
53	265	4.42	2.1	0.323	0.21	0.29	0.11	3.33	801.01
54	270	4.50	2.1	0.323	0.21	0.29	0.11	3.33	801.01
55	275	4.58	2.2	0.338	0.21	0.30	0.12	3.80	942.57
56	280	4.67	2.3	0.353	0.21	0.32	0.14	4.27	1084.13

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 10 YEAR - 6 HOUR STORM EVENT	PROJECT: COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.58
UNIT TIME-PERCENT OF LAG	193.9
TOTAL ADJUSTED STORM RAIN-INCHES	1.28
CONSTANT LOSS RATE-in/hr	0.214
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.369	0.21	0.33	0.15	4.75	1225.68
58	290	4.83	2.4	0.369	0.21	0.33	0.15	4.75	1225.68
59	295	4.92	2.5	0.384	0.21	0.35	0.17	5.22	1367.24
60	300	5.00	2.6	0.399	0.21	0.36	0.19	5.69	1508.80
61	305	5.08	3.1	0.476	0.21	0.43	0.26	8.05	2216.59
62	310	5.17	3.6	0.553	0.21	0.50	0.34	10.41	2924.38
63	315	5.25	3.9	0.599	0.21	0.54	0.38	11.82	3349.05
64	320	5.33	4.2	0.645	0.21	0.58	0.43	13.24	3773.72
65	325	5.42	4.7	0.722	0.21	0.65	0.51	15.60	4481.51
66	330	5.50	5.6	0.860	0.21	0.77	0.65	19.84	5755.53
67	335	5.58	1.9	0.292	0.21	0.26	0.08	2.39	517.90
68	340	5.67	0.9	0.138	0.21	0.12	0.01	0.42	0.00
69	345	5.75	0.6	0.092	0.21	0.08	0.01	0.28	0.00
70	350	5.83	0.5	0.077	0.21	0.07	0.01	0.24	0.00
71	355	5.92	0.3	0.046	0.21	0.04	0.00	0.14	0.00
72	360	6.00	0.2	0.031	0.21	0.03	0.00	0.09	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.40
FLOOD VOLUME (acft)	1.01
FLOOD VOLUME (cuft)	44163.05
REQUIRED STORAGE (acft)	0.78
REQUIRED STORAGE (cuft)	33949.72
PEAK FLOW RATE (cfs)	19.84

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 10 YEAR - 24 HOUR STORM EVENT	PROJECT: CONCENTRATION POINT: BY: JAMES BAZUA	COACHELLA AIRPORT BUSINESS PARK 1 DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2142
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.107
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00198
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.017	0.378	0.015	0.002	0.05	0.00
2	30	0.50	0.3	0.025	0.374	0.022	0.002	0.08	0.00
3	45	0.75	0.3	0.025	0.369	0.022	0.002	0.08	0.00
4	60	1.00	0.4	0.033	0.365	0.030	0.003	0.10	0.00
5	75	1.25	0.3	0.025	0.361	0.022	0.002	0.08	0.00
6	90	1.50	0.3	0.025	0.357	0.022	0.002	0.08	0.00
7	105	1.75	0.3	0.025	0.352	0.022	0.002	0.08	0.00
8	120	2.00	0.4	0.033	0.348	0.030	0.003	0.10	0.00
9	135	2.25	0.4	0.033	0.344	0.030	0.003	0.10	0.00
10	150	2.50	0.4	0.033	0.340	0.030	0.003	0.10	0.00
11	165	2.75	0.5	0.041	0.335	0.037	0.004	0.13	0.00
12	180	3.00	0.5	0.041	0.331	0.037	0.004	0.13	0.00
13	195	3.25	0.5	0.041	0.327	0.037	0.004	0.13	0.00
14	210	3.50	0.5	0.041	0.323	0.037	0.004	0.13	0.00
15	225	3.75	0.5	0.041	0.319	0.037	0.004	0.13	0.00
16	240	4.00	0.6	0.050	0.315	0.045	0.005	0.15	0.00
17	255	4.25	0.6	0.050	0.311	0.045	0.005	0.15	0.00
18	270	4.50	0.7	0.058	0.307	0.052	0.006	0.18	0.00
19	285	4.75	0.7	0.058	0.303	0.052	0.006	0.18	0.00
20	300	5.00	0.8	0.066	0.299	0.060	0.007	0.20	0.00
21	315	5.25	0.6	0.050	0.295	0.045	0.005	0.15	0.00
22	330	5.50	0.7	0.058	0.292	0.052	0.006	0.18	0.00
23	345	5.75	0.8	0.066	0.288	0.060	0.007	0.20	0.00
24	360	6.00	0.8	0.066	0.284	0.060	0.007	0.20	0.00
25	375	6.25	0.9	0.075	0.280	0.067	0.007	0.23	0.00
26	390	6.50	0.9	0.075	0.276	0.067	0.007	0.23	0.00
27	405	6.75	1.0	0.083	0.273	0.075	0.008	0.25	0.00
28	420	7.00	1.0	0.083	0.269	0.075	0.008	0.25	0.00
29	435	7.25	1.0	0.083	0.265	0.075	0.008	0.25	0.00
30	450	7.50	1.1	0.091	0.262	0.082	0.009	0.28	0.00
31	465	7.75	1.2	0.099	0.258	0.089	0.010	0.31	0.00
32	480	8.00	1.3	0.108	0.255	0.097	0.011	0.33	0.00
33	495	8.25	1.5	0.124	0.251	0.112	0.012	0.38	0.00
34	510	8.50	1.5	0.124	0.248	0.112	0.012	0.38	0.00
35	525	8.75	1.6	0.132	0.244	0.119	0.013	0.41	0.00
36	540	9.00	1.7	0.141	0.241	0.127	0.014	0.43	0.00
37	555	9.25	1.9	0.157	0.237	0.142	0.016	0.48	0.00
38	570	9.50	2.0	0.166	0.234	0.149	0.017	0.51	0.00
39	585	9.75	2.1	0.174	0.231	0.156	0.017	0.53	0.00
40	600	10.00	2.2	0.182	0.227	0.164	0.018	0.56	0.00
41	615	10.25	1.5	0.124	0.224	0.112	0.012	0.38	0.00
42	630	10.50	1.5	0.124	0.221	0.112	0.012	0.38	0.00
43	645	10.75	2.0	0.166	0.218	0.149	0.017	0.51	0.00
44	660	11.00	2.0	0.166	0.214	0.149	0.017	0.51	0.00
45	675	11.25	1.9	0.157	0.211	0.142	0.016	0.48	0.00
46	690	11.50	1.9	0.157	0.208	0.142	0.016	0.48	0.00
47	705	11.75	1.7	0.141	0.205	0.127	0.014	0.43	0.00
48	720	12.00	1.8	0.149	0.202	0.134	0.015	0.46	0.00
49	735	12.25	2.5	0.207	0.199	0.186	0.008	0.25	0.00
50	750	12.50	2.6	0.215	0.196	0.194	0.019	0.59	0.00
51	765	12.75	2.8	0.232	0.193	0.209	0.039	1.19	480.19
52	780	13.00	2.9	0.240	0.190	0.216	0.050	1.54	789.55
53	795	13.25	3.4	0.282	0.187	0.253	0.094	2.90	2013.62
54	810	13.50	3.4	0.282	0.184	0.253	0.097	2.98	2092.06
55	825	13.75	2.3	0.190	0.182	0.171	0.009	0.27	0.00
56	840	14.00	2.3	0.190	0.179	0.171	0.012	0.36	0.00
57	855	14.25	2.7	0.224	0.176	0.201	0.047	1.46	718.82
58	870	14.50	2.6	0.215	0.173	0.194	0.042	1.29	564.24
59	885	14.75	2.6	0.215	0.171	0.194	0.045	1.37	637.53
60	900	15.00	2.5	0.207	0.168	0.186	0.039	1.19	480.83
61	915	15.25	2.4	0.199	0.166	0.179	0.033	1.02	323.04

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
10 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2142
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.107
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00198
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.190	0.163	0.171	0.027	0.84	164.16
63	945	15.75	1.9	0.157	0.161	0.142	0.016	0.48	0.00
64	960	16.00	1.9	0.157	0.158	0.142	0.016	0.48	0.00
65	975	16.25	0.4	0.033	0.156	0.030	0.003	0.10	0.00
66	990	16.50	0.4	0.033	0.153	0.030	0.003	0.10	0.00
67	1005	16.75	0.3	0.025	0.151	0.022	0.002	0.08	0.00
68	1020	17.00	0.3	0.025	0.149	0.022	0.002	0.08	0.00
69	1035	17.25	0.5	0.041	0.146	0.037	0.004	0.13	0.00
70	1050	17.50	0.5	0.041	0.144	0.037	0.004	0.13	0.00
71	1065	17.75	0.5	0.041	0.142	0.037	0.004	0.13	0.00
72	1080	18.00	0.4	0.033	0.140	0.030	0.003	0.10	0.00
73	1095	18.25	0.4	0.033	0.138	0.030	0.003	0.10	0.00
74	1110	18.50	0.4	0.033	0.136	0.030	0.003	0.10	0.00
75	1125	18.75	0.3	0.025	0.134	0.022	0.002	0.08	0.00
76	1140	19.00	0.2	0.017	0.132	0.015	0.002	0.05	0.00
77	1155	19.25	0.3	0.025	0.130	0.022	0.002	0.08	0.00
78	1170	19.50	0.4	0.033	0.128	0.030	0.003	0.10	0.00
79	1185	19.75	0.3	0.025	0.127	0.022	0.002	0.08	0.00
80	1200	20.00	0.2	0.017	0.125	0.015	0.002	0.05	0.00
81	1215	20.25	0.3	0.025	0.123	0.022	0.002	0.08	0.00
82	1230	20.50	0.3	0.025	0.122	0.022	0.002	0.08	0.00
83	1245	20.75	0.3	0.025	0.120	0.022	0.002	0.08	0.00
84	1260	21.00	0.2	0.017	0.119	0.015	0.002	0.05	0.00
85	1275	21.25	0.3	0.025	0.117	0.022	0.002	0.08	0.00
86	1290	21.50	0.2	0.017	0.116	0.015	0.002	0.05	0.00
87	1305	21.75	0.3	0.025	0.115	0.022	0.002	0.08	0.00
88	1320	22.00	0.2	0.017	0.113	0.015	0.002	0.05	0.00
89	1335	22.25	0.3	0.025	0.112	0.022	0.002	0.08	0.00
90	1350	22.50	0.2	0.017	0.111	0.015	0.002	0.05	0.00
91	1365	22.75	0.2	0.017	0.110	0.015	0.002	0.05	0.00
92	1380	23.00	0.2	0.017	0.109	0.015	0.002	0.05	0.00
93	1395	23.25	0.2	0.017	0.109	0.015	0.002	0.05	0.00
94	1410	23.50	0.2	0.017	0.108	0.015	0.002	0.05	0.00
95	1425	23.75	0.2	0.017	0.108	0.015	0.002	0.05	0.00
96	1440	24.00	0.2	0.017	0.107	0.015	0.002	0.05	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.27
FLOOD VOLUME (acft)	0.69
FLOOD VOLUME (cuft)	30124.72
REQUIRED STORAGE (acft)	0.19
REQUIRED STORAGE (cuft)	8264.06
PEAK FLOW (cfs)	2.98

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH INCR (ft)	DEPTH TOTAL (ft)	AREA INCR (sf)	AREA TOTAL (sf)	VOLUME INCR (cuft)	VOLUME TOTAL (cuft)	VOLUME TOTAL (acre-ft)
379	0	0		42516	0	0	0.00
380	1	1	2511	45027	43772	43772	1.00
381	1	2	2582	47609	46318	90090	2.07
382	1	3	2654	50263	48936	139026	3.19

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
10 YEAR - 3 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.47	141	141	198	-	379.00	-	0.00
2	10	0.47	141	141	198	-	379.00	-	0.00
3	15	0.40	120	120	198	-	379.00	-	0.00
4	20	0.54	163	163	198	-	379.00	-	0.00
5	25	0.54	163	163	198	-	379.00	-	0.00
6	30	0.65	196	196	198	-	379.00	-	0.00
7	35	0.54	163	163	198	-	379.00	-	0.00
8	40	0.65	196	196	198	-	379.00	-	0.00
9	45	0.65	196	196	198	-	379.00	-	0.00
10	50	0.54	163	163	198	-	379.00	-	0.00
11	55	0.58	174	174	198	-	379.00	-	0.00
12	60	0.65	196	196	198	-	379.00	-	0.00
13	65	1.40	420	420	198	222	379.01	222	0.01
14	70	1.40	420	643	198	445	379.01	445	0.01
15	75	1.40	420	865	198	667	379.02	667	0.02
16	80	0.68	203	870	198	672	379.02	672	0.02
17	85	2.85	856	1,527	198	1,330	379.03	1,330	0.03
18	90	3.21	964	2,294	198	2,096	379.05	2,096	0.05
19	95	2.13	638	2,734	198	2,536	379.06	2,536	0.06
20	100	3.21	964	3,500	198	3,303	379.08	3,303	0.08
21	105	5.39	1,617	4,920	198	4,722	379.11	4,722	0.11
22	110	4.67	1,400	6,122	198	5,924	379.14	5,924	0.14
23	115	3.94	1,182	7,106	198	6,908	379.16	6,908	0.16
24	120	4.30	1,291	8,199	198	8,001	379.18	8,001	0.18
25	125	4.67	1,400	9,401	198	9,203	379.21	9,203	0.21
26	130	8.66	2,597	11,799	198	11,602	379.27	11,602	0.27
27	135	11.56	3,467	15,069	198	14,871	379.34	14,871	0.34
28	140	6.12	1,835	16,706	198	16,508	379.38	16,508	0.38
29	145	18.09	5,426	21,934	198	21,736	379.50	21,736	0.50
30	150	19.90	5,970	27,707	198	27,509	379.63	27,509	0.63
31	155	23.17	6,950	34,458	198	34,260	379.78	34,260	0.79
32	160	14.82	4,447	38,707	198	38,509	379.88	38,509	0.88
33	165	0.68	203	38,712	198	38,514	379.88	38,514	0.88
34	170	0.65	196	38,710	198	38,512	379.88	38,512	0.88
35	175	0.65	196	38,708	198	38,510	379.88	38,510	0.88
36	180	0.22	65	38,575	198	38,378	379.88	38,378	0.88

1
TKC JOB # C1443
10 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.24	71	71	198	-	379.00	-	0.00
2	10	0.28	85	85	198	-	379.00	-	0.00
3	15	0.28	85	85	198	-	379.00	-	0.00
4	20	0.28	85	85	198	-	379.00	-	0.00
5	25	0.28	85	85	198	-	379.00	-	0.00
6	30	0.33	99	99	198	-	379.00	-	0.00
7	35	0.33	99	99	198	-	379.00	-	0.00
8	40	0.33	99	99	198	-	379.00	-	0.00
9	45	0.33	99	99	198	-	379.00	-	0.00
10	50	0.33	99	99	198	-	379.00	-	0.00
11	55	0.33	99	99	198	-	379.00	-	0.00
12	60	0.38	113	113	198	-	379.00	-	0.00
13	65	0.38	113	113	198	-	379.00	-	0.00
14	70	0.38	113	113	198	-	379.00	-	0.00
15	75	0.38	113	113	198	-	379.00	-	0.00
16	80	0.38	113	113	198	-	379.00	-	0.00
17	85	0.38	113	113	198	-	379.00	-	0.00
18	90	0.38	113	113	198	-	379.00	-	0.00
19	95	0.38	113	113	198	-	379.00	-	0.00
20	100	0.38	113	113	198	-	379.00	-	0.00
21	105	0.38	113	113	198	-	379.00	-	0.00
22	110	0.38	113	113	198	-	379.00	-	0.00
23	115	0.38	113	113	198	-	379.00	-	0.00
24	120	0.42	127	127	198	-	379.00	-	0.00
25	125	0.38	113	113	198	-	379.00	-	0.00
26	130	0.42	127	127	198	-	379.00	-	0.00
27	135	0.42	127	127	198	-	379.00	-	0.00
28	140	0.42	127	127	198	-	379.00	-	0.00
29	145	0.42	127	127	198	-	379.00	-	0.00
30	150	0.42	127	127	198	-	379.00	-	0.00
31	155	0.42	127	127	198	-	379.00	-	0.00
32	160	0.42	127	127	198	-	379.00	-	0.00
33	165	0.47	142	142	198	-	379.00	-	0.00
34	170	0.47	142	142	198	-	379.00	-	0.00
35	175	0.47	142	142	198	-	379.00	-	0.00
36	180	0.47	142	142	198	-	379.00	-	0.00
37	185	0.47	142	142	198	-	379.00	-	0.00
38	190	0.52	156	156	198	-	379.00	-	0.00
39	195	0.52	156	156	198	-	379.00	-	0.00
40	200	0.52	156	156	198	-	379.00	-	0.00
41	205	0.57	170	170	198	-	379.00	-	0.00
42	210	0.61	184	184	198	-	379.00	-	0.00
43	215	0.03	8	8	198	-	379.00	-	0.00
44	220	0.03	8	8	198	-	379.00	-	0.00
45	225	0.50	149	149	198	-	379.00	-	0.00
46	230	0.50	149	149	198	-	379.00	-	0.00
47	235	0.97	291	291	198	93	379.00	93	0.00
48	240	0.97	291	384	198	186	379.00	186	0.00
49	245	1.44	433	619	198	421	379.01	421	0.01
50	250	1.91	574	995	198	798	379.02	798	0.02
51	255	2.39	716	1,513	198	1,315	379.03	1,315	0.03
52	260	2.86	857	2,173	198	1,975	379.05	1,975	0.05
53	265	3.33	999	2,974	198	2,776	379.06	2,776	0.06
54	270	3.33	999	3,775	198	3,577	379.08	3,577	0.08
55	275	3.80	1,140	4,717	198	4,520	379.10	4,520	0.10

1
TKC JOB # C1443
10 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
56	280	4.27	1,282	5,801	198	5,604	379.13	5,604	0.13
57	285	4.75	1,424	7,027	198	6,829	379.16	6,829	0.16
58	290	4.75	1,424	8,253	198	8,055	379.18	8,055	0.18
59	295	5.22	1,565	9,620	198	9,422	379.22	9,422	0.22
60	300	5.69	1,707	11,129	198	10,931	379.25	10,931	0.25
61	305	8.05	2,414	13,345	198	13,148	379.30	13,148	0.30
62	310	10.41	3,122	16,270	198	16,072	379.37	16,072	0.37
63	315	11.82	3,547	19,619	198	19,421	379.44	19,421	0.45
64	320	13.24	3,972	23,393	198	23,195	379.53	23,195	0.53
65	325	15.60	4,679	27,874	198	27,676	379.63	27,676	0.64
66	330	19.84	5,953	33,630	198	33,432	379.76	33,432	0.77
67	335	2.39	716	34,148	198	33,950	379.78	33,950	0.78
68	340	0.42	127	34,077	198	33,879	379.77	33,879	0.78
69	345	0.28	85	33,964	198	33,766	379.77	33,766	0.78
70	350	0.24	71	33,837	198	33,639	379.77	33,639	0.77
71	355	0.14	42	33,682	198	33,484	379.76	33,484	0.77
72	360	0.09	28	33,512	198	33,315	379.76	33,315	0.76

1
TKC JOB # C1443
10 YEAR - 24 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	15	0.05	46	46	593	-	379.00	-	0.00
2	30	0.08	69	69	593	-	379.00	-	0.00
3	45	0.08	69	69	593	-	379.00	-	0.00
4	60	0.10	92	92	593	-	379.00	-	0.00
5	75	0.08	69	69	593	-	379.00	-	0.00
6	90	0.08	69	69	593	-	379.00	-	0.00
7	105	0.08	69	69	593	-	379.00	-	0.00
8	120	0.10	92	92	593	-	379.00	-	0.00
9	135	0.10	92	92	593	-	379.00	-	0.00
10	150	0.10	92	92	593	-	379.00	-	0.00
11	165	0.13	114	114	593	-	379.00	-	0.00
12	180	0.13	114	114	593	-	379.00	-	0.00
13	195	0.13	114	114	593	-	379.00	-	0.00
14	210	0.13	114	114	593	-	379.00	-	0.00
15	225	0.13	114	114	593	-	379.00	-	0.00
16	240	0.15	137	137	593	-	379.00	-	0.00
17	255	0.15	137	137	593	-	379.00	-	0.00
18	270	0.18	160	160	593	-	379.00	-	0.00
19	285	0.18	160	160	593	-	379.00	-	0.00
20	300	0.20	183	183	593	-	379.00	-	0.00
21	315	0.15	137	137	593	-	379.00	-	0.00
22	330	0.18	160	160	593	-	379.00	-	0.00
23	345	0.20	183	183	593	-	379.00	-	0.00
24	360	0.20	183	183	593	-	379.00	-	0.00
25	375	0.23	206	206	593	-	379.00	-	0.00
26	390	0.23	206	206	593	-	379.00	-	0.00
27	405	0.25	229	229	593	-	379.00	-	0.00
28	420	0.25	229	229	593	-	379.00	-	0.00
29	435	0.25	229	229	593	-	379.00	-	0.00
30	450	0.28	252	252	593	-	379.00	-	0.00
31	465	0.31	275	275	593	-	379.00	-	0.00
32	480	0.33	298	298	593	-	379.00	-	0.00
33	495	0.38	343	343	593	-	379.00	-	0.00
34	510	0.38	343	343	593	-	379.00	-	0.00
35	525	0.41	366	366	593	-	379.00	-	0.00
36	540	0.43	389	389	593	-	379.00	-	0.00
37	555	0.48	435	435	593	-	379.00	-	0.00
38	570	0.51	458	458	593	-	379.00	-	0.00
39	585	0.53	481	481	593	-	379.00	-	0.00
40	600	0.56	504	504	593	-	379.00	-	0.00
41	615	0.38	343	343	593	-	379.00	-	0.00
42	630	0.38	343	343	593	-	379.00	-	0.00
43	645	0.51	458	458	593	-	379.00	-	0.00
44	660	0.51	458	458	593	-	379.00	-	0.00
45	675	0.48	435	435	593	-	379.00	-	0.00
46	690	0.48	435	435	593	-	379.00	-	0.00
47	705	0.43	389	389	593	-	379.00	-	0.00
48	720	0.46	412	412	593	-	379.00	-	0.00
49	735	0.25	223	223	593	-	379.00	-	0.00
50	750	0.59	534	534	593	-	379.00	-	0.00
51	765	1.19	1,074	1,074	593	480	379.01	480	0.01
52	780	1.54	1,383	1,863	593	1,270	379.03	1,270	0.03
53	795	2.90	2,607	3,877	593	3,283	379.08	3,283	0.08
54	810	2.98	2,686	5,969	593	5,375	379.12	5,375	0.12
55	825	0.27	245	5,620	593	5,027	379.11	5,027	0.12
56	840	0.36	321	5,348	593	4,754	379.11	4,754	0.11
57	855	1.46	1,312	6,067	593	5,473	379.13	5,473	0.13
58	870	1.29	1,158	6,631	593	6,038	379.14	6,038	0.14

1
TKC JOB # C1443
10 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
59	885	1.37	1,231	7,269	593	6,675	379.15	6,675	0.15
60	900	1.19	1,074	7,749	593	7,156	379.16	7,156	0.16
61	915	1.02	916	8,072	593	7,479	379.17	7,479	0.17
62	930	0.84	758	8,237	593	7,643	379.17	7,643	0.18
63	945	0.48	435	8,078	593	7,485	379.17	7,485	0.17
64	960	0.48	435	7,920	593	7,326	379.17	7,326	0.17
65	975	0.10	92	7,418	593	6,824	379.16	6,824	0.16
66	990	0.10	92	6,916	593	6,322	379.14	6,322	0.15
67	1005	0.08	69	6,391	593	5,798	379.13	5,798	0.13
68	1020	0.08	69	5,866	593	5,273	379.12	5,273	0.12
69	1035	0.13	114	5,387	593	4,794	379.11	4,794	0.11
70	1050	0.13	114	4,908	593	4,315	379.10	4,315	0.10
71	1065	0.13	114	4,429	593	3,836	379.09	3,836	0.09
72	1080	0.10	92	3,927	593	3,334	379.08	3,334	0.08
73	1095	0.10	92	3,426	593	2,832	379.06	2,832	0.07
74	1110	0.10	92	2,924	593	2,330	379.05	2,330	0.05
75	1125	0.08	69	2,399	593	1,805	379.04	1,805	0.04
76	1140	0.05	46	1,851	593	1,258	379.03	1,258	0.03
77	1155	0.08	69	1,326	593	733	379.02	733	0.02
78	1170	0.10	92	825	593	231	379.01	231	0.01
79	1185	0.08	69	300	593	-	379.00	-	0.00
80	1200	0.05	46	46	593	-	379.00	-	0.00
81	1215	0.08	69	69	593	-	379.00	-	0.00
82	1230	0.08	69	69	593	-	379.00	-	0.00
83	1245	0.08	69	69	593	-	379.00	-	0.00
84	1260	0.05	46	46	593	-	379.00	-	0.00
85	1275	0.08	69	69	593	-	379.00	-	0.00
86	1290	0.05	46	46	593	-	379.00	-	0.00
87	1305	0.08	69	69	593	-	379.00	-	0.00
88	1320	0.05	46	46	593	-	379.00	-	0.00
89	1335	0.08	69	69	593	-	379.00	-	0.00
90	1350	0.05	46	46	593	-	379.00	-	0.00
91	1365	0.05	46	46	593	-	379.00	-	0.00
92	1380	0.05	46	46	593	-	379.00	-	0.00
93	1395	0.05	46	46	593	-	379.00	-	0.00
94	1410	0.05	46	46	593	-	379.00	-	0.00
95	1425	0.05	46	46	593	-	379.00	-	0.00
96	1440	0.05	46	46	593	-	379.00	-	0.00

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA BUSINESS PARK - INTERIM BASIN		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA B - 10 YEAR STORM EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	8.18		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING			
23	RETENTION BASIN	1		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	285		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	0.984		
40	6-HOUR	1.28		
41	24-HOUR	2.07		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		382	42380	
45		383	44806	
46		384	47288	
47		385	49827	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
BY ᐯIES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA B - 10 YEAR STORM EVENT
[3] AREA - ACRES	9.180
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	285.00
[7] La-MILES	0.054
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.05
[16] LAG TIME-MINUTES	2.7
[17] 100% OF LAG-MINUTES	2.7
[18] 200% OF LAG-MINUTES	5.4
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
0.98	9.180	1.00	0.98	1.28	9.180	1.00	1.28	2.07	9.180	1.00	2.07
		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			0.00	0.00
SUM [5]	9.18	SUM [7]	0.98	SUM [9]	9.18	SUM [11]	1.28	SUM [13]	9.18	SUM [15]	2.07
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			0.98				1.28				2.07

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.44	0.44	0.33
FLOOD VOLUME	(cu-ft)	14,675	14,503	10,856
	(acre-ft)	0.34	0.33	0.25
REQUIRED STORAGE	(cu-ft)	9,953	8,496	677
	(acre-ft)	0.23	0.20	0.02
PEAK FLOW	(cfs)	7.10	6.11	1.05
MAXIMUM WSEL	(ft)	382.23	382.19	382.02

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA BUSINESS PARK - INTERIM BASIN CONCENTRATION POINT: 1 BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.70	90%	0.13	8.18	0.891	0.1185
B	PAVING/HARDSCAPE	56	0.70	100%	0.07	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.70	20%	0.57	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.70	40%	0.45	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.70	50%	0.39	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.70	65%	0.29	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.70	80%	0.20	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.70	75%	0.23	0.00	0.000	0.0000
B	LANDSCAPING	56	0.70	0%	0.70	0.00	0.000	0.0000
B	RETENTION BASINS	32	0.70	0%	0.70	1.00	0.109	0.0763
B	GOLF COURSE	56	0.70	0%	0.70	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.20	90%	0.04	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	9.18	SUM	0.1948

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.097382353

C= 0.00180

Ft=C(24-(T/60))^1.55 = 0.00180 (24-(T/60))^1.55 + 0.10 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
100 YEAR - 3 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: \AMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	2.71	
UNIT TIME-PERCENT OF LAG	184.5	
TOTAL ADJUSTED STORM RAIN-INCHES	0.98	
CONSTANT LOSS RATE-in/hr	0.19	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.154	0.19	0.14	0.02	0.14	0.00
2	10	0.17	1.3	0.154	0.19	0.14	0.02	0.14	0.00
3	15	0.25	1.1	0.130	0.19	0.12	0.01	0.12	0.00
4	20	0.33	1.5	0.177	0.19	0.16	0.02	0.16	0.00
5	25	0.42	1.5	0.177	0.19	0.16	0.02	0.16	0.00
6	30	0.50	1.8	0.213	0.19	0.19	0.02	0.16	0.00
7	35	0.58	1.5	0.177	0.19	0.16	0.02	0.16	0.00
8	40	0.67	1.8	0.213	0.19	0.19	0.02	0.16	0.00
9	45	0.75	1.8	0.213	0.19	0.19	0.02	0.16	0.00
10	50	0.83	1.5	0.177	0.19	0.16	0.02	0.16	0.00
11	55	0.92	1.6	0.189	0.19	0.17	0.02	0.17	0.00
12	60	1.00	1.8	0.213	0.19	0.19	0.02	0.16	0.00
13	65	1.08	2.2	0.260	0.19	0.23	0.07	0.60	0.00
14	70	1.17	2.2	0.260	0.19	0.23	0.07	0.60	0.00
15	75	1.25	2.2	0.260	0.19	0.23	0.07	0.60	0.00
16	80	1.33	2.0	0.236	0.19	0.21	0.04	0.38	0.00
17	85	1.42	2.6	0.307	0.19	0.28	0.11	1.03	111.93
18	90	1.50	2.7	0.319	0.19	0.29	0.12	1.14	144.45
19	95	1.58	2.4	0.283	0.19	0.26	0.09	0.81	46.89
20	100	1.67	2.7	0.319	0.19	0.29	0.12	1.14	144.45
21	105	1.75	3.3	0.390	0.19	0.35	0.19	1.79	339.57
22	110	1.83	3.1	0.366	0.19	0.33	0.17	1.57	274.53
23	115	1.92	2.9	0.342	0.19	0.31	0.15	1.36	209.49
24	120	2.00	3.0	0.354	0.19	0.32	0.16	1.46	242.01
25	125	2.08	3.1	0.366	0.19	0.33	0.17	1.57	274.53
26	130	2.17	4.2	0.496	0.19	0.45	0.30	2.76	632.24
27	135	2.25	5.0	0.590	0.19	0.53	0.40	3.63	892.39
28	140	2.33	3.5	0.413	0.19	0.37	0.22	2.01	404.61
29	145	2.42	6.8	0.803	0.19	0.72	0.61	5.58	1477.74
30	150	2.50	7.3	0.862	0.19	0.78	0.67	6.13	1640.34
31	155	2.58	8.2	0.968	0.19	0.87	0.77	7.10	1933.01
32	160	2.67	5.9	0.697	0.19	0.63	0.50	4.61	1185.07
33	165	2.75	2.0	0.236	0.19	0.21	0.04	0.38	0.00
34	170	2.83	1.8	0.213	0.19	0.19	0.02	0.16	0.00
35	175	2.92	1.8	0.213	0.19	0.19	0.02	0.16	0.00
36	180	3.00	0.6	0.071	0.19	0.06	0.01	0.07	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.44
FLOOD VOLUME (acft)	0.34
FLOOD VOLUME (cuft)	14675.45
REQUIRED STORAGE (acft)	0.23
REQUIRED STORAGE (cuft)	9953.26
PEAK FLOW RATE (cfs)	7.10

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.71
UNIT TIME-PERCENT OF LAG	184.5
TOTAL ADJUSTED STORM RAIN-INCHES	1.28
CONSTANT LOSS RATE-in/hr	0.195
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.077	0.19	0.07	0.01	0.07	0.00
2	10	0.17	0.6	0.092	0.19	0.08	0.01	0.08	0.00
3	15	0.25	0.6	0.092	0.19	0.08	0.01	0.08	0.00
4	20	0.33	0.6	0.092	0.19	0.08	0.01	0.08	0.00
5	25	0.42	0.6	0.092	0.19	0.08	0.01	0.08	0.00
6	30	0.50	0.7	0.108	0.19	0.10	0.01	0.10	0.00
7	35	0.58	0.7	0.108	0.19	0.10	0.01	0.10	0.00
8	40	0.67	0.7	0.108	0.19	0.10	0.01	0.10	0.00
9	45	0.75	0.7	0.108	0.19	0.10	0.01	0.10	0.00
10	50	0.83	0.7	0.108	0.19	0.10	0.01	0.10	0.00
11	55	0.92	0.7	0.108	0.19	0.10	0.01	0.10	0.00
12	60	1.00	0.8	0.123	0.19	0.11	0.01	0.11	0.00
13	65	1.08	0.8	0.123	0.19	0.11	0.01	0.11	0.00
14	70	1.17	0.8	0.123	0.19	0.11	0.01	0.11	0.00
15	75	1.25	0.8	0.123	0.19	0.11	0.01	0.11	0.00
16	80	1.33	0.8	0.123	0.19	0.11	0.01	0.11	0.00
17	85	1.42	0.8	0.123	0.19	0.11	0.01	0.11	0.00
18	90	1.50	0.8	0.123	0.19	0.11	0.01	0.11	0.00
19	95	1.58	0.8	0.123	0.19	0.11	0.01	0.11	0.00
20	100	1.67	0.8	0.123	0.19	0.11	0.01	0.11	0.00
21	105	1.75	0.8	0.123	0.19	0.11	0.01	0.11	0.00
22	110	1.83	0.8	0.123	0.19	0.11	0.01	0.11	0.00
23	115	1.92	0.8	0.123	0.19	0.11	0.01	0.11	0.00
24	120	2.00	0.9	0.138	0.19	0.12	0.01	0.13	0.00
25	125	2.08	0.8	0.123	0.19	0.11	0.01	0.11	0.00
26	130	2.17	0.9	0.138	0.19	0.12	0.01	0.13	0.00
27	135	2.25	0.9	0.138	0.19	0.12	0.01	0.13	0.00
28	140	2.33	0.9	0.138	0.19	0.12	0.01	0.13	0.00
29	145	2.42	0.9	0.138	0.19	0.12	0.01	0.13	0.00
30	150	2.50	0.9	0.138	0.19	0.12	0.01	0.13	0.00
31	155	2.58	0.9	0.138	0.19	0.12	0.01	0.13	0.00
32	160	2.67	0.9	0.138	0.19	0.12	0.01	0.13	0.00
33	165	2.75	1.0	0.154	0.19	0.14	0.02	0.14	0.00
34	170	2.83	1.0	0.154	0.19	0.14	0.02	0.14	0.00
35	175	2.92	1.0	0.154	0.19	0.14	0.02	0.14	0.00
36	180	3.00	1.0	0.154	0.19	0.14	0.02	0.14	0.00
37	185	3.08	1.0	0.154	0.19	0.14	0.02	0.14	0.00
38	190	3.17	1.1	0.169	0.19	0.15	0.02	0.16	0.00
39	195	3.25	1.1	0.169	0.19	0.15	0.02	0.16	0.00
40	200	3.33	1.1	0.169	0.19	0.15	0.02	0.16	0.00
41	205	3.42	1.2	0.184	0.19	0.17	0.02	0.17	0.00
42	210	3.50	1.3	0.200	0.19	0.18	0.00	0.05	0.00
43	215	3.58	1.4	0.215	0.19	0.19	0.02	0.19	0.00
44	220	3.67	1.4	0.215	0.19	0.19	0.02	0.19	0.00
45	225	3.75	1.5	0.230	0.19	0.21	0.04	0.33	0.00
46	230	3.83	1.5	0.230	0.19	0.21	0.04	0.33	0.00
47	235	3.92	1.6	0.246	0.19	0.22	0.05	0.47	0.00
48	240	4.00	1.6	0.246	0.19	0.22	0.05	0.47	0.00
49	245	4.08	1.7	0.261	0.19	0.24	0.07	0.61	0.00
50	250	4.17	1.8	0.276	0.19	0.25	0.08	0.75	27.86
51	255	4.25	1.9	0.292	0.19	0.26	0.10	0.89	70.16
52	260	4.33	2.0	0.307	0.19	0.28	0.11	1.03	112.46
53	265	4.42	2.1	0.323	0.19	0.29	0.13	1.17	154.76
54	270	4.50	2.1	0.323	0.19	0.29	0.13	1.17	154.76
55	275	4.58	2.2	0.338	0.19	0.30	0.14	1.31	197.06
56	280	4.67	2.3	0.353	0.19	0.32	0.16	1.46	239.37

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18		
UNIT TIME-MINUTES	5		
LAG TIME - MINUTES	2.71		
UNIT TIME-PERCENT OF LAG	184.5		
TOTAL ADJUSTED STORM RAIN-INCHES	1.28		
CONSTANT LOSS RATE-in/hr	0.195		
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.369	0.19	0.33	0.17	1.60	281.67
58	290	4.83	2.4	0.369	0.19	0.33	0.17	1.60	281.67
59	295	4.92	2.5	0.384	0.19	0.35	0.19	1.74	323.97
60	300	5.00	2.6	0.399	0.19	0.36	0.20	1.88	366.27
61	305	5.08	3.1	0.476	0.19	0.43	0.28	2.58	577.78
62	310	5.17	3.6	0.553	0.19	0.50	0.36	3.29	789.29
63	315	5.25	3.9	0.599	0.19	0.54	0.40	3.71	916.19
64	320	5.33	4.2	0.645	0.19	0.58	0.45	4.13	1043.09
65	325	5.42	4.7	0.722	0.19	0.65	0.53	4.84	1254.60
66	330	5.50	5.6	0.860	0.19	0.77	0.67	6.11	1635.31
67	335	5.58	1.9	0.292	0.19	0.26	0.10	0.89	70.16
68	340	5.67	0.9	0.138	0.19	0.12	0.01	0.13	0.00
69	345	5.75	0.6	0.092	0.19	0.08	0.01	0.08	0.00
70	350	5.83	0.5	0.077	0.19	0.07	0.01	0.07	0.00
71	355	5.92	0.3	0.046	0.19	0.04	0.00	0.04	0.00
72	360	6.00	0.2	0.031	0.19	0.03	0.00	0.03	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.44
FLOOD VOLUME (acft)	0.33
FLOOD VOLUME (cuft)	14503.26
REQUIRED STORAGE (acft)	0.20
REQUIRED STORAGE (cuft)	8496.44
PEAK FLOW RATE (cfs)	6.11

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1948
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.097
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00180
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.017	0.344	0.015	0.002	0.02	0.00
2	30	0.50	0.3	0.025	0.340	0.022	0.002	0.02	0.00
3	45	0.75	0.3	0.025	0.336	0.022	0.002	0.02	0.00
4	60	1.00	0.4	0.033	0.332	0.030	0.003	0.03	0.00
5	75	1.25	0.3	0.025	0.328	0.022	0.002	0.02	0.00
6	90	1.50	0.3	0.025	0.324	0.022	0.002	0.02	0.00
7	105	1.75	0.3	0.025	0.320	0.022	0.002	0.02	0.00
8	120	2.00	0.4	0.033	0.316	0.030	0.003	0.03	0.00
9	135	2.25	0.4	0.033	0.313	0.030	0.003	0.03	0.00
10	150	2.50	0.4	0.033	0.309	0.030	0.003	0.03	0.00
11	165	2.75	0.5	0.041	0.305	0.037	0.004	0.04	0.00
12	180	3.00	0.5	0.041	0.301	0.037	0.004	0.04	0.00
13	195	3.25	0.5	0.041	0.298	0.037	0.004	0.04	0.00
14	210	3.50	0.5	0.041	0.294	0.037	0.004	0.04	0.00
15	225	3.75	0.5	0.041	0.290	0.037	0.004	0.04	0.00
16	240	4.00	0.6	0.050	0.287	0.045	0.005	0.05	0.00
17	255	4.25	0.6	0.050	0.283	0.045	0.005	0.05	0.00
18	270	4.50	0.7	0.058	0.279	0.052	0.006	0.05	0.00
19	285	4.75	0.7	0.058	0.276	0.052	0.006	0.05	0.00
20	300	5.00	0.8	0.066	0.272	0.060	0.007	0.06	0.00
21	315	5.25	0.6	0.050	0.269	0.045	0.005	0.05	0.00
22	330	5.50	0.7	0.058	0.265	0.052	0.006	0.05	0.00
23	345	5.75	0.8	0.066	0.262	0.060	0.007	0.06	0.00
24	360	6.00	0.8	0.066	0.258	0.060	0.007	0.06	0.00
25	375	6.25	0.9	0.075	0.255	0.067	0.007	0.07	0.00
26	390	6.50	0.9	0.075	0.251	0.067	0.007	0.07	0.00
27	405	6.75	1.0	0.083	0.248	0.075	0.008	0.08	0.00
28	420	7.00	1.0	0.083	0.245	0.075	0.008	0.08	0.00
29	435	7.25	1.0	0.083	0.241	0.075	0.008	0.08	0.00
30	450	7.50	1.1	0.091	0.238	0.082	0.009	0.08	0.00
31	465	7.75	1.2	0.099	0.235	0.089	0.010	0.09	0.00
32	480	8.00	1.3	0.108	0.232	0.097	0.011	0.10	0.00
33	495	8.25	1.5	0.124	0.228	0.112	0.012	0.11	0.00
34	510	8.50	1.5	0.124	0.225	0.112	0.012	0.11	0.00
35	525	8.75	1.6	0.132	0.222	0.119	0.013	0.12	0.00
36	540	9.00	1.7	0.141	0.219	0.127	0.014	0.13	0.00
37	555	9.25	1.9	0.157	0.216	0.142	0.016	0.14	0.00
38	570	9.50	2.0	0.166	0.213	0.149	0.017	0.15	0.00
39	585	9.75	2.1	0.174	0.210	0.156	0.017	0.16	0.00
40	600	10.00	2.2	0.182	0.207	0.164	0.018	0.17	0.00
41	615	10.25	1.5	0.124	0.204	0.112	0.012	0.11	0.00
42	630	10.50	1.5	0.124	0.201	0.112	0.012	0.11	0.00
43	645	10.75	2.0	0.166	0.198	0.149	0.017	0.15	0.00
44	660	11.00	2.0	0.166	0.195	0.149	0.017	0.15	0.00
45	675	11.25	1.9	0.157	0.192	0.142	0.016	0.14	0.00
46	690	11.50	1.9	0.157	0.189	0.142	0.016	0.14	0.00
47	705	11.75	1.7	0.141	0.186	0.127	0.014	0.13	0.00
48	720	12.00	1.8	0.149	0.184	0.134	0.015	0.14	0.00
49	735	12.25	2.5	0.207	0.181	0.186	0.026	0.24	0.00
50	750	12.50	2.6	0.215	0.178	0.194	0.037	0.34	0.00
51	765	12.75	2.8	0.232	0.176	0.209	0.056	0.52	0.00
52	780	13.00	2.9	0.240	0.173	0.216	0.067	0.62	0.00
53	795	13.25	3.4	0.282	0.170	0.253	0.111	1.02	327.73
54	810	13.50	3.4	0.282	0.168	0.253	0.114	1.05	349.05
55	825	13.75	2.3	0.190	0.165	0.171	0.025	0.23	0.00
56	840	14.00	2.3	0.190	0.163	0.171	0.028	0.26	0.00
57	855	14.25	2.7	0.224	0.160	0.201	0.063	0.58	0.00
58	870	14.50	2.6	0.215	0.158	0.194	0.058	0.53	0.00
59	885	14.75	2.6	0.215	0.155	0.194	0.060	0.55	0.00
60	900	15.00	2.5	0.207	0.153	0.186	0.054	0.50	0.00
61	915	15.25	2.4	0.199	0.151	0.179	0.048	0.44	0.00

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1948
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.097
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00180
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.190	0.148	0.171	0.042	0.39	0.00
63	945	15.75	1.9	0.157	0.146	0.142	0.011	0.10	0.00
64	960	16.00	1.9	0.157	0.144	0.142	0.014	0.12	0.00
65	975	16.25	0.4	0.033	0.142	0.030	0.003	0.03	0.00
66	990	16.50	0.4	0.033	0.139	0.030	0.003	0.03	0.00
67	1005	16.75	0.3	0.025	0.137	0.022	0.002	0.02	0.00
68	1020	17.00	0.3	0.025	0.135	0.022	0.002	0.02	0.00
69	1035	17.25	0.5	0.041	0.133	0.037	0.004	0.04	0.00
70	1050	17.50	0.5	0.041	0.131	0.037	0.004	0.04	0.00
71	1065	17.75	0.5	0.041	0.129	0.037	0.004	0.04	0.00
72	1080	18.00	0.4	0.033	0.127	0.030	0.003	0.03	0.00
73	1095	18.25	0.4	0.033	0.125	0.030	0.003	0.03	0.00
74	1110	18.50	0.4	0.033	0.124	0.030	0.003	0.03	0.00
75	1125	18.75	0.3	0.025	0.122	0.022	0.002	0.02	0.00
76	1140	19.00	0.2	0.017	0.120	0.015	0.002	0.02	0.00
77	1155	19.25	0.3	0.025	0.118	0.022	0.002	0.02	0.00
78	1170	19.50	0.4	0.033	0.117	0.030	0.003	0.03	0.00
79	1185	19.75	0.3	0.025	0.115	0.022	0.002	0.02	0.00
80	1200	20.00	0.2	0.017	0.114	0.015	0.002	0.02	0.00
81	1215	20.25	0.3	0.025	0.112	0.022	0.002	0.02	0.00
82	1230	20.50	0.3	0.025	0.111	0.022	0.002	0.02	0.00
83	1245	20.75	0.3	0.025	0.109	0.022	0.002	0.02	0.00
84	1260	21.00	0.2	0.017	0.108	0.015	0.002	0.02	0.00
85	1275	21.25	0.3	0.025	0.107	0.022	0.002	0.02	0.00
86	1290	21.50	0.2	0.017	0.105	0.015	0.002	0.02	0.00
87	1305	21.75	0.3	0.025	0.104	0.022	0.002	0.02	0.00
88	1320	22.00	0.2	0.017	0.103	0.015	0.002	0.02	0.00
89	1335	22.25	0.3	0.025	0.102	0.022	0.002	0.02	0.00
90	1350	22.50	0.2	0.017	0.101	0.015	0.002	0.02	0.00
91	1365	22.75	0.2	0.017	0.100	0.015	0.002	0.02	0.00
92	1380	23.00	0.2	0.017	0.100	0.015	0.002	0.02	0.00
93	1395	23.25	0.2	0.017	0.099	0.015	0.002	0.02	0.00
94	1410	23.50	0.2	0.017	0.098	0.015	0.002	0.02	0.00
95	1425	23.75	0.2	0.017	0.098	0.015	0.002	0.02	0.00
96	1440	24.00	0.2	0.017	0.097	0.015	0.002	0.02	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	0.33
FLOOD VOLUME (acft)	0.25
FLOOD VOLUME (cuft)	10855.73
REQUIRED STORAGE (acft)	0.02
REQUIRED STORAGE (cuft)	676.79
PEAK FLOW (cfs)	1.05

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
382	0	0		42380	0	0	0.00
383	1	1	2426	44806	43593	43593	1.00
384	1	2	2482	47288	46047	89640	2.06
385	1	3	2539	49827	48558	138198	3.17

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.14	42	42	197	-	382.00	-	0.00
2	10	0.14	42	42	197	-	382.00	-	0.00
3	15	0.12	36	36	197	-	382.00	-	0.00
4	20	0.16	49	49	197	-	382.00	-	0.00
5	25	0.16	49	49	197	-	382.00	-	0.00
6	30	0.16	49	49	197	-	382.00	-	0.00
7	35	0.16	49	49	197	-	382.00	-	0.00
8	40	0.16	49	49	197	-	382.00	-	0.00
9	45	0.16	49	49	197	-	382.00	-	0.00
10	50	0.16	49	49	197	-	382.00	-	0.00
11	55	0.17	52	52	197	-	382.00	-	0.00
12	60	0.16	49	49	197	-	382.00	-	0.00
13	65	0.60	179	179	197	-	382.00	-	0.00
14	70	0.60	179	179	197	-	382.00	-	0.00
15	75	0.60	179	179	197	-	382.00	-	0.00
16	80	0.38	114	114	197	-	382.00	-	0.00
17	85	1.03	309	309	197	112	382.00	112	0.00
18	90	1.14	342	454	197	256	382.01	256	0.01
19	95	0.81	244	500	197	303	382.01	303	0.01
20	100	1.14	342	645	197	448	382.01	448	0.01
21	105	1.79	537	984	197	787	382.02	787	0.02
22	110	1.57	472	1,259	197	1,062	382.02	1,062	0.02
23	115	1.36	407	1,469	197	1,271	382.03	1,271	0.03
24	120	1.46	439	1,711	197	1,513	382.03	1,513	0.03
25	125	1.57	472	1,985	197	1,788	382.04	1,788	0.04
26	130	2.76	829	2,617	197	2,420	382.06	2,420	0.06
27	135	3.63	1,090	3,510	197	3,312	382.08	3,312	0.08
28	140	2.01	602	3,914	197	3,717	382.09	3,717	0.09
29	145	5.58	1,675	5,392	197	5,195	382.12	5,195	0.12
30	150	6.13	1,838	7,032	197	6,835	382.16	6,835	0.16
31	155	7.10	2,130	8,965	197	8,768	382.20	8,768	0.20
32	160	4.61	1,382	10,150	197	9,953	382.23	9,953	0.23
33	165	0.38	114	10,067	197	9,870	382.23	9,870	0.23
34	170	0.16	49	9,919	197	9,722	382.22	9,722	0.22
35	175	0.16	49	9,771	197	9,574	382.22	9,574	0.22
36	180	0.07	20	9,593	197	9,396	382.22	9,396	0.22

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.07	21	21	197	-	382.00	-	0.00
2	10	0.08	25	25	197	-	382.00	-	0.00
3	15	0.08	25	25	197	-	382.00	-	0.00
4	20	0.08	25	25	197	-	382.00	-	0.00
5	25	0.08	25	25	197	-	382.00	-	0.00
6	30	0.10	30	30	197	-	382.00	-	0.00
7	35	0.10	30	30	197	-	382.00	-	0.00
8	40	0.10	30	30	197	-	382.00	-	0.00
9	45	0.10	30	30	197	-	382.00	-	0.00
10	50	0.10	30	30	197	-	382.00	-	0.00
11	55	0.10	30	30	197	-	382.00	-	0.00
12	60	0.11	34	34	197	-	382.00	-	0.00
13	65	0.11	34	34	197	-	382.00	-	0.00
14	70	0.11	34	34	197	-	382.00	-	0.00
15	75	0.11	34	34	197	-	382.00	-	0.00
16	80	0.11	34	34	197	-	382.00	-	0.00
17	85	0.11	34	34	197	-	382.00	-	0.00
18	90	0.11	34	34	197	-	382.00	-	0.00
19	95	0.11	34	34	197	-	382.00	-	0.00
20	100	0.11	34	34	197	-	382.00	-	0.00
21	105	0.11	34	34	197	-	382.00	-	0.00
22	110	0.11	34	34	197	-	382.00	-	0.00
23	115	0.11	34	34	197	-	382.00	-	0.00
24	120	0.13	38	38	197	-	382.00	-	0.00
25	125	0.11	34	34	197	-	382.00	-	0.00
26	130	0.13	38	38	197	-	382.00	-	0.00
27	135	0.13	38	38	197	-	382.00	-	0.00
28	140	0.13	38	38	197	-	382.00	-	0.00
29	145	0.13	38	38	197	-	382.00	-	0.00
30	150	0.13	38	38	197	-	382.00	-	0.00
31	155	0.13	38	38	197	-	382.00	-	0.00
32	160	0.13	38	38	197	-	382.00	-	0.00
33	165	0.14	42	42	197	-	382.00	-	0.00
34	170	0.14	42	42	197	-	382.00	-	0.00
35	175	0.14	42	42	197	-	382.00	-	0.00
36	180	0.14	42	42	197	-	382.00	-	0.00
37	185	0.14	42	42	197	-	382.00	-	0.00
38	190	0.16	47	47	197	-	382.00	-	0.00
39	195	0.16	47	47	197	-	382.00	-	0.00
40	200	0.16	47	47	197	-	382.00	-	0.00
41	205	0.17	51	51	197	-	382.00	-	0.00
42	210	0.05	14	14	197	-	382.00	-	0.00
43	215	0.19	56	56	197	-	382.00	-	0.00
44	220	0.19	56	56	197	-	382.00	-	0.00
45	225	0.33	98	98	197	-	382.00	-	0.00
46	230	0.33	98	98	197	-	382.00	-	0.00
47	235	0.47	140	140	197	-	382.00	-	0.00
48	240	0.47	140	140	197	-	382.00	-	0.00
49	245	0.61	183	183	197	-	382.00	-	0.00
50	250	0.75	225	225	197	28	382.00	28	0.00
51	255	0.89	267	295	197	98	382.00	98	0.00
52	260	1.03	310	408	197	210	382.00	210	0.00
53	265	1.17	352	562	197	365	382.01	365	0.01
54	270	1.17	352	717	197	520	382.01	520	0.01
55	275	1.31	394	914	197	717	382.02	717	0.02

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
56	280	1.46	437	1,154	197	956	382.02	956	0.02
57	285	1.60	479	1,435	197	1,238	382.03	1,238	0.03
58	290	1.60	479	1,717	197	1,520	382.03	1,520	0.03
59	295	1.74	521	2,041	197	1,844	382.04	1,844	0.04
60	300	1.88	563	2,407	197	2,210	382.05	2,210	0.05
61	305	2.58	775	2,985	197	2,788	382.06	2,788	0.06
62	310	3.29	986	3,774	197	3,577	382.08	3,577	0.08
63	315	3.71	1,113	4,690	197	4,493	382.10	4,493	0.10
64	320	4.13	1,240	5,734	197	5,536	382.13	5,536	0.13
65	325	4.84	1,452	6,988	197	6,791	382.16	6,791	0.16
66	330	6.11	1,832	8,623	197	8,426	382.19	8,426	0.19
67	335	0.89	267	8,694	197	8,496	382.19	8,496	0.20
68	340	0.13	38	8,535	197	8,337	382.19	8,337	0.19
69	345	0.08	25	8,363	197	8,166	382.19	8,166	0.19
70	350	0.07	21	8,187	197	7,989	382.18	7,989	0.18
71	355	0.04	13	8,002	197	7,805	382.18	7,805	0.18
72	360	0.03	8	7,813	197	7,616	382.17	7,616	0.17

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
1	15	0.02	14	14	592	-	382.00	-	0.00
2	30	0.02	21	21	592	-	382.00	-	0.00
3	45	0.02	21	21	592	-	382.00	-	0.00
4	60	0.03	27	27	592	-	382.00	-	0.00
5	75	0.02	21	21	592	-	382.00	-	0.00
6	90	0.02	21	21	592	-	382.00	-	0.00
7	105	0.02	21	21	592	-	382.00	-	0.00
8	120	0.03	27	27	592	-	382.00	-	0.00
9	135	0.03	27	27	592	-	382.00	-	0.00
10	150	0.03	27	27	592	-	382.00	-	0.00
11	165	0.04	34	34	592	-	382.00	-	0.00
12	180	0.04	34	34	592	-	382.00	-	0.00
13	195	0.04	34	34	592	-	382.00	-	0.00
14	210	0.04	34	34	592	-	382.00	-	0.00
15	225	0.04	34	34	592	-	382.00	-	0.00
16	240	0.05	41	41	592	-	382.00	-	0.00
17	255	0.05	41	41	592	-	382.00	-	0.00
18	270	0.05	48	48	592	-	382.00	-	0.00
19	285	0.05	48	48	592	-	382.00	-	0.00
20	300	0.06	55	55	592	-	382.00	-	0.00
21	315	0.05	41	41	592	-	382.00	-	0.00
22	330	0.05	48	48	592	-	382.00	-	0.00
23	345	0.06	55	55	592	-	382.00	-	0.00
24	360	0.06	55	55	592	-	382.00	-	0.00
25	375	0.07	62	62	592	-	382.00	-	0.00
26	390	0.07	62	62	592	-	382.00	-	0.00
27	405	0.08	68	68	592	-	382.00	-	0.00
28	420	0.08	68	68	592	-	382.00	-	0.00
29	435	0.08	68	68	592	-	382.00	-	0.00
30	450	0.08	75	75	592	-	382.00	-	0.00
31	465	0.09	82	82	592	-	382.00	-	0.00
32	480	0.10	89	89	592	-	382.00	-	0.00
33	495	0.11	103	103	592	-	382.00	-	0.00
34	510	0.11	103	103	592	-	382.00	-	0.00
35	525	0.12	109	109	592	-	382.00	-	0.00
36	540	0.13	116	116	592	-	382.00	-	0.00
37	555	0.14	130	130	592	-	382.00	-	0.00
38	570	0.15	137	137	592	-	382.00	-	0.00
39	585	0.16	144	144	592	-	382.00	-	0.00
40	600	0.17	151	151	592	-	382.00	-	0.00
41	615	0.11	103	103	592	-	382.00	-	0.00
42	630	0.11	103	103	592	-	382.00	-	0.00
43	645	0.15	137	137	592	-	382.00	-	0.00
44	660	0.15	137	137	592	-	382.00	-	0.00
45	675	0.14	130	130	592	-	382.00	-	0.00
46	690	0.14	130	130	592	-	382.00	-	0.00
47	705	0.13	116	116	592	-	382.00	-	0.00
48	720	0.14	123	123	592	-	382.00	-	0.00
49	735	0.24	216	216	592	-	382.00	-	0.00
50	750	0.34	306	306	592	-	382.00	-	0.00
51	765	0.52	465	465	592	-	382.00	-	0.00
52	780	0.62	556	556	592	-	382.00	-	0.00
53	795	1.02	919	919	592	328	382.01	328	0.01
54	810	1.05	941	1,268	592	677	382.02	677	0.02
55	825	0.23	209	886	592	294	382.01	294	0.01
56	840	0.26	230	524	592	-	382.00	-	0.00
57	855	0.58	524	524	592	-	382.00	-	0.00
58	870	0.53	476	476	592	-	382.00	-	0.00

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
59	885	0.55	496	496	592	-	382.00	-	0.00
60	900	0.50	447	447	592	-	382.00	-	0.00
61	915	0.44	398	398	592	-	382.00	-	0.00
62	930	0.39	349	349	592	-	382.00	-	0.00
63	945	0.10	94	94	592	-	382.00	-	0.00
64	960	0.12	112	112	592	-	382.00	-	0.00
65	975	0.03	27	27	592	-	382.00	-	0.00
66	990	0.03	27	27	592	-	382.00	-	0.00
67	1005	0.02	21	21	592	-	382.00	-	0.00
68	1020	0.02	21	21	592	-	382.00	-	0.00
69	1035	0.04	34	34	592	-	382.00	-	0.00
70	1050	0.04	34	34	592	-	382.00	-	0.00
71	1065	0.04	34	34	592	-	382.00	-	0.00
72	1080	0.03	27	27	592	-	382.00	-	0.00
73	1095	0.03	27	27	592	-	382.00	-	0.00
74	1110	0.03	27	27	592	-	382.00	-	0.00
75	1125	0.02	21	21	592	-	382.00	-	0.00
76	1140	0.02	14	14	592	-	382.00	-	0.00
77	1155	0.02	21	21	592	-	382.00	-	0.00
78	1170	0.03	27	27	592	-	382.00	-	0.00
79	1185	0.02	21	21	592	-	382.00	-	0.00
80	1200	0.02	14	14	592	-	382.00	-	0.00
81	1215	0.02	21	21	592	-	382.00	-	0.00
82	1230	0.02	21	21	592	-	382.00	-	0.00
83	1245	0.02	21	21	592	-	382.00	-	0.00
84	1260	0.02	14	14	592	-	382.00	-	0.00
85	1275	0.02	21	21	592	-	382.00	-	0.00
86	1290	0.02	14	14	592	-	382.00	-	0.00
87	1305	0.02	21	21	592	-	382.00	-	0.00
88	1320	0.02	14	14	592	-	382.00	-	0.00
89	1335	0.02	21	21	592	-	382.00	-	0.00
90	1350	0.02	14	14	592	-	382.00	-	0.00
91	1365	0.02	14	14	592	-	382.00	-	0.00
92	1380	0.02	14	14	592	-	382.00	-	0.00
93	1395	0.02	14	14	592	-	382.00	-	0.00
94	1410	0.02	14	14	592	-	382.00	-	0.00
95	1425	0.02	14	14	592	-	382.00	-	0.00
96	1440	0.02	14	14	592	-	382.00	-	0.00

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA C - 10 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	2.32		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.1		
23	RETENTION BASIN	0.21		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	400		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	30		
30				
31	ELEVATION OF HEADWATER	386		
32	ELEVATION OF CONCENTRATION POINT	384		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	0.984		
40	6-HOUR	1.28		
41	24-HOUR	2.07		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		381	2664	
45		382	4561	
46		383	6529	
47		384	8568	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK		
BASIC DATA CALCULATION FORM	TKC JOB #	C1443		
SHORTCUT METHOD	BY	ИES BAZUA, PE	DATE	6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA C - 10 YEAR EVENT
[3] AREA - ACRES	2.630
[4] L-FEET	400
[5] L-MILES	0.076
[6] La-FEET	30.00
[7] La-MILES	0.006
[8] ELEVATION OF HEADWATER	386
[9] ELEVATION OF CONCENTRATION POINT	384
[10] H-FEET	2
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.000
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.01
[16] LAG TIME-MINUTES	0.8
[17] 100% OF LAG-MINUTES	0.8
[18] 200% OF LAG-MINUTES	1.6
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.04

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
0.98	2.630	1.00	0.98	1.28	2.630	1.00	1.28	2.07	2.630	1.00	2.07
		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			0.00	0.00
SUM [5]	2.63	SUM [7]	0.98	SUM [9]	2.63	SUM [11]	1.28	SUM [13]	2.63	SUM [15]	2.07
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			0.98				1.28				2.07

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.43	0.43	0.31
FLOOD VOLUME	(cu-ft)	4,096	4,066	2,949
	(acre-ft)	0.09	0.09	0.07
REQUIRED STORAGE	(cu-ft)	3,639	3,271	1,225
	(acre-ft)	0.08	0.08	0.03
PEAK FLOW	(cfs)	2.02	1.74	0.29
MAXIMUM WSEL	(ft)	382.00	381.91	381.33

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.70	90%	0.13	2.32	0.882	0.1173
B	PAVING/HARDSCAPE	56	0.70	100%	0.07	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.70	20%	0.57	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.70	40%	0.45	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.70	50%	0.39	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.70	65%	0.29	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.70	80%	0.20	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.70	75%	0.23	0.00	0.000	0.0000
B	LANDSCAPING	56	0.70	0%	0.70	0.10	0.038	0.0266
B	RETENTION BASINS	56	0.70	0%	0.70	0.21	0.080	0.0559
B	GOLF COURSE	56	0.70	0%	0.70	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.20	90%	0.04	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	2.63	SUM	0.1998

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.09991635

C= 0.00185

Ft=C(24-(T/60))^1.55 = 0.00185 (24-(T/60))^1.55 + 0.10 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 3 HOUR STORM EVENT

PROJECT: COACHELLA AIRPORT BUSINESS PARK
CONCENTRATION POINT: 1

BY: \MES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	0.81
UNIT TIME-PERCENT OF LAG	614.9
TOTAL ADJUSTED STORM RAIN-INCHES	0.98
CONSTANT LOSS RATE-in/hr	0.20
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.154	0.20	0.14	0.02	0.04	0.00
2	10	0.17	1.3	0.154	0.20	0.14	0.02	0.04	0.00
3	15	0.25	1.1	0.130	0.20	0.12	0.01	0.03	0.00
4	20	0.33	1.5	0.177	0.20	0.16	0.02	0.05	1.58
5	25	0.42	1.5	0.177	0.20	0.16	0.02	0.05	1.58
6	30	0.50	1.8	0.213	0.20	0.19	0.01	0.03	0.00
7	35	0.58	1.5	0.177	0.20	0.16	0.02	0.05	1.58
8	40	0.67	1.8	0.213	0.20	0.19	0.01	0.03	0.00
9	45	0.75	1.8	0.213	0.20	0.19	0.01	0.03	0.00
10	50	0.83	1.5	0.177	0.20	0.16	0.02	0.05	1.58
11	55	0.92	1.6	0.189	0.20	0.17	0.02	0.05	2.51
12	60	1.00	1.8	0.213	0.20	0.19	0.01	0.03	0.00
13	65	1.08	2.2	0.260	0.20	0.23	0.06	0.16	34.90
14	70	1.17	2.2	0.260	0.20	0.23	0.06	0.16	34.90
15	75	1.25	2.2	0.260	0.20	0.23	0.06	0.16	34.90
16	80	1.33	2.0	0.236	0.20	0.21	0.04	0.10	16.27
17	85	1.42	2.6	0.307	0.20	0.28	0.11	0.28	72.17
18	90	1.50	2.7	0.319	0.20	0.29	0.12	0.31	81.48
19	95	1.58	2.4	0.283	0.20	0.26	0.08	0.22	53.53
20	100	1.67	2.7	0.319	0.20	0.29	0.12	0.31	81.48
21	105	1.75	3.3	0.390	0.20	0.35	0.19	0.50	137.38
22	110	1.83	3.1	0.366	0.20	0.33	0.17	0.44	118.75
23	115	1.92	2.9	0.342	0.20	0.31	0.14	0.38	100.12
24	120	2.00	3.0	0.354	0.20	0.32	0.15	0.41	109.43
25	125	2.08	3.1	0.366	0.20	0.33	0.17	0.44	118.75
26	130	2.17	4.2	0.496	0.20	0.45	0.30	0.78	221.23
27	135	2.25	5.0	0.590	0.20	0.53	0.39	1.03	295.76
28	140	2.33	3.5	0.413	0.20	0.37	0.21	0.56	156.01
29	145	2.42	6.8	0.803	0.20	0.72	0.60	1.59	463.46
30	150	2.50	7.3	0.862	0.20	0.78	0.66	1.74	510.04
31	155	2.58	8.2	0.968	0.20	0.87	0.77	2.02	593.89
32	160	2.67	5.9	0.697	0.20	0.63	0.50	1.31	379.61
33	165	2.75	2.0	0.236	0.20	0.21	0.04	0.10	16.27
34	170	2.83	1.8	0.213	0.20	0.19	0.01	0.03	0.00
35	175	2.92	1.8	0.213	0.20	0.19	0.01	0.03	0.00
36	180	3.00	0.6	0.071	0.20	0.06	0.01	0.02	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.43
FLOOD VOLUME (acft)	0.09
FLOOD VOLUME (cuft)	4095.54
REQUIRED STORAGE (acft)	0.08
REQUIRED STORAGE (cuft)	3639.17
PEAK FLOW RATE (cfs)	2.02

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	0.81
UNIT TIME-PERCENT OF LAG	614.9
TOTAL ADJUSTED STORM RAIN-INCHES	1.28
CONSTANT LOSS RATE-in/hr	0.200
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.077	0.20	0.07	0.01	0.02	0.00
2	10	0.17	0.6	0.092	0.20	0.08	0.01	0.02	0.00
3	15	0.25	0.6	0.092	0.20	0.08	0.01	0.02	0.00
4	20	0.33	0.6	0.092	0.20	0.08	0.01	0.02	0.00
5	25	0.42	0.6	0.092	0.20	0.08	0.01	0.02	0.00
6	30	0.50	0.7	0.108	0.20	0.10	0.01	0.03	0.00
7	35	0.58	0.7	0.108	0.20	0.10	0.01	0.03	0.00
8	40	0.67	0.7	0.108	0.20	0.10	0.01	0.03	0.00
9	45	0.75	0.7	0.108	0.20	0.10	0.01	0.03	0.00
10	50	0.83	0.7	0.108	0.20	0.10	0.01	0.03	0.00
11	55	0.92	0.7	0.108	0.20	0.10	0.01	0.03	0.00
12	60	1.00	0.8	0.123	0.20	0.11	0.01	0.03	0.00
13	65	1.08	0.8	0.123	0.20	0.11	0.01	0.03	0.00
14	70	1.17	0.8	0.123	0.20	0.11	0.01	0.03	0.00
15	75	1.25	0.8	0.123	0.20	0.11	0.01	0.03	0.00
16	80	1.33	0.8	0.123	0.20	0.11	0.01	0.03	0.00
17	85	1.42	0.8	0.123	0.20	0.11	0.01	0.03	0.00
18	90	1.50	0.8	0.123	0.20	0.11	0.01	0.03	0.00
19	95	1.58	0.8	0.123	0.20	0.11	0.01	0.03	0.00
20	100	1.67	0.8	0.123	0.20	0.11	0.01	0.03	0.00
21	105	1.75	0.8	0.123	0.20	0.11	0.01	0.03	0.00
22	110	1.83	0.8	0.123	0.20	0.11	0.01	0.03	0.00
23	115	1.92	0.8	0.123	0.20	0.11	0.01	0.03	0.00
24	120	2.00	0.9	0.138	0.20	0.12	0.01	0.04	0.00
25	125	2.08	0.8	0.123	0.20	0.11	0.01	0.03	0.00
26	130	2.17	0.9	0.138	0.20	0.12	0.01	0.04	0.00
27	135	2.25	0.9	0.138	0.20	0.12	0.01	0.04	0.00
28	140	2.33	0.9	0.138	0.20	0.12	0.01	0.04	0.00
29	145	2.42	0.9	0.138	0.20	0.12	0.01	0.04	0.00
30	150	2.50	0.9	0.138	0.20	0.12	0.01	0.04	0.00
31	155	2.58	0.9	0.138	0.20	0.12	0.01	0.04	0.00
32	160	2.67	0.9	0.138	0.20	0.12	0.01	0.04	0.00
33	165	2.75	1.0	0.154	0.20	0.14	0.02	0.04	0.00
34	170	2.83	1.0	0.154	0.20	0.14	0.02	0.04	0.00
35	175	2.92	1.0	0.154	0.20	0.14	0.02	0.04	0.00
36	180	3.00	1.0	0.154	0.20	0.14	0.02	0.04	0.00
37	185	3.08	1.0	0.154	0.20	0.14	0.02	0.04	0.00
38	190	3.17	1.1	0.169	0.20	0.15	0.02	0.04	0.94
39	195	3.25	1.1	0.169	0.20	0.15	0.02	0.04	0.94
40	200	3.33	1.1	0.169	0.20	0.15	0.02	0.04	0.94
41	205	3.42	1.2	0.184	0.20	0.17	0.02	0.05	2.15
42	210	3.50	1.3	0.200	0.20	0.18	0.02	0.05	3.36
43	215	3.58	1.4	0.215	0.20	0.19	0.02	0.04	0.00
44	220	3.67	1.4	0.215	0.20	0.19	0.02	0.04	0.00
45	225	3.75	1.5	0.230	0.20	0.21	0.03	0.08	11.72
46	230	3.83	1.5	0.230	0.20	0.21	0.03	0.08	11.72
47	235	3.92	1.6	0.246	0.20	0.22	0.05	0.12	23.84
48	240	4.00	1.6	0.246	0.20	0.22	0.05	0.12	23.84
49	245	4.08	1.7	0.261	0.20	0.24	0.06	0.16	35.96
50	250	4.17	1.8	0.276	0.20	0.25	0.08	0.20	48.08
51	255	4.25	1.9	0.292	0.20	0.26	0.09	0.24	60.20
52	260	4.33	2.0	0.307	0.20	0.28	0.11	0.28	72.32
53	265	4.42	2.1	0.323	0.20	0.29	0.12	0.32	84.44
54	270	4.50	2.1	0.323	0.20	0.29	0.12	0.32	84.44
55	275	4.58	2.2	0.338	0.20	0.30	0.14	0.36	96.56
56	280	4.67	2.3	0.353	0.20	0.32	0.15	0.40	108.67

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 6 HOUR STORM EVENT

PROJECT: COACHELLA AIRPORT BUSINESS PARK
CONCENTRATION POINT: 1

BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES 2.63
UNIT TIME-MINUTES 5
LAG TIME - MINUTES 0.81
UNIT TIME-PERCENT OF LAG 614.9
TOTAL ADJUSTED STORM RAIN-INCHES 1.28
CONSTANT LOSS RATE-in/hr 0.200
LOW LOSS RATE - PERCENT 90%
TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.369	0.20	0.33	0.17	0.44	120.79
58	290	4.83	2.4	0.369	0.20	0.33	0.17	0.44	120.79
59	295	4.92	2.5	0.384	0.20	0.35	0.18	0.48	132.91
60	300	5.00	2.6	0.399	0.20	0.36	0.20	0.52	145.03
61	305	5.08	3.1	0.476	0.20	0.43	0.28	0.73	205.63
62	310	5.17	3.6	0.553	0.20	0.50	0.35	0.93	266.22
63	315	5.25	3.9	0.599	0.20	0.54	0.40	1.05	302.58
64	320	5.33	4.2	0.645	0.20	0.58	0.45	1.17	338.94
65	325	5.42	4.7	0.722	0.20	0.65	0.52	1.37	399.53
66	330	5.50	5.6	0.860	0.20	0.77	0.66	1.74	508.60
67	335	5.58	1.9	0.292	0.20	0.26	0.09	0.24	60.20
68	340	5.67	0.9	0.138	0.20	0.12	0.01	0.04	0.00
69	345	5.75	0.6	0.092	0.20	0.08	0.01	0.02	0.00
70	350	5.83	0.5	0.077	0.20	0.07	0.01	0.02	0.00
71	355	5.92	0.3	0.046	0.20	0.04	0.00	0.01	0.00
72	360	6.00	0.2	0.031	0.20	0.03	0.00	0.01	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.43
FLOOD VOLUME (acft)	0.09
FLOOD VOLUME (cuft)	4066.25
REQUIRED STORAGE (acft)	0.08
REQUIRED STORAGE (cuft)	3271.34
PEAK FLOW RATE (cfs)	1.74

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1998
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.100
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00185
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.017	0.353	0.015	0.002	0.00	0.00
2	30	0.50	0.3	0.025	0.349	0.022	0.002	0.01	0.00
3	45	0.75	0.3	0.025	0.345	0.022	0.002	0.01	0.00
4	60	1.00	0.4	0.033	0.341	0.030	0.003	0.01	0.00
5	75	1.25	0.3	0.025	0.337	0.022	0.002	0.01	0.00
6	90	1.50	0.3	0.025	0.333	0.022	0.002	0.01	0.00
7	105	1.75	0.3	0.025	0.329	0.022	0.002	0.01	0.00
8	120	2.00	0.4	0.033	0.325	0.030	0.003	0.01	0.00
9	135	2.25	0.4	0.033	0.321	0.030	0.003	0.01	0.00
10	150	2.50	0.4	0.033	0.317	0.030	0.003	0.01	0.00
11	165	2.75	0.5	0.041	0.313	0.037	0.004	0.01	0.00
12	180	3.00	0.5	0.041	0.309	0.037	0.004	0.01	0.00
13	195	3.25	0.5	0.041	0.305	0.037	0.004	0.01	0.00
14	210	3.50	0.5	0.041	0.302	0.037	0.004	0.01	0.00
15	225	3.75	0.5	0.041	0.298	0.037	0.004	0.01	0.00
16	240	4.00	0.6	0.050	0.294	0.045	0.005	0.01	0.00
17	255	4.25	0.6	0.050	0.290	0.045	0.005	0.01	0.00
18	270	4.50	0.7	0.058	0.287	0.052	0.006	0.02	0.00
19	285	4.75	0.7	0.058	0.283	0.052	0.006	0.02	0.00
20	300	5.00	0.8	0.066	0.279	0.060	0.007	0.02	0.00
21	315	5.25	0.6	0.050	0.276	0.045	0.005	0.01	0.00
22	330	5.50	0.7	0.058	0.272	0.052	0.006	0.02	0.00
23	345	5.75	0.8	0.066	0.268	0.060	0.007	0.02	0.00
24	360	6.00	0.8	0.066	0.265	0.060	0.007	0.02	0.00
25	375	6.25	0.9	0.075	0.261	0.067	0.007	0.02	0.00
26	390	6.50	0.9	0.075	0.258	0.067	0.007	0.02	0.00
27	405	6.75	1.0	0.083	0.254	0.075	0.008	0.02	0.00
28	420	7.00	1.0	0.083	0.251	0.075	0.008	0.02	0.00
29	435	7.25	1.0	0.083	0.248	0.075	0.008	0.02	0.00
30	450	7.50	1.1	0.091	0.244	0.082	0.009	0.02	0.00
31	465	7.75	1.2	0.099	0.241	0.089	0.010	0.03	0.00
32	480	8.00	1.3	0.108	0.238	0.097	0.011	0.03	0.00
33	495	8.25	1.5	0.124	0.234	0.112	0.012	0.03	0.00
34	510	8.50	1.5	0.124	0.231	0.112	0.012	0.03	0.00
35	525	8.75	1.6	0.132	0.228	0.119	0.013	0.03	0.00
36	540	9.00	1.7	0.141	0.225	0.127	0.014	0.04	0.00
37	555	9.25	1.9	0.157	0.221	0.142	0.016	0.04	0.05
38	570	9.50	2.0	0.166	0.218	0.149	0.017	0.04	2.01
39	585	9.75	2.1	0.174	0.215	0.156	0.017	0.05	3.97
40	600	10.00	2.2	0.182	0.212	0.164	0.018	0.05	5.93
41	615	10.25	1.5	0.124	0.209	0.112	0.012	0.03	0.00
42	630	10.50	1.5	0.124	0.206	0.112	0.012	0.03	0.00
43	645	10.75	2.0	0.166	0.203	0.149	0.017	0.04	2.01
44	660	11.00	2.0	0.166	0.200	0.149	0.017	0.04	2.01
45	675	11.25	1.9	0.157	0.197	0.142	0.016	0.04	0.05
46	690	11.50	1.9	0.157	0.194	0.142	0.016	0.04	0.05
47	705	11.75	1.7	0.141	0.191	0.127	0.014	0.04	0.00
48	720	12.00	1.8	0.149	0.188	0.134	0.015	0.04	0.00
49	735	12.25	2.5	0.207	0.186	0.186	0.021	0.06	13.46
50	750	12.50	2.6	0.215	0.183	0.194	0.032	0.09	39.64
51	765	12.75	2.8	0.232	0.180	0.209	0.052	0.14	85.34
52	780	13.00	2.9	0.240	0.177	0.216	0.063	0.17	111.36
53	795	13.25	3.4	0.282	0.175	0.253	0.107	0.28	215.70
54	810	13.50	3.4	0.282	0.172	0.253	0.109	0.29	221.96
55	825	13.75	2.3	0.190	0.169	0.171	0.021	0.06	12.56
56	840	14.00	2.3	0.190	0.167	0.171	0.024	0.06	18.67
57	855	14.25	2.7	0.224	0.164	0.201	0.059	0.16	103.08
58	870	14.50	2.6	0.215	0.162	0.194	0.053	0.14	89.42
59	885	14.75	2.6	0.215	0.159	0.194	0.056	0.15	95.28
60	900	15.00	2.5	0.207	0.157	0.186	0.050	0.13	81.45
61	915	15.25	2.4	0.199	0.154	0.179	0.044	0.12	67.53

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1998
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.100
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00185
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.190	0.152	0.171	0.038	0.10	53.53
63	945	15.75	1.9	0.157	0.150	0.142	0.008	0.02	0.00
64	960	16.00	1.9	0.157	0.148	0.142	0.010	0.03	0.00
65	975	16.25	0.4	0.033	0.145	0.030	0.003	0.01	0.00
66	990	16.50	0.4	0.033	0.143	0.030	0.003	0.01	0.00
67	1005	16.75	0.3	0.025	0.141	0.022	0.002	0.01	0.00
68	1020	17.00	0.3	0.025	0.139	0.022	0.002	0.01	0.00
69	1035	17.25	0.5	0.041	0.137	0.037	0.004	0.01	0.00
70	1050	17.50	0.5	0.041	0.135	0.037	0.004	0.01	0.00
71	1065	17.75	0.5	0.041	0.133	0.037	0.004	0.01	0.00
72	1080	18.00	0.4	0.033	0.131	0.030	0.003	0.01	0.00
73	1095	18.25	0.4	0.033	0.129	0.030	0.003	0.01	0.00
74	1110	18.50	0.4	0.033	0.127	0.030	0.003	0.01	0.00
75	1125	18.75	0.3	0.025	0.125	0.022	0.002	0.01	0.00
76	1140	19.00	0.2	0.017	0.123	0.015	0.002	0.00	0.00
77	1155	19.25	0.3	0.025	0.121	0.022	0.002	0.01	0.00
78	1170	19.50	0.4	0.033	0.120	0.030	0.003	0.01	0.00
79	1185	19.75	0.3	0.025	0.118	0.022	0.002	0.01	0.00
80	1200	20.00	0.2	0.017	0.117	0.015	0.002	0.00	0.00
81	1215	20.25	0.3	0.025	0.115	0.022	0.002	0.01	0.00
82	1230	20.50	0.3	0.025	0.114	0.022	0.002	0.01	0.00
83	1245	20.75	0.3	0.025	0.112	0.022	0.002	0.01	0.00
84	1260	21.00	0.2	0.017	0.111	0.015	0.002	0.00	0.00
85	1275	21.25	0.3	0.025	0.109	0.022	0.002	0.01	0.00
86	1290	21.50	0.2	0.017	0.108	0.015	0.002	0.00	0.00
87	1305	21.75	0.3	0.025	0.107	0.022	0.002	0.01	0.00
88	1320	22.00	0.2	0.017	0.106	0.015	0.002	0.00	0.00
89	1335	22.25	0.3	0.025	0.105	0.022	0.002	0.01	0.00
90	1350	22.50	0.2	0.017	0.104	0.015	0.002	0.00	0.00
91	1365	22.75	0.2	0.017	0.103	0.015	0.002	0.00	0.00
92	1380	23.00	0.2	0.017	0.102	0.015	0.002	0.00	0.00
93	1395	23.25	0.2	0.017	0.101	0.015	0.002	0.00	0.00
94	1410	23.50	0.2	0.017	0.101	0.015	0.002	0.00	0.00
95	1425	23.75	0.2	0.017	0.100	0.015	0.002	0.00	0.00
96	1440	24.00	0.2	0.017	0.100	0.015	0.002	0.00	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	0.31
FLOOD VOLUME (acft)	0.07
FLOOD VOLUME (cuft)	2949.37
REQUIRED STORAGE (acft)	0.03
REQUIRED STORAGE (cuft)	1225.07
PEAK FLOW (cfs)	0.29

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
381	0	0		2664	0	0	0.00
382	1	1	1897	4561	3613	3613	0.08
383	1	2	1968	6529	5545	9158	0.21
384	1	3	2039	8568	7549	16706	0.38

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.04 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.04 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.04	12	12	12	-	381.00	-	0.00
2	10	0.04	12	12	12	-	381.00	-	0.00
3	15	0.03	10	10	12	-	381.00	-	0.00
4	20	0.05	14	14	12	2	381.00	2	0.00
5	25	0.05	14	16	12	3	381.00	3	0.00
6	30	0.03	10	13	12	1	381.00	1	0.00
7	35	0.05	14	15	12	2	381.00	2	0.00
8	40	0.03	10	12	12	0	381.00	0	0.00
9	45	0.03	10	10	12	-	381.00	-	0.00
10	50	0.05	14	14	12	2	381.00	2	0.00
11	55	0.05	15	16	12	4	381.00	4	0.00
12	60	0.03	10	14	12	2	381.00	2	0.00
13	65	0.16	47	49	12	37	381.01	37	0.00
14	70	0.16	47	84	12	72	381.02	72	0.00
15	75	0.16	47	119	12	106	381.03	106	0.00
16	80	0.10	29	135	12	123	381.03	123	0.00
17	85	0.28	85	207	12	195	381.05	195	0.00
18	90	0.31	94	289	12	276	381.08	276	0.01
19	95	0.22	66	342	12	330	381.09	330	0.01
20	100	0.31	94	424	12	411	381.11	411	0.01
21	105	0.50	150	561	12	549	381.15	549	0.01
22	110	0.44	131	680	12	667	381.18	667	0.02
23	115	0.38	113	780	12	768	381.21	768	0.02
24	120	0.41	122	889	12	877	381.24	877	0.02
25	125	0.44	131	1,008	12	996	381.28	996	0.02
26	130	0.78	234	1,229	12	1,217	381.34	1,217	0.03
27	135	1.03	308	1,525	12	1,513	381.42	1,513	0.03
28	140	0.56	168	1,681	12	1,669	381.46	1,669	0.04
29	145	1.59	476	2,145	12	2,132	381.59	2,132	0.05
30	150	1.74	522	2,655	12	2,642	381.73	2,642	0.06
31	155	2.02	606	3,249	12	3,236	381.90	3,236	0.07
32	160	1.31	392	3,628	12	3,616	382.00	3,616	0.08
33	165	0.10	29	3,644	12	3,632	382.00	3,632	0.08
34	170	0.03	10	3,642	12	3,630	382.00	3,630	0.08
35	175	0.03	10	3,640	12	3,627	382.00	3,627	0.08
36	180	0.02	6	3,633	12	3,621	382.00	3,621	0.08

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.02	6	6	12	-	381.00	-	0.00
2	10	0.02	7	7	12	-	381.00	-	0.00
3	15	0.02	7	7	12	-	381.00	-	0.00
4	20	0.02	7	7	12	-	381.00	-	0.00
5	25	0.02	7	7	12	-	381.00	-	0.00
6	30	0.03	8	8	12	-	381.00	-	0.00
7	35	0.03	8	8	12	-	381.00	-	0.00
8	40	0.03	8	8	12	-	381.00	-	0.00
9	45	0.03	8	8	12	-	381.00	-	0.00
10	50	0.03	8	8	12	-	381.00	-	0.00
11	55	0.03	8	8	12	-	381.00	-	0.00
12	60	0.03	10	10	12	-	381.00	-	0.00
13	65	0.03	10	10	12	-	381.00	-	0.00
14	70	0.03	10	10	12	-	381.00	-	0.00
15	75	0.03	10	10	12	-	381.00	-	0.00
16	80	0.03	10	10	12	-	381.00	-	0.00
17	85	0.03	10	10	12	-	381.00	-	0.00
18	90	0.03	10	10	12	-	381.00	-	0.00
19	95	0.03	10	10	12	-	381.00	-	0.00
20	100	0.03	10	10	12	-	381.00	-	0.00
21	105	0.03	10	10	12	-	381.00	-	0.00
22	110	0.03	10	10	12	-	381.00	-	0.00
23	115	0.03	10	10	12	-	381.00	-	0.00
24	120	0.04	11	11	12	-	381.00	-	0.00
25	125	0.03	10	10	12	-	381.00	-	0.00
26	130	0.04	11	11	12	-	381.00	-	0.00
27	135	0.04	11	11	12	-	381.00	-	0.00
28	140	0.04	11	11	12	-	381.00	-	0.00
29	145	0.04	11	11	12	-	381.00	-	0.00
30	150	0.04	11	11	12	-	381.00	-	0.00
31	155	0.04	11	11	12	-	381.00	-	0.00
32	160	0.04	11	11	12	-	381.00	-	0.00
33	165	0.04	12	12	12	-	381.00	-	0.00
34	170	0.04	12	12	12	-	381.00	-	0.00
35	175	0.04	12	12	12	-	381.00	-	0.00
36	180	0.04	12	12	12	-	381.00	-	0.00
37	185	0.04	12	12	12	-	381.00	-	0.00
38	190	0.04	13	13	12	1	381.00	1	0.00
39	195	0.04	13	14	12	2	381.00	2	0.00
40	200	0.04	13	15	12	3	381.00	3	0.00
41	205	0.05	15	17	12	5	381.00	5	0.00
42	210	0.05	16	21	12	8	381.00	8	0.00
43	215	0.04	12	20	12	8	381.00	8	0.00
44	220	0.04	12	20	12	8	381.00	8	0.00
45	225	0.08	24	32	12	19	381.01	19	0.00
46	230	0.08	24	43	12	31	381.01	31	0.00
47	235	0.12	36	67	12	55	381.02	55	0.00
48	240	0.12	36	91	12	79	381.02	79	0.00
49	245	0.16	48	127	12	115	381.03	115	0.00
50	250	0.20	60	175	12	163	381.05	163	0.00
51	255	0.24	73	235	12	223	381.06	223	0.01
52	260	0.28	85	308	12	295	381.08	295	0.01
53	265	0.32	97	392	12	380	381.11	380	0.01
54	270	0.32	97	476	12	464	381.13	464	0.01
55	275	0.36	109	573	12	561	381.16	561	0.01

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
56	280	0.40	121	682	12	669	381.19	669	0.02
57	285	0.44	133	803	12	790	381.22	790	0.02
58	290	0.44	133	923	12	911	381.25	911	0.02
59	295	0.48	145	1,056	12	1,044	381.29	1,044	0.02
60	300	0.52	157	1,201	12	1,189	381.33	1,189	0.03
61	305	0.73	218	1,407	12	1,394	381.39	1,394	0.03
62	310	0.93	279	1,673	12	1,661	381.46	1,661	0.04
63	315	1.05	315	1,976	12	1,963	381.54	1,963	0.05
64	320	1.17	351	2,315	12	2,302	381.64	2,302	0.05
65	325	1.37	412	2,714	12	2,702	381.75	2,702	0.06
66	330	1.74	521	3,223	12	3,210	381.89	3,210	0.07
67	335	0.24	73	3,283	12	3,271	381.91	3,271	0.08
68	340	0.04	11	3,281	12	3,269	381.90	3,269	0.08
69	345	0.02	7	3,276	12	3,264	381.90	3,264	0.07
70	350	0.02	6	3,270	12	3,258	381.90	3,258	0.07
71	355	0.01	4	3,261	12	3,249	381.90	3,249	0.07
72	360	0.01	2	3,251	12	3,239	381.90	3,239	0.07

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	15	0.00	4	4	37	-	381.00	-	0.00
2	30	0.01	6	6	37	-	381.00	-	0.00
3	45	0.01	6	6	37	-	381.00	-	0.00
4	60	0.01	8	8	37	-	381.00	-	0.00
5	75	0.01	6	6	37	-	381.00	-	0.00
6	90	0.01	6	6	37	-	381.00	-	0.00
7	105	0.01	6	6	37	-	381.00	-	0.00
8	120	0.01	8	8	37	-	381.00	-	0.00
9	135	0.01	8	8	37	-	381.00	-	0.00
10	150	0.01	8	8	37	-	381.00	-	0.00
11	165	0.01	10	10	37	-	381.00	-	0.00
12	180	0.01	10	10	37	-	381.00	-	0.00
13	195	0.01	10	10	37	-	381.00	-	0.00
14	210	0.01	10	10	37	-	381.00	-	0.00
15	225	0.01	10	10	37	-	381.00	-	0.00
16	240	0.01	12	12	37	-	381.00	-	0.00
17	255	0.01	12	12	37	-	381.00	-	0.00
18	270	0.02	14	14	37	-	381.00	-	0.00
19	285	0.02	14	14	37	-	381.00	-	0.00
20	300	0.02	16	16	37	-	381.00	-	0.00
21	315	0.01	12	12	37	-	381.00	-	0.00
22	330	0.02	14	14	37	-	381.00	-	0.00
23	345	0.02	16	16	37	-	381.00	-	0.00
24	360	0.02	16	16	37	-	381.00	-	0.00
25	375	0.02	18	18	37	-	381.00	-	0.00
26	390	0.02	18	18	37	-	381.00	-	0.00
27	405	0.02	20	20	37	-	381.00	-	0.00
28	420	0.02	20	20	37	-	381.00	-	0.00
29	435	0.02	20	20	37	-	381.00	-	0.00
30	450	0.02	22	22	37	-	381.00	-	0.00
31	465	0.03	24	24	37	-	381.00	-	0.00
32	480	0.03	25	25	37	-	381.00	-	0.00
33	495	0.03	29	29	37	-	381.00	-	0.00
34	510	0.03	29	29	37	-	381.00	-	0.00
35	525	0.03	31	31	37	-	381.00	-	0.00
36	540	0.04	33	33	37	-	381.00	-	0.00
37	555	0.04	37	37	37	0	381.00	0	0.00
38	570	0.04	39	39	37	2	381.00	2	0.00
39	585	0.05	41	43	37	6	381.00	6	0.00
40	600	0.05	43	49	37	12	381.00	12	0.00
41	615	0.03	29	41	37	4	381.00	4	0.00
42	630	0.03	29	34	37	-	381.00	-	0.00
43	645	0.04	39	39	37	2	381.00	2	0.00
44	660	0.04	39	41	37	4	381.00	4	0.00
45	675	0.04	37	41	37	4	381.00	4	0.00
46	690	0.04	37	41	37	4	381.00	4	0.00
47	705	0.04	33	37	37	0	381.00	0	0.00
48	720	0.04	35	36	37	-	381.00	-	0.00
49	735	0.06	51	51	37	13	381.00	13	0.00
50	750	0.09	77	90	37	53	381.01	53	0.00
51	765	0.14	123	176	37	138	381.04	138	0.00
52	780	0.17	149	287	37	250	381.07	250	0.01
53	795	0.28	253	503	37	465	381.13	465	0.01
54	810	0.29	259	725	37	687	381.19	687	0.02
55	825	0.06	50	737	37	700	381.19	700	0.02
56	840	0.06	56	756	37	719	381.20	719	0.02
57	855	0.16	140	859	37	822	381.23	822	0.02
58	870	0.14	127	948	37	911	381.25	911	0.02

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
59	885	0.15	132	1,044	37	1,006	381.28	1,006	0.02
60	900	0.13	119	1,125	37	1,088	381.30	1,088	0.02
61	915	0.12	105	1,193	37	1,155	381.32	1,155	0.03
62	930	0.10	91	1,246	37	1,209	381.33	1,209	0.03
63	945	0.02	18	1,227	37	1,190	381.33	1,190	0.03
64	960	0.03	23	1,213	37	1,176	381.33	1,176	0.03
65	975	0.01	8	1,184	37	1,146	381.32	1,146	0.03
66	990	0.01	8	1,154	37	1,117	381.31	1,117	0.03
67	1005	0.01	6	1,123	37	1,086	381.30	1,086	0.02
68	1020	0.01	6	1,092	37	1,054	381.29	1,054	0.02
69	1035	0.01	10	1,064	37	1,027	381.28	1,027	0.02
70	1050	0.01	10	1,037	37	1,000	381.28	1,000	0.02
71	1065	0.01	10	1,009	37	972	381.27	972	0.02
72	1080	0.01	8	980	37	943	381.26	943	0.02
73	1095	0.01	8	951	37	914	381.25	914	0.02
74	1110	0.01	8	921	37	884	381.24	884	0.02
75	1125	0.01	6	890	37	853	381.24	853	0.02
76	1140	0.00	4	857	37	820	381.23	820	0.02
77	1155	0.01	6	825	37	788	381.22	788	0.02
78	1170	0.01	8	796	37	759	381.21	759	0.02
79	1185	0.01	6	765	37	728	381.20	728	0.02
80	1200	0.00	4	732	37	694	381.19	694	0.02
81	1215	0.01	6	700	37	663	381.18	663	0.02
82	1230	0.01	6	669	37	632	381.17	632	0.01
83	1245	0.01	6	638	37	600	381.17	600	0.01
84	1260	0.00	4	604	37	567	381.16	567	0.01
85	1275	0.01	6	573	37	536	381.15	536	0.01
86	1290	0.00	4	540	37	503	381.14	503	0.01
87	1305	0.01	6	509	37	471	381.13	471	0.01
88	1320	0.00	4	475	37	438	381.12	438	0.01
89	1335	0.01	6	444	37	407	381.11	407	0.01
90	1350	0.00	4	411	37	373	381.10	373	0.01
91	1365	0.00	4	377	37	340	381.09	340	0.01
92	1380	0.00	4	344	37	307	381.08	307	0.01
93	1395	0.00	4	311	37	274	381.08	274	0.01
94	1410	0.00	4	278	37	240	381.07	240	0.01
95	1425	0.00	4	244	37	207	381.06	207	0.00
96	1440	0.00	4	211	37	174	381.05	174	0.00

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA A - 100 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	27.65		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.97		
23	RETENTION BASIN	2.1		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	250		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	2.03		
40	6-HOUR	2.71		
41	24-HOUR	4.24		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		379	42516	
45		380	45027	
46		381	47609	
47		382	50263	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK		
BASIC DATA CALCULATION FORM	TKC JOB #	C1443		
SHORTCUT METHOD	BY	MES BAZUA, PE	DATE	6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA A - 100 YEAR EVENT
[3] AREA - ACRES	30.720
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	250.00
[7] La-MILES	0.047
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.6
[17] 100% OF LAG-MINUTES	2.6
[18] 200% OF LAG-MINUTES	5.2
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
2.03	30.720	1.00	2.03	2.71	30.720	1.00	2.71	4.24	30.720	1.00	4.24
		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			0.00	0.00
SUM [5]	30.72	SUM [7]	2.03	SUM [9]	30.72	SUM [11]	2.71	SUM [13]	30.72	SUM [15]	4.24
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			2.03				2.71				4.24

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.56	1.77	1.89
FLOOD VOLUME	(cu-ft)	173,489	197,518	211,182
	(acre-ft)	3.98	4.53	4.85
REQUIRED STORAGE	(cu-ft)	164,996	182,214	176,577
	(acre-ft)	3.79	4.18	4.05
PEAK FLOW	(cfs)	56.48	51.07	13.51
MAXIMUM WSEL	(ft)	381.80	381.99	381.95

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.51	85%	0.12	27.65	0.900	0.1079
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.51	20%	0.42	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.51	40%	0.33	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.51	50%	0.28	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.51	65%	0.21	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.51	80%	0.14	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.51	75%	0.17	0.00	0.000	0.0000
B	LANDSCAPING	56	0.51	0%	0.51	0.97	0.032	0.0161
B	RETENTION BASINS	56	0.51	0%	0.51	2.10	0.068	0.0349
B	GOLF COURSE	56	0.51	0%	0.51	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.08	90%	0.02	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	30.72	SUM	0.1588

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.0794198

C= 0.00147

Ft=C(24-(T/60))^1.55 = 0.00147 (24-(T/60))^1.55 + 0.08 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 3 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: ΛMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72		
UNIT TIME-MINUTES	5		
LAG TIME - MINUTES	2.58		
UNIT TIME-PERCENT OF LAG	193.9		
TOTAL ADJUSTED STORM RAIN-INCHES	2.03		
CONSTANT LOSS RATE-in/hr	0.16		
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.317	0.16	0.29	0.16	4.85	1256.84
2	10	0.17	1.3	0.317	0.16	0.29	0.16	4.85	1256.84
3	15	0.25	1.1	0.268	0.16	0.24	0.11	3.35	807.84
4	20	0.33	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
5	25	0.42	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
6	30	0.50	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
7	35	0.58	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
8	40	0.67	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
9	45	0.75	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
10	50	0.83	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
11	55	0.92	1.6	0.390	0.16	0.35	0.23	7.09	1930.34
12	60	1.00	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
13	65	1.08	2.2	0.536	0.16	0.48	0.38	11.58	3277.36
14	70	1.17	2.2	0.536	0.16	0.48	0.38	11.58	3277.36
15	75	1.25	2.2	0.536	0.16	0.48	0.38	11.58	3277.36
16	80	1.33	2.0	0.487	0.16	0.44	0.33	10.09	2828.35
17	85	1.42	2.6	0.633	0.16	0.57	0.47	14.58	4175.36
18	90	1.50	2.7	0.658	0.16	0.59	0.50	15.33	4399.86
19	95	1.58	2.4	0.585	0.16	0.53	0.43	13.08	3726.36
20	100	1.67	2.7	0.658	0.16	0.59	0.50	15.33	4399.86
21	105	1.75	3.3	0.804	0.16	0.72	0.65	19.82	5746.87
22	110	1.83	3.1	0.755	0.16	0.68	0.60	18.32	5297.87
23	115	1.92	2.9	0.706	0.16	0.64	0.55	16.82	4848.87
24	120	2.00	3.0	0.731	0.16	0.66	0.57	17.57	5073.37
25	125	2.08	3.1	0.755	0.16	0.68	0.60	18.32	5297.87
26	130	2.17	4.2	1.023	0.16	0.92	0.86	26.55	7767.39
27	135	2.25	5.0	1.218	0.16	1.10	1.06	32.54	9563.40
28	140	2.33	3.5	0.853	0.16	0.77	0.69	21.31	6195.88
29	145	2.42	6.8	1.656	0.16	1.49	1.50	46.01	13604.44
30	150	2.50	7.3	1.778	0.16	1.60	1.62	49.75	14726.95
31	155	2.58	8.2	1.998	0.16	1.80	1.84	56.48	16747.46
32	160	2.67	5.9	1.437	0.16	1.29	1.28	39.27	11583.92
33	165	2.75	2.0	0.487	0.16	0.44	0.33	10.09	2828.35
34	170	2.83	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
35	175	2.92	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
36	180	3.00	0.6	0.146	0.16	0.13	0.01	0.45	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.56
FLOOD VOLUME (acft)	3.98
FLOOD VOLUME (cuft)	173488.61
REQUIRED STORAGE (acft)	3.79
REQUIRED STORAGE (cuft)	164995.84
PEAK FLOW RATE (cfs)	56.48

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	2.58	
UNIT TIME-PERCENT OF LAG	193.9	
TOTAL ADJUSTED STORM RAIN-INCHES	2.71	
CONSTANT LOSS RATE-in/hr	0.159	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.163	0.16	0.15	0.00	0.12	0.00
2	10	0.17	0.6	0.195	0.16	0.18	0.04	1.11	136.54
3	15	0.25	0.6	0.195	0.16	0.18	0.04	1.11	136.54
4	20	0.33	0.6	0.195	0.16	0.18	0.04	1.11	136.54
5	25	0.42	0.6	0.195	0.16	0.18	0.04	1.11	136.54
6	30	0.50	0.7	0.228	0.16	0.20	0.07	2.11	436.25
7	35	0.58	0.7	0.228	0.16	0.20	0.07	2.11	436.25
8	40	0.67	0.7	0.228	0.16	0.20	0.07	2.11	436.25
9	45	0.75	0.7	0.228	0.16	0.20	0.07	2.11	436.25
10	50	0.83	0.7	0.228	0.16	0.20	0.07	2.11	436.25
11	55	0.92	0.7	0.228	0.16	0.20	0.07	2.11	436.25
12	60	1.00	0.8	0.260	0.16	0.23	0.10	3.11	735.95
13	65	1.08	0.8	0.260	0.16	0.23	0.10	3.11	735.95
14	70	1.17	0.8	0.260	0.16	0.23	0.10	3.11	735.95
15	75	1.25	0.8	0.260	0.16	0.23	0.10	3.11	735.95
16	80	1.33	0.8	0.260	0.16	0.23	0.10	3.11	735.95
17	85	1.42	0.8	0.260	0.16	0.23	0.10	3.11	735.95
18	90	1.50	0.8	0.260	0.16	0.23	0.10	3.11	735.95
19	95	1.58	0.8	0.260	0.16	0.23	0.10	3.11	735.95
20	100	1.67	0.8	0.260	0.16	0.23	0.10	3.11	735.95
21	105	1.75	0.8	0.260	0.16	0.23	0.10	3.11	735.95
22	110	1.83	0.8	0.260	0.16	0.23	0.10	3.11	735.95
23	115	1.92	0.8	0.260	0.16	0.23	0.10	3.11	735.95
24	120	2.00	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
25	125	2.08	0.8	0.260	0.16	0.23	0.10	3.11	735.95
26	130	2.17	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
27	135	2.25	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
28	140	2.33	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
29	145	2.42	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
30	150	2.50	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
31	155	2.58	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
32	160	2.67	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
33	165	2.75	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
34	170	2.83	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
35	175	2.92	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
36	180	3.00	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
37	185	3.08	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
38	190	3.17	1.1	0.358	0.16	0.32	0.20	6.11	1635.06
39	195	3.25	1.1	0.358	0.16	0.32	0.20	6.11	1635.06
40	200	3.33	1.1	0.358	0.16	0.32	0.20	6.11	1635.06
41	205	3.42	1.2	0.390	0.16	0.35	0.23	7.11	1934.77
42	210	3.50	1.3	0.423	0.16	0.38	0.26	8.11	2234.47
43	215	3.58	1.4	0.455	0.16	0.41	0.30	9.11	2534.18
44	220	3.67	1.4	0.455	0.16	0.41	0.30	9.11	2534.18
45	225	3.75	1.5	0.488	0.16	0.44	0.33	10.11	2833.88
46	230	3.83	1.5	0.488	0.16	0.44	0.33	10.11	2833.88
47	235	3.92	1.6	0.520	0.16	0.47	0.36	11.10	3133.59
48	240	4.00	1.6	0.520	0.16	0.47	0.36	11.10	3133.59
49	245	4.08	1.7	0.553	0.16	0.50	0.39	12.10	3433.29
50	250	4.17	1.8	0.585	0.16	0.53	0.43	13.10	3732.99
51	255	4.25	1.9	0.618	0.16	0.56	0.46	14.10	4032.70
52	260	4.33	2.0	0.650	0.16	0.59	0.49	15.10	4332.40
53	265	4.42	2.1	0.683	0.16	0.61	0.52	16.10	4632.11
54	270	4.50	2.1	0.683	0.16	0.61	0.52	16.10	4632.11
55	275	4.58	2.2	0.715	0.16	0.64	0.56	17.10	4931.81
56	280	4.67	2.3	0.748	0.16	0.67	0.59	18.10	5231.52

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.58
UNIT TIME-PERCENT OF LAG	193.9
TOTAL ADJUSTED STORM RAIN-INCHES	2.71
CONSTANT LOSS RATE-in/hr	0.159
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.780	0.16	0.70	0.62	19.10	5531.22
58	290	4.83	2.4	0.780	0.16	0.70	0.62	19.10	5531.22
59	295	4.92	2.5	0.813	0.16	0.73	0.65	20.10	5830.92
60	300	5.00	2.6	0.846	0.16	0.76	0.69	21.09	6130.63
61	305	5.08	3.1	1.008	0.16	0.91	0.85	26.09	7629.15
62	310	5.17	3.6	1.171	0.16	1.05	1.01	31.08	9127.67
63	315	5.25	3.9	1.268	0.16	1.14	1.11	34.08	10026.79
64	320	5.33	4.2	1.366	0.16	1.23	1.21	37.08	10925.90
65	325	5.42	4.7	1.528	0.16	1.38	1.37	42.07	12424.42
66	330	5.50	5.6	1.821	0.16	1.64	1.66	51.07	15121.76
67	335	5.58	1.9	0.618	0.16	0.56	0.46	14.10	4032.70
68	340	5.67	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
69	345	5.75	0.6	0.195	0.16	0.18	0.04	1.11	136.54
70	350	5.83	0.5	0.163	0.16	0.15	0.00	0.12	0.00
71	355	5.92	0.3	0.098	0.16	0.09	0.01	0.30	0.00
72	360	6.00	0.2	0.065	0.16	0.06	0.01	0.20	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.77
FLOOD VOLUME (acft)	4.53
FLOOD VOLUME (cuft)	197518.19
REQUIRED STORAGE (acft)	4.18
REQUIRED STORAGE (cuft)	182214.29
PEAK FLOW RATE (cfs)	51.07

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 100 YEAR - 24 HOUR STORM EVENT	PROJECT: COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1588
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.079
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00147
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.034	0.280	0.031	0.003	0.10	0.00
2	30	0.50	0.3	0.051	0.277	0.046	0.005	0.16	0.00
3	45	0.75	0.3	0.051	0.274	0.046	0.005	0.16	0.00
4	60	1.00	0.4	0.068	0.271	0.061	0.007	0.21	0.00
5	75	1.25	0.3	0.051	0.268	0.046	0.005	0.16	0.00
6	90	1.50	0.3	0.051	0.264	0.046	0.005	0.16	0.00
7	105	1.75	0.3	0.051	0.261	0.046	0.005	0.16	0.00
8	120	2.00	0.4	0.068	0.258	0.061	0.007	0.21	0.00
9	135	2.25	0.4	0.068	0.255	0.061	0.007	0.21	0.00
10	150	2.50	0.4	0.068	0.252	0.061	0.007	0.21	0.00
11	165	2.75	0.5	0.085	0.249	0.076	0.008	0.26	0.00
12	180	3.00	0.5	0.085	0.246	0.076	0.008	0.26	0.00
13	195	3.25	0.5	0.085	0.243	0.076	0.008	0.26	0.00
14	210	3.50	0.5	0.085	0.240	0.076	0.008	0.26	0.00
15	225	3.75	0.5	0.085	0.237	0.076	0.008	0.26	0.00
16	240	4.00	0.6	0.102	0.234	0.092	0.010	0.31	0.00
17	255	4.25	0.6	0.102	0.231	0.092	0.010	0.31	0.00
18	270	4.50	0.7	0.119	0.228	0.107	0.012	0.36	0.00
19	285	4.75	0.7	0.119	0.225	0.107	0.012	0.36	0.00
20	300	5.00	0.8	0.136	0.222	0.122	0.014	0.42	0.00
21	315	5.25	0.6	0.102	0.219	0.092	0.010	0.31	0.00
22	330	5.50	0.7	0.119	0.216	0.107	0.012	0.36	0.00
23	345	5.75	0.8	0.136	0.213	0.122	0.014	0.42	0.00
24	360	6.00	0.8	0.136	0.211	0.122	0.014	0.42	0.00
25	375	6.25	0.9	0.153	0.208	0.137	0.015	0.47	0.00
26	390	6.50	0.9	0.153	0.205	0.137	0.015	0.47	0.00
27	405	6.75	1.0	0.170	0.202	0.153	0.017	0.52	0.00
28	420	7.00	1.0	0.170	0.200	0.153	0.017	0.52	0.00
29	435	7.25	1.0	0.170	0.197	0.153	0.017	0.52	0.00
30	450	7.50	1.1	0.187	0.194	0.168	0.019	0.57	0.00
31	465	7.75	1.2	0.204	0.191	0.183	0.012	0.37	0.00
32	480	8.00	1.3	0.220	0.189	0.198	0.032	0.97	280.90
33	495	8.25	1.5	0.254	0.186	0.229	0.068	2.09	1291.12
34	510	8.50	1.5	0.254	0.184	0.229	0.071	2.17	1362.89
35	525	8.75	1.6	0.271	0.181	0.244	0.090	2.77	1902.95
36	540	9.00	1.7	0.288	0.179	0.259	0.110	3.37	2442.37
37	555	9.25	1.9	0.322	0.176	0.290	0.146	4.49	3450.07
38	570	9.50	2.0	0.339	0.173	0.305	0.166	5.09	3988.21
39	585	9.75	2.1	0.356	0.171	0.321	0.185	5.69	4525.70
40	600	10.00	2.2	0.373	0.169	0.336	0.205	6.28	5062.54
41	615	10.25	1.5	0.254	0.166	0.229	0.088	2.71	1847.45
42	630	10.50	1.5	0.254	0.164	0.229	0.091	2.79	1914.05
43	645	10.75	2.0	0.339	0.161	0.305	0.178	5.46	4324.55
44	660	11.00	2.0	0.339	0.159	0.305	0.180	5.54	4389.81
45	675	11.25	1.9	0.322	0.157	0.290	0.166	5.09	3985.49
46	690	11.50	1.9	0.322	0.154	0.290	0.168	5.16	4049.39
47	705	11.75	1.7	0.288	0.152	0.259	0.136	4.19	3174.77
48	720	12.00	1.8	0.305	0.150	0.275	0.156	4.78	3706.19
49	735	12.25	2.5	0.424	0.148	0.382	0.276	8.49	7050.37
50	750	12.50	2.6	0.441	0.145	0.397	0.296	9.08	7580.37
51	765	12.75	2.8	0.475	0.143	0.427	0.332	10.19	8578.57
52	780	13.00	2.9	0.492	0.141	0.443	0.351	10.78	9107.12
53	795	13.25	3.4	0.577	0.139	0.519	0.438	13.45	11510.59
54	810	13.50	3.4	0.577	0.137	0.519	0.440	13.51	11568.77
55	825	13.75	2.3	0.390	0.135	0.351	0.255	7.85	6468.18
56	840	14.00	2.3	0.390	0.133	0.351	0.257	7.91	6524.86
57	855	14.25	2.7	0.458	0.131	0.412	0.327	10.06	8456.40
58	870	14.50	2.6	0.441	0.129	0.397	0.312	9.60	8042.63
59	885	14.75	2.6	0.441	0.127	0.397	0.314	9.66	8096.98
60	900	15.00	2.5	0.424	0.125	0.382	0.299	9.19	7681.63
61	915	15.25	2.4	0.407	0.123	0.366	0.284	8.73	7265.48

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 100 YEAR - 24 HOUR STORM EVENT	PROJECT: CONCENTRATION POINT: BY: JAMES BAZUA	COACHELLA AIRPORT BUSINESS PARK 1 DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1588
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.079
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00147
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Required Storage
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs	cf
62	930	15.50	2.3	0.390	0.121	0.351	0.269	8.27	6848.52
63	945	15.75	1.9	0.322	0.119	0.290	0.203	6.24	5024.00
64	960	16.00	1.9	0.322	0.117	0.290	0.205	6.30	5074.30
65	975	16.25	0.4	0.068	0.115	0.061	0.007	0.21	0.00
66	990	16.50	0.4	0.068	0.114	0.061	0.007	0.21	0.00
67	1005	16.75	0.3	0.051	0.112	0.046	0.005	0.16	0.00
68	1020	17.00	0.3	0.051	0.110	0.046	0.005	0.16	0.00
69	1035	17.25	0.5	0.085	0.109	0.076	0.008	0.26	0.00
70	1050	17.50	0.5	0.085	0.107	0.076	0.008	0.26	0.00
71	1065	17.75	0.5	0.085	0.105	0.076	0.008	0.26	0.00
72	1080	18.00	0.4	0.068	0.104	0.061	0.007	0.21	0.00
73	1095	18.25	0.4	0.068	0.102	0.061	0.007	0.21	0.00
74	1110	18.50	0.4	0.068	0.101	0.061	0.007	0.21	0.00
75	1125	18.75	0.3	0.051	0.099	0.046	0.005	0.16	0.00
76	1140	19.00	0.2	0.034	0.098	0.031	0.003	0.10	0.00
77	1155	19.25	0.3	0.051	0.097	0.046	0.005	0.16	0.00
78	1170	19.50	0.4	0.068	0.095	0.061	0.007	0.21	0.00
79	1185	19.75	0.3	0.051	0.094	0.046	0.005	0.16	0.00
80	1200	20.00	0.2	0.034	0.093	0.031	0.003	0.10	0.00
81	1215	20.25	0.3	0.051	0.091	0.046	0.005	0.16	0.00
82	1230	20.50	0.3	0.051	0.090	0.046	0.005	0.16	0.00
83	1245	20.75	0.3	0.051	0.089	0.046	0.005	0.16	0.00
84	1260	21.00	0.2	0.034	0.088	0.031	0.003	0.10	0.00
85	1275	21.25	0.3	0.051	0.087	0.046	0.005	0.16	0.00
86	1290	21.50	0.2	0.034	0.086	0.031	0.003	0.10	0.00
87	1305	21.75	0.3	0.051	0.085	0.046	0.005	0.16	0.00
88	1320	22.00	0.2	0.034	0.084	0.031	0.003	0.10	0.00
89	1335	22.25	0.3	0.051	0.083	0.046	0.005	0.16	0.00
90	1350	22.50	0.2	0.034	0.083	0.031	0.003	0.10	0.00
91	1365	22.75	0.2	0.034	0.082	0.031	0.003	0.10	0.00
92	1380	23.00	0.2	0.034	0.081	0.031	0.003	0.10	0.00
93	1395	23.25	0.2	0.034	0.081	0.031	0.003	0.10	0.00
94	1410	23.50	0.2	0.034	0.080	0.031	0.003	0.10	0.00
95	1425	23.75	0.2	0.034	0.080	0.031	0.003	0.10	0.00
96	1440	24.00	0.2	0.034	0.079	0.031	0.003	0.10	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	1.89
FLOOD VOLUME (acft)	4.85
FLOOD VOLUME (cuft)	211181.60
REQUIRED STORAGE (acft)	4.05
REQUIRED STORAGE (cuft)	176577.21
PEAK FLOW (cfs)	13.51

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
379	0	0		42516	0	0	0.00
380	1	1	2511	45027	43772	43772	1.00
381	1	2	2582	47609	46318	90090	2.07
382	1	3	2654	50263	48936	139026	3.19

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	4.85	1,455	1,455	198	1,257	379.03	1,257	0.03
2	10	4.85	1,455	2,711	198	2,514	379.06	2,514	0.06
3	15	3.35	1,006	3,519	198	3,322	379.08	3,322	0.08
4	20	6.35	1,904	5,225	198	5,027	379.11	5,027	0.12
5	25	6.35	1,904	6,931	198	6,733	379.15	6,733	0.15
6	30	8.59	2,577	9,310	198	9,113	379.21	9,113	0.21
7	35	6.35	1,904	11,016	198	10,818	379.25	10,818	0.25
8	40	8.59	2,577	13,396	198	13,198	379.30	13,198	0.30
9	45	8.59	2,577	15,775	198	15,577	379.36	15,577	0.36
10	50	6.35	1,904	17,481	198	17,283	379.39	17,283	0.40
11	55	7.09	2,128	19,411	198	19,213	379.44	19,213	0.44
12	60	8.59	2,577	21,790	198	21,593	379.49	21,593	0.50
13	65	11.58	3,475	25,068	198	24,870	379.57	24,870	0.57
14	70	11.58	3,475	28,345	198	28,147	379.64	28,147	0.65
15	75	11.58	3,475	31,623	198	31,425	379.72	31,425	0.72
16	80	10.09	3,026	34,451	198	34,253	379.78	34,253	0.79
17	85	14.58	4,373	38,626	198	38,428	379.88	38,428	0.88
18	90	15.33	4,598	43,026	198	42,828	379.98	42,828	0.98
19	95	13.08	3,924	46,752	198	46,555	380.06	46,555	1.07
20	100	15.33	4,598	51,152	198	50,954	380.16	50,954	1.17
21	105	19.82	5,945	56,899	198	56,701	380.28	56,701	1.30
22	110	18.32	5,496	62,197	198	61,999	380.39	61,999	1.42
23	115	16.82	5,047	67,046	198	66,848	380.50	66,848	1.53
24	120	17.57	5,271	72,119	198	71,921	380.61	71,921	1.65
25	125	18.32	5,496	77,417	198	77,219	380.72	77,219	1.77
26	130	26.55	7,965	85,185	198	84,987	380.89	84,987	1.95
27	135	32.54	9,761	94,748	198	94,550	381.09	94,550	2.17
28	140	21.31	6,394	100,944	198	100,746	381.22	100,746	2.31
29	145	46.01	13,802	114,548	198	114,350	381.50	114,350	2.63
30	150	49.75	14,925	129,275	198	129,077	381.80	129,077	2.96
31	155	56.48	16,945	146,023	198	145,825	-	145,825	3.35
32	160	39.27	11,782	157,607	198	157,409	-	157,409	3.61
33	165	10.09	3,026	160,435	198	160,237	-	160,237	3.68
34	170	8.59	2,577	162,814	198	162,616	-	162,616	3.73
35	175	8.59	2,577	165,194	198	164,996	-	164,996	3.79
36	180	0.45	135	165,131	198	164,933	-	164,933	3.79

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.12	35	35	198	-	379.00	-	0.00
2	10	1.11	334	334	198	137	379.00	137	0.00
3	15	1.11	334	471	198	273	379.01	273	0.01
4	20	1.11	334	607	198	410	379.01	410	0.01
5	25	1.11	334	744	198	546	379.01	546	0.01
6	30	2.11	634	1,180	198	982	379.02	982	0.02
7	35	2.11	634	1,616	198	1,419	379.03	1,419	0.03
8	40	2.11	634	2,053	198	1,855	379.04	1,855	0.04
9	45	2.11	634	2,489	198	2,291	379.05	2,291	0.05
10	50	2.11	634	2,925	198	2,727	379.06	2,727	0.06
11	55	2.11	634	3,361	198	3,164	379.07	3,164	0.07
12	60	3.11	934	4,097	198	3,900	379.09	3,900	0.09
13	65	3.11	934	4,833	198	4,636	379.11	4,636	0.11
14	70	3.11	934	5,569	198	5,372	379.12	5,372	0.12
15	75	3.11	934	6,305	198	6,107	379.14	6,107	0.14
16	80	3.11	934	7,041	198	6,843	379.16	6,843	0.16
17	85	3.11	934	7,777	198	7,579	379.17	7,579	0.17
18	90	3.11	934	8,513	198	8,315	379.19	8,315	0.19
19	95	3.11	934	9,249	198	9,051	379.21	9,051	0.21
20	100	3.11	934	9,985	198	9,787	379.22	9,787	0.22
21	105	3.11	934	10,721	198	10,523	379.24	10,523	0.24
22	110	3.11	934	11,457	198	11,259	379.26	11,259	0.26
23	115	3.11	934	12,193	198	11,995	379.27	11,995	0.28
24	120	4.11	1,233	13,229	198	13,031	379.30	13,031	0.30
25	125	3.11	934	13,964	198	13,767	379.31	13,767	0.32
26	130	4.11	1,233	15,000	198	14,802	379.34	14,802	0.34
27	135	4.11	1,233	16,036	198	15,838	379.36	15,838	0.36
28	140	4.11	1,233	17,071	198	16,874	379.39	16,874	0.39
29	145	4.11	1,233	18,107	198	17,909	379.41	17,909	0.41
30	150	4.11	1,233	19,143	198	18,945	379.43	18,945	0.43
31	155	4.11	1,233	20,178	198	19,981	379.46	19,981	0.46
32	160	4.11	1,233	21,214	198	21,016	379.48	21,016	0.48
33	165	5.11	1,533	22,549	198	22,352	379.51	22,352	0.51
34	170	5.11	1,533	23,885	198	23,687	379.54	23,687	0.54
35	175	5.11	1,533	25,220	198	25,022	379.57	25,022	0.57
36	180	5.11	1,533	26,556	198	26,358	379.60	26,358	0.61
37	185	5.11	1,533	27,891	198	27,693	379.63	27,693	0.64
38	190	6.11	1,833	29,526	198	29,328	379.67	29,328	0.67
39	195	6.11	1,833	31,161	198	30,963	379.71	30,963	0.71
40	200	6.11	1,833	32,796	198	32,598	379.74	32,598	0.75
41	205	7.11	2,133	34,731	198	34,533	379.79	34,533	0.79
42	210	8.11	2,432	36,965	198	36,767	379.84	36,767	0.84
43	215	9.11	2,732	39,499	198	39,302	379.90	39,302	0.90
44	220	9.11	2,732	42,034	198	41,836	379.96	41,836	0.96
45	225	10.11	3,032	44,868	198	44,670	380.02	44,670	1.03
46	230	10.11	3,032	47,701	198	47,504	380.08	47,504	1.09
47	235	11.10	3,331	50,835	198	50,637	380.15	50,637	1.16
48	240	11.10	3,331	53,969	198	53,771	380.22	53,771	1.23
49	245	12.10	3,631	57,402	198	57,204	380.29	57,204	1.31
50	250	13.10	3,931	61,135	198	60,937	380.37	60,937	1.40
51	255	14.10	4,231	65,168	198	64,970	380.46	64,970	1.49
52	260	15.10	4,530	69,500	198	69,302	380.55	69,302	1.59
53	265	16.10	4,830	74,132	198	73,934	380.65	73,934	1.70
54	270	16.10	4,830	78,764	198	78,566	380.75	78,566	1.80
55	275	17.10	5,130	83,696	198	83,498	380.86	83,498	1.92

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
56	280	18.10	5,429	88,928	198	88,730	380.97	88,730	2.04
57	285	19.10	5,729	94,459	198	94,261	381.09	94,261	2.16
58	290	19.10	5,729	99,990	198	99,792	381.20	99,792	2.29
59	295	20.10	6,029	105,821	198	105,623	381.32	105,623	2.42
60	300	21.09	6,328	111,952	198	111,754	381.44	111,754	2.57
61	305	26.09	7,827	119,581	198	119,383	381.60	119,383	2.74
62	310	31.08	9,325	128,708	198	128,511	381.79	128,511	2.95
63	315	34.08	10,225	138,735	198	138,537	381.99	138,537	3.18
64	320	37.08	11,124	149,661	198	149,463	-	149,463	3.43
65	325	42.07	12,622	162,085	198	161,888	-	161,888	3.72
66	330	51.07	15,320	177,207	198	177,009	-	177,009	4.06
67	335	14.10	4,231	181,240	198	181,042	-	181,042	4.16
68	340	4.11	1,233	182,276	198	182,078	-	182,078	4.18
69	345	1.11	334	182,412	198	182,214	-	182,214	4.18
70	350	0.12	35	182,249	198	182,051	-	182,051	4.18
71	355	0.30	90	182,141	198	181,943	-	181,943	4.18
72	360	0.20	60	182,003	198	181,805	-	181,805	4.17

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	15	0.10	94	94	593	-	379.00	-	0.00
2	30	0.16	141	141	593	-	379.00	-	0.00
3	45	0.16	141	141	593	-	379.00	-	0.00
4	60	0.21	188	188	593	-	379.00	-	0.00
5	75	0.16	141	141	593	-	379.00	-	0.00
6	90	0.16	141	141	593	-	379.00	-	0.00
7	105	0.16	141	141	593	-	379.00	-	0.00
8	120	0.21	188	188	593	-	379.00	-	0.00
9	135	0.21	188	188	593	-	379.00	-	0.00
10	150	0.21	188	188	593	-	379.00	-	0.00
11	165	0.26	234	234	593	-	379.00	-	0.00
12	180	0.26	234	234	593	-	379.00	-	0.00
13	195	0.26	234	234	593	-	379.00	-	0.00
14	210	0.26	234	234	593	-	379.00	-	0.00
15	225	0.26	234	234	593	-	379.00	-	0.00
16	240	0.31	281	281	593	-	379.00	-	0.00
17	255	0.31	281	281	593	-	379.00	-	0.00
18	270	0.36	328	328	593	-	379.00	-	0.00
19	285	0.36	328	328	593	-	379.00	-	0.00
20	300	0.42	375	375	593	-	379.00	-	0.00
21	315	0.31	281	281	593	-	379.00	-	0.00
22	330	0.36	328	328	593	-	379.00	-	0.00
23	345	0.42	375	375	593	-	379.00	-	0.00
24	360	0.42	375	375	593	-	379.00	-	0.00
25	375	0.47	422	422	593	-	379.00	-	0.00
26	390	0.47	422	422	593	-	379.00	-	0.00
27	405	0.52	469	469	593	-	379.00	-	0.00
28	420	0.52	469	469	593	-	379.00	-	0.00
29	435	0.52	469	469	593	-	379.00	-	0.00
30	450	0.57	516	516	593	-	379.00	-	0.00
31	465	0.37	332	332	593	-	379.00	-	0.00
32	480	0.97	874	874	593	281	379.01	281	0.01
33	495	2.09	1,885	2,165	593	1,572	379.04	1,572	0.04
34	510	2.17	1,956	3,528	593	2,935	379.07	2,935	0.07
35	525	2.77	2,496	5,431	593	4,838	379.11	4,838	0.11
36	540	3.37	3,036	7,874	593	7,280	379.17	7,280	0.17
37	555	4.49	4,044	11,324	593	10,730	379.25	10,730	0.25
38	570	5.09	4,582	15,312	593	14,719	379.34	14,719	0.34
39	585	5.69	5,119	19,838	593	19,244	379.44	19,244	0.44
40	600	6.28	5,656	24,900	593	24,307	379.56	24,307	0.56
41	615	2.71	2,441	26,748	593	26,154	379.60	26,154	0.60
42	630	2.79	2,508	28,662	593	28,068	379.64	28,068	0.64
43	645	5.46	4,918	32,986	593	32,393	379.74	32,393	0.74
44	660	5.54	4,983	37,376	593	36,783	379.84	36,783	0.84
45	675	5.09	4,579	41,362	593	40,768	379.93	40,768	0.94
46	690	5.16	4,643	45,411	593	44,817	380.02	44,817	1.03
47	705	4.19	3,768	48,586	593	47,992	380.09	47,992	1.10
48	720	4.78	4,300	52,292	593	51,698	380.17	51,698	1.19
49	735	8.49	7,644	59,342	593	58,749	380.32	58,749	1.35
50	750	9.08	8,174	66,923	593	66,329	380.49	66,329	1.52
51	765	10.19	9,172	75,501	593	74,908	380.67	74,908	1.72
52	780	10.78	9,701	84,608	593	84,015	380.87	84,015	1.93
53	795	13.45	12,104	96,119	593	95,525	381.11	95,525	2.19
54	810	13.51	12,162	107,688	593	107,094	381.35	107,094	2.46
55	825	7.85	7,062	114,156	593	113,562	381.48	113,562	2.61
56	840	7.91	7,118	120,681	593	120,087	381.61	120,087	2.76
57	855	10.06	9,050	129,137	593	128,544	381.79	128,544	2.95
58	870	9.60	8,636	137,180	593	136,586	381.95	136,586	3.14

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
59	885	9.66	8,690	145,277	593	144,683	-	144,683	3.32
60	900	9.19	8,275	152,958	593	152,365	-	152,365	3.50
61	915	8.73	7,859	160,224	593	159,630	-	159,630	3.66
62	930	8.27	7,442	167,072	593	166,479	-	166,479	3.82
63	945	6.24	5,617	172,096	593	171,503	-	171,503	3.94
64	960	6.30	5,668	177,171	593	176,577	-	176,577	4.05
65	975	0.21	188	176,765	593	176,171	-	176,171	4.04
66	990	0.21	188	176,359	593	175,765	-	175,765	4.04
67	1005	0.16	141	175,906	593	175,313	-	175,313	4.02
68	1020	0.16	141	175,453	593	174,860	-	174,860	4.01
69	1035	0.26	234	175,094	593	174,501	-	174,501	4.01
70	1050	0.26	234	174,735	593	174,142	-	174,142	4.00
71	1065	0.26	234	174,376	593	173,783	-	173,783	3.99
72	1080	0.21	188	173,970	593	173,377	-	173,377	3.98
73	1095	0.21	188	173,565	593	172,971	-	172,971	3.97
74	1110	0.21	188	173,159	593	172,565	-	172,565	3.96
75	1125	0.16	141	172,706	593	172,112	-	172,112	3.95
76	1140	0.10	94	172,206	593	171,613	-	171,613	3.94
77	1155	0.16	141	171,753	593	171,160	-	171,160	3.93
78	1170	0.21	188	171,348	593	170,754	-	170,754	3.92
79	1185	0.16	141	170,895	593	170,301	-	170,301	3.91
80	1200	0.10	94	170,395	593	169,802	-	169,802	3.90
81	1215	0.16	141	169,942	593	169,349	-	169,349	3.89
82	1230	0.16	141	169,490	593	168,896	-	168,896	3.88
83	1245	0.16	141	169,037	593	168,443	-	168,443	3.87
84	1260	0.10	94	168,537	593	167,944	-	167,944	3.86
85	1275	0.16	141	168,084	593	167,491	-	167,491	3.85
86	1290	0.10	94	167,585	593	166,991	-	166,991	3.83
87	1305	0.16	141	167,132	593	166,538	-	166,538	3.82
88	1320	0.10	94	166,632	593	166,039	-	166,039	3.81
89	1335	0.16	141	166,179	593	165,586	-	165,586	3.80
90	1350	0.10	94	165,680	593	165,086	-	165,086	3.79
91	1365	0.10	94	165,180	593	164,587	-	164,587	3.78
92	1380	0.10	94	164,680	593	164,087	-	164,087	3.77
93	1395	0.10	94	164,181	593	163,587	-	163,587	3.76
94	1410	0.10	94	163,681	593	163,088	-	163,088	3.74
95	1425	0.10	94	163,181	593	162,588	-	162,588	3.73
96	1440	0.10	94	162,682	593	162,088	-	162,088	3.72

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA BUSINESS PARK - INTERIM BASIN		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA B - 100 YEAR STORM EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	8.18		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING			
23	RETENTION BASIN	1		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	285		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	2.03		
40	6-HOUR	2.71		
41	24-HOUR	4.24		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		382	42380	
45		383	44806	
46		384	47288	
47		385	49827	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA C - 100 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	2.32		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.1		
23	RETENTION BASIN	0.21		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	400		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	30		
30				
31	ELEVATION OF HEADWATER	386		
32	ELEVATION OF CONCENTRATION POINT	384		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	2.03		
40	6-HOUR	2.71		
41	24-HOUR	4.24		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		381	2664	
45		382	4561	
46		383	6529	
47		384	8568	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
BY \MES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA C - 100 YEAR EVENT
[3] AREA - ACRES	2.630
[4] L-FEET	400
[5] L-MILES	0.076
[6] La-FEET	30.00
[7] La-MILES	0.006
[8] ELEVATION OF HEADWATER	386
[9] ELEVATION OF CONCENTRATION POINT	384
[10] H-FEET	2
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.000
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.01
[16] LAG TIME-MINUTES	0.8
[17] 100% OF LAG-MINUTES	0.8
[18] 200% OF LAG-MINUTES	1.6
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.04

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
2.03	2.630	1.00	2.03	2.71	2.630	1.00	2.71	4.24	2.630	1.00	4.24
		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			0.00	0.00
SUM [5]	2.63	SUM [7]	2.03	SUM [9]	2.63	SUM [11]	2.71	SUM [13]	2.63	SUM [15]	4.24
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			2.03				2.71				4.24

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.59	1.85	2.00
FLOOD VOLUME	(cu-ft)	15,210	17,648	19,085
	(acre-ft)	0.35	0.41	0.44
REQUIRED STORAGE	(cu-ft)	14,650	16,621	16,588
	(acre-ft)	0.34	0.38	0.38
PEAK FLOW	(cfs)	4.87	4.41	1.19
MAXIMUM WSEL	(ft)	383.73	383.99	383.98

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK
	CONCENTRATION POINT: 1
	BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.51	90%	0.10	2.32	0.882	0.0855
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.51	20%	0.42	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.51	40%	0.33	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.51	50%	0.28	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.51	65%	0.21	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.51	80%	0.14	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.51	75%	0.17	0.00	0.000	0.0000
B	LANDSCAPING	56	0.51	0%	0.51	0.10	0.038	0.0194
B	RETENTION BASINS	56	0.51	0%	0.51	0.21	0.080	0.0407
B	GOLF COURSE	56	0.51	0%	0.51	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.08	90%	0.02	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	2.63	SUM	0.1456

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.072796198

C= 0.00135

Ft=C(24-(T/60))^1.55 = 0.00135 (24-(T/60))^1.55 + 0.07 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 3 HOUR STORM EVENT

PROJECT: COACHELLA AIRPORT BUSINESS PARK
CONCENTRATION POINT: 1
BY: \MES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	0.81
UNIT TIME-PERCENT OF LAG	614.9
TOTAL ADJUSTED STORM RAIN-INCHES	2.03
CONSTANT LOSS RATE-in/hr	0.15
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.317	0.15	0.29	0.17	0.45	122.59
2	10	0.17	1.3	0.317	0.15	0.29	0.17	0.45	122.59
3	15	0.25	1.1	0.268	0.15	0.24	0.12	0.32	84.15
4	20	0.33	1.5	0.365	0.15	0.33	0.22	0.58	161.03
5	25	0.42	1.5	0.365	0.15	0.33	0.22	0.58	161.03
6	30	0.50	1.8	0.438	0.15	0.39	0.29	0.77	218.69
7	35	0.58	1.5	0.365	0.15	0.33	0.22	0.58	161.03
8	40	0.67	1.8	0.438	0.15	0.39	0.29	0.77	218.69
9	45	0.75	1.8	0.438	0.15	0.39	0.29	0.77	218.69
10	50	0.83	1.5	0.365	0.15	0.33	0.22	0.58	161.03
11	55	0.92	1.6	0.390	0.15	0.35	0.24	0.64	180.25
12	60	1.00	1.8	0.438	0.15	0.39	0.29	0.77	218.69
13	65	1.08	2.2	0.536	0.15	0.48	0.39	1.03	295.57
14	70	1.17	2.2	0.536	0.15	0.48	0.39	1.03	295.57
15	75	1.25	2.2	0.536	0.15	0.48	0.39	1.03	295.57
16	80	1.33	2.0	0.487	0.15	0.44	0.34	0.90	257.13
17	85	1.42	2.6	0.633	0.15	0.57	0.49	1.28	372.45
18	90	1.50	2.7	0.658	0.15	0.59	0.51	1.35	391.67
19	95	1.58	2.4	0.585	0.15	0.53	0.44	1.15	334.01
20	100	1.67	2.7	0.658	0.15	0.59	0.51	1.35	391.67
21	105	1.75	3.3	0.804	0.15	0.72	0.66	1.73	506.99
22	110	1.83	3.1	0.755	0.15	0.68	0.61	1.60	468.55
23	115	1.92	2.9	0.706	0.15	0.64	0.56	1.48	430.11
24	120	2.00	3.0	0.731	0.15	0.66	0.59	1.54	449.33
25	125	2.08	3.1	0.755	0.15	0.68	0.61	1.60	468.55
26	130	2.17	4.2	1.023	0.15	0.92	0.88	2.31	679.97
27	135	2.25	5.0	1.218	0.15	1.10	1.07	2.82	833.73
28	140	2.33	3.5	0.853	0.15	0.77	0.71	1.86	545.43
29	145	2.42	6.8	1.656	0.15	1.49	1.51	3.97	1179.70
30	150	2.50	7.3	1.778	0.15	1.60	1.63	4.29	1275.80
31	155	2.58	8.2	1.998	0.15	1.80	1.85	4.87	1448.78
32	160	2.67	5.9	1.437	0.15	1.29	1.29	3.40	1006.71
33	165	2.75	2.0	0.487	0.15	0.44	0.34	0.90	257.13
34	170	2.83	1.8	0.438	0.15	0.39	0.29	0.77	218.69
35	175	2.92	1.8	0.438	0.15	0.39	0.29	0.77	218.69
36	180	3.00	0.6	0.146	0.15	0.13	0.00	0.00	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.59
FLOOD VOLUME (acft)	0.35
FLOOD VOLUME (cuft)	15210.40
REQUIRED STORAGE (acft)	0.34
REQUIRED STORAGE (cuft)	14650.36
PEAK FLOW RATE (cfs)	4.87

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 6 HOUR STORM EVENT

PROJECT: COACHELLA AIRPORT BUSINESS PARK
CONCENTRATION POINT: 1

BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	0.81
UNIT TIME-PERCENT OF LAG	614.9
TOTAL ADJUSTED STORM RAIN-INCHES	2.71
CONSTANT LOSS RATE-in/hr	0.146
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.163	0.15	0.15	0.02	0.04	1.02
2	10	0.17	0.6	0.195	0.15	0.18	0.05	0.13	26.68
3	15	0.25	0.6	0.195	0.15	0.18	0.05	0.13	26.68
4	20	0.33	0.6	0.195	0.15	0.18	0.05	0.13	26.68
5	25	0.42	0.6	0.195	0.15	0.18	0.05	0.13	26.68
6	30	0.50	0.7	0.228	0.15	0.20	0.08	0.22	52.34
7	35	0.58	0.7	0.228	0.15	0.20	0.08	0.22	52.34
8	40	0.67	0.7	0.228	0.15	0.20	0.08	0.22	52.34
9	45	0.75	0.7	0.228	0.15	0.20	0.08	0.22	52.34
10	50	0.83	0.7	0.228	0.15	0.20	0.08	0.22	52.34
11	55	0.92	0.7	0.228	0.15	0.20	0.08	0.22	52.34
12	60	1.00	0.8	0.260	0.15	0.23	0.11	0.30	78.00
13	65	1.08	0.8	0.260	0.15	0.23	0.11	0.30	78.00
14	70	1.17	0.8	0.260	0.15	0.23	0.11	0.30	78.00
15	75	1.25	0.8	0.260	0.15	0.23	0.11	0.30	78.00
16	80	1.33	0.8	0.260	0.15	0.23	0.11	0.30	78.00
17	85	1.42	0.8	0.260	0.15	0.23	0.11	0.30	78.00
18	90	1.50	0.8	0.260	0.15	0.23	0.11	0.30	78.00
19	95	1.58	0.8	0.260	0.15	0.23	0.11	0.30	78.00
20	100	1.67	0.8	0.260	0.15	0.23	0.11	0.30	78.00
21	105	1.75	0.8	0.260	0.15	0.23	0.11	0.30	78.00
22	110	1.83	0.8	0.260	0.15	0.23	0.11	0.30	78.00
23	115	1.92	0.8	0.260	0.15	0.23	0.11	0.30	78.00
24	120	2.00	0.9	0.293	0.15	0.26	0.15	0.39	103.66
25	125	2.08	0.8	0.260	0.15	0.23	0.11	0.30	78.00
26	130	2.17	0.9	0.293	0.15	0.26	0.15	0.39	103.66
27	135	2.25	0.9	0.293	0.15	0.26	0.15	0.39	103.66
28	140	2.33	0.9	0.293	0.15	0.26	0.15	0.39	103.66
29	145	2.42	0.9	0.293	0.15	0.26	0.15	0.39	103.66
30	150	2.50	0.9	0.293	0.15	0.26	0.15	0.39	103.66
31	155	2.58	0.9	0.293	0.15	0.26	0.15	0.39	103.66
32	160	2.67	0.9	0.293	0.15	0.26	0.15	0.39	103.66
33	165	2.75	1.0	0.325	0.15	0.29	0.18	0.47	129.32
34	170	2.83	1.0	0.325	0.15	0.29	0.18	0.47	129.32
35	175	2.92	1.0	0.325	0.15	0.29	0.18	0.47	129.32
36	180	3.00	1.0	0.325	0.15	0.29	0.18	0.47	129.32
37	185	3.08	1.0	0.325	0.15	0.29	0.18	0.47	129.32
38	190	3.17	1.1	0.358	0.15	0.32	0.21	0.56	154.97
39	195	3.25	1.1	0.358	0.15	0.32	0.21	0.56	154.97
40	200	3.33	1.1	0.358	0.15	0.32	0.21	0.56	154.97
41	205	3.42	1.2	0.390	0.15	0.35	0.24	0.64	180.63
42	210	3.50	1.3	0.423	0.15	0.38	0.28	0.73	206.29
43	215	3.58	1.4	0.455	0.15	0.41	0.31	0.81	231.95
44	220	3.67	1.4	0.455	0.15	0.41	0.31	0.81	231.95
45	225	3.75	1.5	0.488	0.15	0.44	0.34	0.90	257.61
46	230	3.83	1.5	0.488	0.15	0.44	0.34	0.90	257.61
47	235	3.92	1.6	0.520	0.15	0.47	0.37	0.99	283.27
48	240	4.00	1.6	0.520	0.15	0.47	0.37	0.99	283.27
49	245	4.08	1.7	0.553	0.15	0.50	0.41	1.07	308.92
50	250	4.17	1.8	0.585	0.15	0.53	0.44	1.16	334.58
51	255	4.25	1.9	0.618	0.15	0.56	0.47	1.24	360.24
52	260	4.33	2.0	0.650	0.15	0.59	0.50	1.33	385.90
53	265	4.42	2.1	0.683	0.15	0.61	0.54	1.41	411.56
54	270	4.50	2.1	0.683	0.15	0.61	0.54	1.41	411.56
55	275	4.58	2.2	0.715	0.15	0.64	0.57	1.50	437.21
56	280	4.67	2.3	0.748	0.15	0.67	0.60	1.58	462.87

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 100 YEAR - 6 HOUR STORM EVENT	PROJECT: COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	0.81
UNIT TIME-PERCENT OF LAG	614.9
TOTAL ADJUSTED STORM RAIN-INCHES	2.71
CONSTANT LOSS RATE-in/hr	0.146
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.780	0.15	0.70	0.63	1.67	488.53
58	290	4.83	2.4	0.780	0.15	0.70	0.63	1.67	488.53
59	295	4.92	2.5	0.813	0.15	0.73	0.67	1.76	514.19
60	300	5.00	2.6	0.846	0.15	0.76	0.70	1.84	539.85
61	305	5.08	3.1	1.008	0.15	0.91	0.86	2.27	668.14
62	310	5.17	3.6	1.171	0.15	1.05	1.03	2.70	796.43
63	315	5.25	3.9	1.268	0.15	1.14	1.12	2.95	873.41
64	320	5.33	4.2	1.366	0.15	1.23	1.22	3.21	950.38
65	325	5.42	4.7	1.528	0.15	1.38	1.38	3.64	1078.67
66	330	5.50	5.6	1.821	0.15	1.64	1.68	4.41	1309.60
67	335	5.58	1.9	0.618	0.15	0.56	0.47	1.24	360.24
68	340	5.67	0.9	0.293	0.15	0.26	0.15	0.39	103.66
69	345	5.75	0.6	0.195	0.15	0.18	0.05	0.13	26.68
70	350	5.83	0.5	0.163	0.15	0.15	0.02	0.04	1.02
71	355	5.92	0.3	0.098	0.15	0.09	0.01	0.03	0.00
72	360	6.00	0.2	0.065	0.15	0.06	0.01	0.02	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.85
FLOOD VOLUME (acft)	0.41
FLOOD VOLUME (cuft)	17647.67
REQUIRED STORAGE (acft)	0.38
REQUIRED STORAGE (cuft)	16621.27
PEAK FLOW RATE (cfs)	4.41

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1456
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.073
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00135
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.034	0.257	0.031	0.003	0.01	0.00
2	30	0.50	0.3	0.051	0.254	0.046	0.005	0.01	0.00
3	45	0.75	0.3	0.051	0.251	0.046	0.005	0.01	0.00
4	60	1.00	0.4	0.068	0.248	0.061	0.007	0.02	0.00
5	75	1.25	0.3	0.051	0.245	0.046	0.005	0.01	0.00
6	90	1.50	0.3	0.051	0.242	0.046	0.005	0.01	0.00
7	105	1.75	0.3	0.051	0.239	0.046	0.005	0.01	0.00
8	120	2.00	0.4	0.068	0.237	0.061	0.007	0.02	0.00
9	135	2.25	0.4	0.068	0.234	0.061	0.007	0.02	0.00
10	150	2.50	0.4	0.068	0.231	0.061	0.007	0.02	0.00
11	165	2.75	0.5	0.085	0.228	0.076	0.008	0.02	0.00
12	180	3.00	0.5	0.085	0.225	0.076	0.008	0.02	0.00
13	195	3.25	0.5	0.085	0.222	0.076	0.008	0.02	0.00
14	210	3.50	0.5	0.085	0.220	0.076	0.008	0.02	0.00
15	225	3.75	0.5	0.085	0.217	0.076	0.008	0.02	0.00
16	240	4.00	0.6	0.102	0.214	0.092	0.010	0.03	0.00
17	255	4.25	0.6	0.102	0.212	0.092	0.010	0.03	0.00
18	270	4.50	0.7	0.119	0.209	0.107	0.012	0.03	0.00
19	285	4.75	0.7	0.119	0.206	0.107	0.012	0.03	0.00
20	300	5.00	0.8	0.136	0.203	0.122	0.014	0.04	0.00
21	315	5.25	0.6	0.102	0.201	0.092	0.010	0.03	0.00
22	330	5.50	0.7	0.119	0.198	0.107	0.012	0.03	0.00
23	345	5.75	0.8	0.136	0.196	0.122	0.014	0.04	0.00
24	360	6.00	0.8	0.136	0.193	0.122	0.014	0.04	0.00
25	375	6.25	0.9	0.153	0.190	0.137	0.015	0.04	0.00
26	390	6.50	0.9	0.153	0.188	0.137	0.015	0.04	0.00
27	405	6.75	1.0	0.170	0.185	0.153	0.017	0.04	2.96
28	420	7.00	1.0	0.170	0.183	0.153	0.017	0.04	2.96
29	435	7.25	1.0	0.170	0.180	0.153	0.017	0.04	2.96
30	450	7.50	1.1	0.187	0.178	0.168	0.009	0.02	0.00
31	465	7.75	1.2	0.204	0.176	0.183	0.028	0.07	29.08
32	480	8.00	1.3	0.220	0.173	0.198	0.047	0.12	74.95
33	495	8.25	1.5	0.254	0.171	0.229	0.084	0.22	160.92
34	510	8.50	1.5	0.254	0.168	0.229	0.086	0.23	166.55
35	525	8.75	1.6	0.271	0.166	0.244	0.105	0.28	212.28
36	540	9.00	1.7	0.288	0.164	0.259	0.125	0.33	257.96
37	555	9.25	1.9	0.322	0.161	0.290	0.161	0.42	343.73
38	570	9.50	2.0	0.339	0.159	0.305	0.180	0.47	389.31
39	585	9.75	2.1	0.356	0.157	0.321	0.199	0.52	434.83
40	600	10.00	2.2	0.373	0.154	0.336	0.219	0.57	480.31
41	615	10.25	1.5	0.254	0.152	0.229	0.102	0.27	204.58
42	630	10.50	1.5	0.254	0.150	0.229	0.104	0.27	209.80
43	645	10.75	2.0	0.339	0.148	0.305	0.191	0.50	415.70
44	660	11.00	2.0	0.339	0.146	0.305	0.193	0.51	420.82
45	675	11.25	1.9	0.322	0.144	0.290	0.179	0.47	385.75
46	690	11.50	1.9	0.322	0.141	0.290	0.181	0.48	390.76
47	705	11.75	1.7	0.288	0.139	0.259	0.149	0.39	315.43
48	720	12.00	1.8	0.305	0.137	0.275	0.168	0.44	360.48
49	735	12.25	2.5	0.424	0.135	0.382	0.289	0.76	646.34
50	750	12.50	2.6	0.441	0.133	0.397	0.308	0.81	691.28
51	765	12.75	2.8	0.475	0.131	0.427	0.344	0.90	776.31
52	780	13.00	2.9	0.492	0.129	0.443	0.363	0.95	821.13
53	795	13.25	3.4	0.577	0.127	0.519	0.449	1.18	1026.48
54	810	13.50	3.4	0.577	0.125	0.519	0.451	1.19	1031.04
55	825	13.75	2.3	0.390	0.123	0.351	0.267	0.70	593.96
56	840	14.00	2.3	0.390	0.122	0.351	0.269	0.71	598.41
57	855	14.25	2.7	0.458	0.120	0.412	0.338	0.89	763.37
58	870	14.50	2.6	0.441	0.118	0.397	0.323	0.85	727.55
59	885	14.75	2.6	0.441	0.116	0.397	0.325	0.85	731.82
60	900	15.00	2.5	0.424	0.114	0.382	0.310	0.81	695.88
61	915	15.25	2.4	0.407	0.113	0.366	0.294	0.77	659.87

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1456
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.073
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00135
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.390	0.111	0.351	0.279	0.73	623.81
63	945	15.75	1.9	0.322	0.109	0.290	0.213	0.56	467.24
64	960	16.00	1.9	0.322	0.107	0.290	0.215	0.56	471.19
65	975	16.25	0.4	0.068	0.106	0.061	0.007	0.02	0.00
66	990	16.50	0.4	0.068	0.104	0.061	0.007	0.02	0.00
67	1005	16.75	0.3	0.051	0.103	0.046	0.005	0.01	0.00
68	1020	17.00	0.3	0.051	0.101	0.046	0.005	0.01	0.00
69	1035	17.25	0.5	0.085	0.100	0.076	0.008	0.02	0.00
70	1050	17.50	0.5	0.085	0.098	0.076	0.008	0.02	0.00
71	1065	17.75	0.5	0.085	0.097	0.076	0.008	0.02	0.00
72	1080	18.00	0.4	0.068	0.095	0.061	0.007	0.02	0.00
73	1095	18.25	0.4	0.068	0.094	0.061	0.007	0.02	0.00
74	1110	18.50	0.4	0.068	0.092	0.061	0.007	0.02	0.00
75	1125	18.75	0.3	0.051	0.091	0.046	0.005	0.01	0.00
76	1140	19.00	0.2	0.034	0.090	0.031	0.003	0.01	0.00
77	1155	19.25	0.3	0.051	0.089	0.046	0.005	0.01	0.00
78	1170	19.50	0.4	0.068	0.087	0.061	0.007	0.02	0.00
79	1185	19.75	0.3	0.051	0.086	0.046	0.005	0.01	0.00
80	1200	20.00	0.2	0.034	0.085	0.031	0.003	0.01	0.00
81	1215	20.25	0.3	0.051	0.084	0.046	0.005	0.01	0.00
82	1230	20.50	0.3	0.051	0.083	0.046	0.005	0.01	0.00
83	1245	20.75	0.3	0.051	0.082	0.046	0.005	0.01	0.00
84	1260	21.00	0.2	0.034	0.081	0.031	0.003	0.01	0.00
85	1275	21.25	0.3	0.051	0.080	0.046	0.005	0.01	0.00
86	1290	21.50	0.2	0.034	0.079	0.031	0.003	0.01	0.00
87	1305	21.75	0.3	0.051	0.078	0.046	0.005	0.01	0.00
88	1320	22.00	0.2	0.034	0.077	0.031	0.003	0.01	0.00
89	1335	22.25	0.3	0.051	0.076	0.046	0.005	0.01	0.00
90	1350	22.50	0.2	0.034	0.076	0.031	0.003	0.01	0.00
91	1365	22.75	0.2	0.034	0.075	0.031	0.003	0.01	0.00
92	1380	23.00	0.2	0.034	0.074	0.031	0.003	0.01	0.00
93	1395	23.25	0.2	0.034	0.074	0.031	0.003	0.01	0.00
94	1410	23.50	0.2	0.034	0.073	0.031	0.003	0.01	0.00
95	1425	23.75	0.2	0.034	0.073	0.031	0.003	0.01	0.00
96	1440	24.00	0.2	0.034	0.073	0.031	0.003	0.01	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	2.00
FLOOD VOLUME (acft)	0.44
FLOOD VOLUME (cuft)	19085.17
REQUIRED STORAGE (acft)	0.38
REQUIRED STORAGE (cuft)	16587.80
PEAK FLOW (cfs)	1.19

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
381	0	0		2664	0	0	0.00
382	1	1	1897	4561	3613	3613	0.08
383	1	2	1968	6529	5545	9158	0.21
384	1	3	2039	8568	7549	16706	0.38

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.04 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.04 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME		FLOW IN	VOLUME IN	TOTAL IN BASIN	PERC OUT	TOTAL IN BASIN	BASIN DEPTH	BALANCE IN BASIN	
UNIT PERIOD	(min)	(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
1	5	0.45	135	135	12	123	381.03	123	0.00
2	10	0.45	135	258	12	245	381.07	245	0.01
3	15	0.32	97	342	12	329	381.09	329	0.01
4	20	0.58	173	503	12	490	381.14	490	0.01
5	25	0.58	173	664	12	651	381.18	651	0.01
6	30	0.77	231	882	12	870	381.24	870	0.02
7	35	0.58	173	1,044	12	1,031	381.29	1,031	0.02
8	40	0.77	231	1,262	12	1,250	381.35	1,250	0.03
9	45	0.77	231	1,481	12	1,469	381.41	1,469	0.03
10	50	0.58	173	1,642	12	1,630	381.45	1,630	0.04
11	55	0.64	193	1,822	12	1,810	381.50	1,810	0.04
12	60	0.77	231	2,041	12	2,028	381.56	2,028	0.05
13	65	1.03	308	2,336	12	2,324	381.64	2,324	0.05
14	70	1.03	308	2,632	12	2,620	381.73	2,620	0.06
15	75	1.03	308	2,928	12	2,915	381.81	2,915	0.07
16	80	0.90	270	3,185	12	3,172	381.88	3,172	0.07
17	85	1.28	385	3,557	12	3,545	381.98	3,545	0.08
18	90	1.35	404	3,949	12	3,936	382.06	3,936	0.09
19	95	1.15	346	4,283	12	4,270	382.12	4,270	0.10
20	100	1.35	404	4,675	12	4,662	382.19	4,662	0.11
21	105	1.73	519	5,182	12	5,169	382.28	5,169	0.12
22	110	1.60	481	5,650	12	5,638	382.37	5,638	0.13
23	115	1.48	443	6,080	12	6,068	382.44	6,068	0.14
24	120	1.54	462	6,530	12	6,517	382.52	6,517	0.15
25	125	1.60	481	6,998	12	6,986	382.61	6,986	0.16
26	130	2.31	692	7,678	12	7,666	382.73	7,666	0.18
27	135	2.82	846	8,512	12	8,499	382.88	8,499	0.20
28	140	1.86	558	9,057	12	9,045	382.98	9,045	0.21
29	145	3.97	1,192	10,237	12	10,225	383.14	10,225	0.23
30	150	4.29	1,288	11,513	12	11,500	383.31	11,500	0.26
31	155	4.87	1,461	12,962	12	12,949	383.50	12,949	0.30
32	160	3.40	1,019	13,968	12	13,956	383.64	13,956	0.32
33	165	0.90	270	14,225	12	14,213	383.67	14,213	0.33
34	170	0.77	231	14,444	12	14,432	383.70	14,432	0.33
35	175	0.77	231	14,663	12	14,650	383.73	14,650	0.34
36	180	0.00	0	14,651	12	14,638	383.73	14,638	0.34

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	5	0.04	13	13	12	1	381.00	1	0.00
2	10	0.13	39	40	12	28	381.01	28	0.00
3	15	0.13	39	67	12	54	381.02	54	0.00
4	20	0.13	39	93	12	81	381.02	81	0.00
5	25	0.13	39	120	12	108	381.03	108	0.00
6	30	0.22	65	172	12	160	381.04	160	0.00
7	35	0.22	65	225	12	212	381.06	212	0.00
8	40	0.22	65	277	12	265	381.07	265	0.01
9	45	0.22	65	330	12	317	381.09	317	0.01
10	50	0.22	65	382	12	369	381.10	369	0.01
11	55	0.22	65	434	12	422	381.12	422	0.01
12	60	0.30	90	512	12	500	381.14	500	0.01
13	65	0.30	90	590	12	578	381.16	578	0.01
14	70	0.30	90	668	12	656	381.18	656	0.02
15	75	0.30	90	746	12	734	381.20	734	0.02
16	80	0.30	90	824	12	812	381.22	812	0.02
17	85	0.30	90	902	12	890	381.25	890	0.02
18	90	0.30	90	980	12	968	381.27	968	0.02
19	95	0.30	90	1,058	12	1,046	381.29	1,046	0.02
20	100	0.30	90	1,136	12	1,124	381.31	1,124	0.03
21	105	0.30	90	1,214	12	1,202	381.33	1,202	0.03
22	110	0.30	90	1,292	12	1,280	381.35	1,280	0.03
23	115	0.30	90	1,370	12	1,358	381.38	1,358	0.03
24	120	0.39	116	1,474	12	1,461	381.40	1,461	0.03
25	125	0.30	90	1,552	12	1,539	381.43	1,539	0.04
26	130	0.39	116	1,655	12	1,643	381.45	1,643	0.04
27	135	0.39	116	1,759	12	1,747	381.48	1,747	0.04
28	140	0.39	116	1,863	12	1,850	381.51	1,850	0.04
29	145	0.39	116	1,966	12	1,954	381.54	1,954	0.04
30	150	0.39	116	2,070	12	2,058	381.57	2,058	0.05
31	155	0.39	116	2,174	12	2,161	381.60	2,161	0.05
32	160	0.39	116	2,277	12	2,265	381.63	2,265	0.05
33	165	0.47	142	2,407	12	2,394	381.66	2,394	0.05
34	170	0.47	142	2,536	12	2,524	381.70	2,524	0.06
35	175	0.47	142	2,665	12	2,653	381.73	2,653	0.06
36	180	0.47	142	2,795	12	2,782	381.77	2,782	0.06
37	185	0.47	142	2,924	12	2,912	381.81	2,912	0.07
38	190	0.56	167	3,079	12	3,067	381.85	3,067	0.07
39	195	0.56	167	3,234	12	3,222	381.89	3,222	0.07
40	200	0.56	167	3,389	12	3,377	381.93	3,377	0.08
41	205	0.64	193	3,570	12	3,557	381.98	3,557	0.08
42	210	0.73	219	3,776	12	3,763	382.03	3,763	0.09
43	215	0.81	244	4,008	12	3,995	382.07	3,995	0.09
44	220	0.81	244	4,240	12	4,227	382.11	4,227	0.10
45	225	0.90	270	4,497	12	4,485	382.16	4,485	0.10
46	230	0.90	270	4,755	12	4,743	382.20	4,743	0.11
47	235	0.99	296	5,038	12	5,026	382.25	5,026	0.12
48	240	0.99	296	5,321	12	5,309	382.31	5,309	0.12
49	245	1.07	321	5,630	12	5,618	382.36	5,618	0.13
50	250	1.16	347	5,965	12	5,953	382.42	5,953	0.14
51	255	1.24	373	6,325	12	6,313	382.49	6,313	0.14
52	260	1.33	398	6,711	12	6,699	382.56	6,699	0.15
53	265	1.41	424	7,123	12	7,110	382.63	7,110	0.16
54	270	1.41	424	7,534	12	7,522	382.71	7,522	0.17
55	275	1.50	450	7,971	12	7,959	382.78	7,959	0.18

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
56	280	1.58	475	8,434	12	8,422	382.87	8,422	0.19
57	285	1.67	501	8,923	12	8,910	382.96	8,910	0.20
58	290	1.67	501	9,411	12	9,399	383.03	9,399	0.22
59	295	1.76	527	9,926	12	9,913	383.10	9,913	0.23
60	300	1.84	552	10,465	12	10,453	383.17	10,453	0.24
61	305	2.27	681	11,134	12	11,121	383.26	11,121	0.26
62	310	2.70	809	11,930	12	11,918	383.37	11,918	0.27
63	315	2.95	886	12,803	12	12,791	383.48	12,791	0.29
64	320	3.21	963	13,754	12	13,741	383.61	13,741	0.32
65	325	3.64	1,091	14,832	12	14,820	383.75	14,820	0.34
66	330	4.41	1,322	16,142	12	16,130	383.92	16,130	0.37
67	335	1.24	373	16,502	12	16,490	383.97	16,490	0.38
68	340	0.39	116	16,606	12	16,594	383.99	16,594	0.38
69	345	0.13	39	16,633	12	16,620	383.99	16,620	0.38
70	350	0.04	13	16,634	12	16,621	383.99	16,621	0.38
71	355	0.03	8	16,629	12	16,617	383.99	16,617	0.38
72	360	0.02	5	16,622	12	16,609	383.99	16,609	0.38

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	15	0.01	8	8	37	-	381.00	-	0.00
2	30	0.01	12	12	37	-	381.00	-	0.00
3	45	0.01	12	12	37	-	381.00	-	0.00
4	60	0.02	16	16	37	-	381.00	-	0.00
5	75	0.01	12	12	37	-	381.00	-	0.00
6	90	0.01	12	12	37	-	381.00	-	0.00
7	105	0.01	12	12	37	-	381.00	-	0.00
8	120	0.02	16	16	37	-	381.00	-	0.00
9	135	0.02	16	16	37	-	381.00	-	0.00
10	150	0.02	16	16	37	-	381.00	-	0.00
11	165	0.02	20	20	37	-	381.00	-	0.00
12	180	0.02	20	20	37	-	381.00	-	0.00
13	195	0.02	20	20	37	-	381.00	-	0.00
14	210	0.02	20	20	37	-	381.00	-	0.00
15	225	0.02	20	20	37	-	381.00	-	0.00
16	240	0.03	24	24	37	-	381.00	-	0.00
17	255	0.03	24	24	37	-	381.00	-	0.00
18	270	0.03	28	28	37	-	381.00	-	0.00
19	285	0.03	28	28	37	-	381.00	-	0.00
20	300	0.04	32	32	37	-	381.00	-	0.00
21	315	0.03	24	24	37	-	381.00	-	0.00
22	330	0.03	28	28	37	-	381.00	-	0.00
23	345	0.04	32	32	37	-	381.00	-	0.00
24	360	0.04	32	32	37	-	381.00	-	0.00
25	375	0.04	36	36	37	-	381.00	-	0.00
26	390	0.04	36	36	37	-	381.00	-	0.00
27	405	0.04	40	40	37	3	381.00	3	0.00
28	420	0.04	40	43	37	6	381.00	6	0.00
29	435	0.04	40	46	37	9	381.00	9	0.00
30	450	0.02	20	29	37	-	381.00	-	0.00
31	465	0.07	66	66	37	29	381.01	29	0.00
32	480	0.12	112	141	37	104	381.03	104	0.00
33	495	0.22	198	302	37	265	381.07	265	0.01
34	510	0.23	204	469	37	432	381.12	432	0.01
35	525	0.28	249	681	37	644	381.18	644	0.01
36	540	0.33	295	939	37	902	381.25	902	0.02
37	555	0.42	381	1,283	37	1,245	381.34	1,245	0.03
38	570	0.47	426	1,672	37	1,635	381.45	1,635	0.04
39	585	0.52	472	2,107	37	2,070	381.57	2,070	0.05
40	600	0.57	517	2,587	37	2,550	381.71	2,550	0.06
41	615	0.27	242	2,792	37	2,755	381.76	2,755	0.06
42	630	0.27	247	3,001	37	2,964	381.82	2,964	0.07
43	645	0.50	453	3,417	37	3,380	381.94	3,380	0.08
44	660	0.51	458	3,838	37	3,801	382.03	3,801	0.09
45	675	0.47	423	4,224	37	4,187	382.10	4,187	0.10
46	690	0.48	428	4,615	37	4,577	382.17	4,577	0.11
47	705	0.39	353	4,930	37	4,893	382.23	4,893	0.11
48	720	0.44	398	5,290	37	5,253	382.30	5,253	0.12
49	735	0.76	684	5,937	37	5,900	382.41	5,900	0.14
50	750	0.81	728	6,628	37	6,591	382.54	6,591	0.15
51	765	0.90	813	7,404	37	7,367	382.68	7,367	0.17
52	780	0.95	858	8,225	37	8,188	382.83	8,188	0.19
53	795	1.18	1,064	9,252	37	9,215	383.01	9,215	0.21
54	810	1.19	1,068	10,283	37	10,246	383.14	10,246	0.24
55	825	0.70	631	10,877	37	10,840	383.22	10,840	0.25
56	840	0.71	636	11,475	37	11,438	383.30	11,438	0.26
57	855	0.89	801	12,239	37	12,202	383.40	12,202	0.28
58	870	0.85	765	12,966	37	12,929	383.50	12,929	0.30

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
59	885	0.85	769	13,698	37	13,661	383.60	13,661	0.31
60	900	0.81	733	14,394	37	14,357	383.69	14,357	0.33
61	915	0.77	697	15,054	37	15,017	383.78	15,017	0.34
62	930	0.73	661	15,678	37	15,640	383.86	15,640	0.36
63	945	0.56	504	16,145	37	16,108	383.92	16,108	0.37
64	960	0.56	508	16,616	37	16,579	383.98	16,579	0.38
65	975	0.02	16	16,595	37	16,558	383.98	16,558	0.38
66	990	0.02	16	16,574	37	16,537	383.98	16,537	0.38
67	1005	0.01	12	16,549	37	16,512	383.97	16,512	0.38
68	1020	0.01	12	16,524	37	16,486	383.97	16,486	0.38
69	1035	0.02	20	16,506	37	16,469	383.97	16,469	0.38
70	1050	0.02	20	16,489	37	16,452	383.97	16,452	0.38
71	1065	0.02	20	16,472	37	16,435	383.96	16,435	0.38
72	1080	0.02	16	16,451	37	16,414	383.96	16,414	0.38
73	1095	0.02	16	16,430	37	16,393	383.96	16,393	0.38
74	1110	0.02	16	16,409	37	16,372	383.96	16,372	0.38
75	1125	0.01	12	16,384	37	16,347	383.95	16,347	0.38
76	1140	0.01	8	16,355	37	16,317	383.95	16,317	0.37
77	1155	0.01	12	16,329	37	16,292	383.95	16,292	0.37
78	1170	0.02	16	16,308	37	16,271	383.94	16,271	0.37
79	1185	0.01	12	16,283	37	16,246	383.94	16,246	0.37
80	1200	0.01	8	16,254	37	16,217	383.94	16,217	0.37
81	1215	0.01	12	16,229	37	16,192	383.93	16,192	0.37
82	1230	0.01	12	16,204	37	16,167	383.93	16,167	0.37
83	1245	0.01	12	16,179	37	16,141	383.93	16,141	0.37
84	1260	0.01	8	16,149	37	16,112	383.92	16,112	0.37
85	1275	0.01	12	16,124	37	16,087	383.92	16,087	0.37
86	1290	0.01	8	16,095	37	16,058	383.91	16,058	0.37
87	1305	0.01	12	16,070	37	16,033	383.91	16,033	0.37
88	1320	0.01	8	16,041	37	16,004	383.91	16,004	0.37
89	1335	0.01	12	16,016	37	15,978	383.90	15,978	0.37
90	1350	0.01	8	15,987	37	15,949	383.90	15,949	0.37
91	1365	0.01	8	15,957	37	15,920	383.90	15,920	0.37
92	1380	0.01	8	15,928	37	15,891	383.89	15,891	0.36
93	1395	0.01	8	15,899	37	15,862	383.89	15,862	0.36
94	1410	0.01	8	15,870	37	15,833	383.88	15,833	0.36
95	1425	0.01	8	15,841	37	15,804	383.88	15,804	0.36
96	1440	0.01	8	15,812	37	15,774	383.88	15,774	0.36

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
BY MES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA B - 100 YEAR STORM EVENT
[3] AREA - ACRES	9.180
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	285.00
[7] La-MILES	0.054
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.05
[16] LAG TIME-MINUTES	2.7
[17] 100% OF LAG-MINUTES	2.7
[18] 200% OF LAG-MINUTES	5.4
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
2.03	9.180	1.00	2.03	2.71	9.180	1.00	2.71	4.24	9.180	1.00	4.24
		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			0.00	0.00
SUM [5]	9.18	SUM [7]	2.03	SUM [9]	9.18	SUM [11]	2.71	SUM [13]	9.18	SUM [15]	4.24
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			2.03				2.71				4.24

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.60	1.87	2.03
FLOOD VOLUME	(cu-ft)	53,461	62,317	67,656
	(acre-ft)	1.23	1.43	1.55
REQUIRED STORAGE	(cu-ft)	46,106	48,487	43,649
	(acre-ft)	1.06	1.11	1.00
PEAK FLOW	(cfs)	17.03	15.42	4.17
MAXIMUM WSEL	(ft)	383.05	383.11	383.00

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA BUSINESS PARK - INTERIM BASIN CONCENTRATION POINT: 1 BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.51	90%	0.10	8.18	0.891	0.0863
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.51	20%	0.42	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.51	40%	0.33	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.51	50%	0.28	0.00	0.000	0.0000
B	MF - CONDOMINIUMS	56	0.51	65%	0.21	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.51	80%	0.14	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.51	75%	0.17	0.00	0.000	0.0000
B	LANDSCAPING	56	0.51	0%	0.51	0.00	0.000	0.0000
B	RETENTION BASINS	32	0.51	0%	0.51	1.00	0.109	0.0556
B	GOLF COURSE	56	0.51	0%	0.51	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.08	90%	0.02	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	9.18	SUM	0.1419

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.07095

C= 0.00131

Ft=C(24-(T/60))^1.55 = 0.00131 (24-(T/60))^1.55 + 0.07 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 3 HOUR STORM EVENT

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
CONCENTRATION POINT: 1

BY: \MES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.71
UNIT TIME-PERCENT OF LAG	184.5
TOTAL ADJUSTED STORM RAIN-INCHES	2.03
CONSTANT LOSS RATE-in/hr	0.14
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.317	0.14	0.29	0.17	1.60	284.16
2	10	0.17	1.3	0.317	0.14	0.29	0.17	1.60	284.16
3	15	0.25	1.1	0.268	0.14	0.24	0.13	1.16	149.98
4	20	0.33	1.5	0.365	0.14	0.33	0.22	2.05	418.33
5	25	0.42	1.5	0.365	0.14	0.33	0.22	2.05	418.33
6	30	0.50	1.8	0.438	0.14	0.39	0.30	2.72	619.60
7	35	0.58	1.5	0.365	0.14	0.33	0.22	2.05	418.33
8	40	0.67	1.8	0.438	0.14	0.39	0.30	2.72	619.60
9	45	0.75	1.8	0.438	0.14	0.39	0.30	2.72	619.60
10	50	0.83	1.5	0.365	0.14	0.33	0.22	2.05	418.33
11	55	0.92	1.6	0.390	0.14	0.35	0.25	2.28	485.42
12	60	1.00	1.8	0.438	0.14	0.39	0.30	2.72	619.60
13	65	1.08	2.2	0.536	0.14	0.48	0.39	3.62	887.95
14	70	1.17	2.2	0.536	0.14	0.48	0.39	3.62	887.95
15	75	1.25	2.2	0.536	0.14	0.48	0.39	3.62	887.95
16	80	1.33	2.0	0.487	0.14	0.44	0.35	3.17	753.77
17	85	1.42	2.6	0.633	0.14	0.57	0.49	4.51	1156.30
18	90	1.50	2.7	0.658	0.14	0.59	0.52	4.74	1223.38
19	95	1.58	2.4	0.585	0.14	0.53	0.44	4.06	1022.12
20	100	1.67	2.7	0.658	0.14	0.59	0.52	4.74	1223.38
21	105	1.75	3.3	0.804	0.14	0.72	0.66	6.08	1625.91
22	110	1.83	3.1	0.755	0.14	0.68	0.61	5.63	1491.73
23	115	1.92	2.9	0.706	0.14	0.64	0.56	5.18	1357.56
24	120	2.00	3.0	0.731	0.14	0.66	0.59	5.41	1424.65
25	125	2.08	3.1	0.755	0.14	0.68	0.61	5.63	1491.73
26	130	2.17	4.2	1.023	0.14	0.92	0.88	8.09	2229.70
27	135	2.25	5.0	1.218	0.14	1.10	1.08	9.88	2766.39
28	140	2.33	3.5	0.853	0.14	0.77	0.71	6.52	1760.08
29	145	2.42	6.8	1.656	0.14	1.49	1.51	13.90	3973.97
30	150	2.50	7.3	1.778	0.14	1.60	1.64	15.02	4309.41
31	155	2.58	8.2	1.998	0.14	1.80	1.86	17.03	4913.19
32	160	2.67	5.9	1.437	0.14	1.29	1.30	11.89	3370.18
33	165	2.75	2.0	0.487	0.14	0.44	0.35	3.17	753.77
34	170	2.83	1.8	0.438	0.14	0.39	0.30	2.72	619.60
35	175	2.92	1.8	0.438	0.14	0.39	0.30	2.72	619.60
36	180	3.00	0.6	0.146	0.14	0.13	0.00	0.04	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.60
FLOOD VOLUME (acft)	1.23
FLOOD VOLUME (cuft)	53460.94
REQUIRED STORAGE (acft)	1.06
REQUIRED STORAGE (cuft)	46105.71
PEAK FLOW RATE (cfs)	17.03

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18		
UNIT TIME-MINUTES	5		
LAG TIME - MINUTES	2.71		
UNIT TIME-PERCENT OF LAG	184.5		
TOTAL ADJUSTED STORM RAIN-INCHES	2.71		
CONSTANT LOSS RATE-in/hr	0.142		
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.163	0.14	0.15	0.02	0.19	0.00
2	10	0.17	0.6	0.195	0.14	0.18	0.05	0.49	0.00
3	15	0.25	0.6	0.195	0.14	0.18	0.05	0.49	0.00
4	20	0.33	0.6	0.195	0.14	0.18	0.05	0.49	0.00
5	25	0.42	0.6	0.195	0.14	0.18	0.05	0.49	0.00
6	30	0.50	0.7	0.228	0.14	0.20	0.09	0.79	38.94
7	35	0.58	0.7	0.228	0.14	0.20	0.09	0.79	38.94
8	40	0.67	0.7	0.228	0.14	0.20	0.09	0.79	38.94
9	45	0.75	0.7	0.228	0.14	0.20	0.09	0.79	38.94
10	50	0.83	0.7	0.228	0.14	0.20	0.09	0.79	38.94
11	55	0.92	0.7	0.228	0.14	0.20	0.09	0.79	38.94
12	60	1.00	0.8	0.260	0.14	0.23	0.12	1.09	128.50
13	65	1.08	0.8	0.260	0.14	0.23	0.12	1.09	128.50
14	70	1.17	0.8	0.260	0.14	0.23	0.12	1.09	128.50
15	75	1.25	0.8	0.260	0.14	0.23	0.12	1.09	128.50
16	80	1.33	0.8	0.260	0.14	0.23	0.12	1.09	128.50
17	85	1.42	0.8	0.260	0.14	0.23	0.12	1.09	128.50
18	90	1.50	0.8	0.260	0.14	0.23	0.12	1.09	128.50
19	95	1.58	0.8	0.260	0.14	0.23	0.12	1.09	128.50
20	100	1.67	0.8	0.260	0.14	0.23	0.12	1.09	128.50
21	105	1.75	0.8	0.260	0.14	0.23	0.12	1.09	128.50
22	110	1.83	0.8	0.260	0.14	0.23	0.12	1.09	128.50
23	115	1.92	0.8	0.260	0.14	0.23	0.12	1.09	128.50
24	120	2.00	0.9	0.293	0.14	0.26	0.15	1.38	218.06
25	125	2.08	0.8	0.260	0.14	0.23	0.12	1.09	128.50
26	130	2.17	0.9	0.293	0.14	0.26	0.15	1.38	218.06
27	135	2.25	0.9	0.293	0.14	0.26	0.15	1.38	218.06
28	140	2.33	0.9	0.293	0.14	0.26	0.15	1.38	218.06
29	145	2.42	0.9	0.293	0.14	0.26	0.15	1.38	218.06
30	150	2.50	0.9	0.293	0.14	0.26	0.15	1.38	218.06
31	155	2.58	0.9	0.293	0.14	0.26	0.15	1.38	218.06
32	160	2.67	0.9	0.293	0.14	0.26	0.15	1.38	218.06
33	165	2.75	1.0	0.325	0.14	0.29	0.18	1.68	307.62
34	170	2.83	1.0	0.325	0.14	0.29	0.18	1.68	307.62
35	175	2.92	1.0	0.325	0.14	0.29	0.18	1.68	307.62
36	180	3.00	1.0	0.325	0.14	0.29	0.18	1.68	307.62
37	185	3.08	1.0	0.325	0.14	0.29	0.18	1.68	307.62
38	190	3.17	1.1	0.358	0.14	0.32	0.22	1.98	397.18
39	195	3.25	1.1	0.358	0.14	0.32	0.22	1.98	397.18
40	200	3.33	1.1	0.358	0.14	0.32	0.22	1.98	397.18
41	205	3.42	1.2	0.390	0.14	0.35	0.25	2.28	486.74
42	210	3.50	1.3	0.423	0.14	0.38	0.28	2.58	576.30
43	215	3.58	1.4	0.455	0.14	0.41	0.31	2.88	665.86
44	220	3.67	1.4	0.455	0.14	0.41	0.31	2.88	665.86
45	225	3.75	1.5	0.488	0.14	0.44	0.35	3.18	755.42
46	230	3.83	1.5	0.488	0.14	0.44	0.35	3.18	755.42
47	235	3.92	1.6	0.520	0.14	0.47	0.38	3.47	844.98
48	240	4.00	1.6	0.520	0.14	0.47	0.38	3.47	844.98
49	245	4.08	1.7	0.553	0.14	0.50	0.41	3.77	934.54
50	250	4.17	1.8	0.585	0.14	0.53	0.44	4.07	1024.10
51	255	4.25	1.9	0.618	0.14	0.56	0.48	4.37	1113.66
52	260	4.33	2.0	0.650	0.14	0.59	0.51	4.67	1203.22
53	265	4.42	2.1	0.683	0.14	0.61	0.54	4.97	1292.78
54	270	4.50	2.1	0.683	0.14	0.61	0.54	4.97	1292.78
55	275	4.58	2.2	0.715	0.14	0.64	0.57	5.27	1382.34
56	280	4.67	2.3	0.748	0.14	0.67	0.61	5.56	1471.90

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18		
UNIT TIME-MINUTES	5		
LAG TIME - MINUTES	2.71		
UNIT TIME-PERCENT OF LAG	184.5		
TOTAL ADJUSTED STORM RAIN-INCHES	2.71		
CONSTANT LOSS RATE-in/hr	0.142		
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.780	0.14	0.70	0.64	5.86	1561.46
58	290	4.83	2.4	0.780	0.14	0.70	0.64	5.86	1561.46
59	295	4.92	2.5	0.813	0.14	0.73	0.67	6.16	1651.02
60	300	5.00	2.6	0.846	0.14	0.76	0.70	6.46	1740.58
61	305	5.08	3.1	1.008	0.14	0.91	0.87	7.95	2188.39
62	310	5.17	3.6	1.171	0.14	1.05	1.03	9.44	2636.19
63	315	5.25	3.9	1.268	0.14	1.14	1.13	10.34	2904.87
64	320	5.33	4.2	1.366	0.14	1.23	1.22	11.24	3173.55
65	325	5.42	4.7	1.528	0.14	1.38	1.39	12.73	3621.35
66	330	5.50	5.6	1.821	0.14	1.64	1.68	15.42	4427.39
67	335	5.58	1.9	0.618	0.14	0.56	0.48	4.37	1113.66
68	340	5.67	0.9	0.293	0.14	0.26	0.15	1.38	218.06
69	345	5.75	0.6	0.195	0.14	0.18	0.05	0.49	0.00
70	350	5.83	0.5	0.163	0.14	0.15	0.02	0.19	0.00
71	355	5.92	0.3	0.098	0.14	0.09	0.01	0.09	0.00
72	360	6.00	0.2	0.065	0.14	0.06	0.01	0.06	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.87
FLOOD VOLUME (acft)	1.43
FLOOD VOLUME (cuft)	62316.83
REQUIRED STORAGE (acft)	1.11
REQUIRED STORAGE (cuft)	48487.31
PEAK FLOW RATE (cfs)	15.42

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 24 HOUR STORM EVENT

PROJECT: COACHELLA BUSINESS PARK - INTERIM BA:
CONCENTRATION POINT: 1
BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1419
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.071
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00131
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.034	0.251	0.031	0.003	0.03	0.00
2	30	0.50	0.3	0.051	0.248	0.046	0.005	0.05	0.00
3	45	0.75	0.3	0.051	0.245	0.046	0.005	0.05	0.00
4	60	1.00	0.4	0.068	0.242	0.061	0.007	0.06	0.00
5	75	1.25	0.3	0.051	0.239	0.046	0.005	0.05	0.00
6	90	1.50	0.3	0.051	0.236	0.046	0.005	0.05	0.00
7	105	1.75	0.3	0.051	0.233	0.046	0.005	0.05	0.00
8	120	2.00	0.4	0.068	0.231	0.061	0.007	0.06	0.00
9	135	2.25	0.4	0.068	0.228	0.061	0.007	0.06	0.00
10	150	2.50	0.4	0.068	0.225	0.061	0.007	0.06	0.00
11	165	2.75	0.5	0.085	0.222	0.076	0.008	0.08	0.00
12	180	3.00	0.5	0.085	0.220	0.076	0.008	0.08	0.00
13	195	3.25	0.5	0.085	0.217	0.076	0.008	0.08	0.00
14	210	3.50	0.5	0.085	0.214	0.076	0.008	0.08	0.00
15	225	3.75	0.5	0.085	0.211	0.076	0.008	0.08	0.00
16	240	4.00	0.6	0.102	0.209	0.092	0.010	0.09	0.00
17	255	4.25	0.6	0.102	0.206	0.092	0.010	0.09	0.00
18	270	4.50	0.7	0.119	0.204	0.107	0.012	0.11	0.00
19	285	4.75	0.7	0.119	0.201	0.107	0.012	0.11	0.00
20	300	5.00	0.8	0.136	0.198	0.122	0.014	0.12	0.00
21	315	5.25	0.6	0.102	0.196	0.092	0.010	0.09	0.00
22	330	5.50	0.7	0.119	0.193	0.107	0.012	0.11	0.00
23	345	5.75	0.8	0.136	0.191	0.122	0.014	0.12	0.00
24	360	6.00	0.8	0.136	0.188	0.122	0.014	0.12	0.00
25	375	6.25	0.9	0.153	0.186	0.137	0.015	0.14	0.00
26	390	6.50	0.9	0.153	0.183	0.137	0.015	0.14	0.00
27	405	6.75	1.0	0.170	0.181	0.153	0.017	0.16	0.00
28	420	7.00	1.0	0.170	0.178	0.153	0.017	0.16	0.00
29	435	7.25	1.0	0.170	0.176	0.153	0.017	0.16	0.00
30	450	7.50	1.1	0.187	0.173	0.168	0.013	0.12	0.00
31	465	7.75	1.2	0.204	0.171	0.183	0.032	0.30	0.00
32	480	8.00	1.3	0.220	0.169	0.198	0.052	0.48	0.00
33	495	8.25	1.5	0.254	0.166	0.229	0.088	0.81	135.70
34	510	8.50	1.5	0.254	0.164	0.229	0.090	0.83	154.86
35	525	8.75	1.6	0.271	0.162	0.244	0.110	1.01	313.98
36	540	9.00	1.7	0.288	0.159	0.259	0.129	1.18	472.93
37	555	9.25	1.9	0.322	0.157	0.290	0.165	1.51	771.83
38	570	9.50	2.0	0.339	0.155	0.305	0.184	1.69	930.43
39	585	9.75	2.1	0.356	0.153	0.321	0.203	1.87	1088.87
40	600	10.00	2.2	0.373	0.151	0.336	0.223	2.04	1247.13
41	615	10.25	1.5	0.254	0.148	0.229	0.106	0.97	284.22
42	630	10.50	1.5	0.254	0.146	0.229	0.108	0.99	302.00
43	645	10.75	2.0	0.339	0.144	0.305	0.195	1.79	1020.22
44	660	11.00	2.0	0.339	0.142	0.305	0.197	1.81	1037.65
45	675	11.25	1.9	0.322	0.140	0.290	0.182	1.67	914.76
46	690	11.50	1.9	0.322	0.138	0.290	0.184	1.69	931.82
47	705	11.75	1.7	0.288	0.136	0.259	0.153	1.40	668.45
48	720	12.00	1.8	0.305	0.134	0.275	0.171	1.57	825.26
49	735	12.25	2.5	0.424	0.132	0.382	0.292	2.68	1822.63
50	750	12.50	2.6	0.441	0.130	0.397	0.311	2.86	1979.06
51	765	12.75	2.8	0.475	0.128	0.427	0.347	3.19	2275.42
52	780	13.00	2.9	0.492	0.126	0.443	0.366	3.36	2431.47
53	795	13.25	3.4	0.577	0.124	0.519	0.453	4.15	3147.82
54	810	13.50	3.4	0.577	0.122	0.519	0.454	4.17	3163.35
55	825	13.75	2.3	0.390	0.120	0.351	0.270	2.48	1637.32
56	840	14.00	2.3	0.390	0.118	0.351	0.272	2.49	1652.45
57	855	14.25	2.7	0.458	0.117	0.412	0.341	3.13	2227.87
58	870	14.50	2.6	0.441	0.115	0.397	0.326	2.99	2102.46
59	885	14.75	2.6	0.441	0.113	0.397	0.328	3.01	2116.97
60	900	15.00	2.5	0.424	0.111	0.382	0.313	2.87	1991.15
61	915	15.25	2.4	0.407	0.110	0.366	0.297	2.73	1865.11

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1419
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.071
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00131
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.390	0.108	0.351	0.282	2.59	1738.85
63	945	15.75	1.9	0.322	0.106	0.290	0.216	1.98	1192.01
64	960	16.00	1.9	0.322	0.105	0.290	0.218	2.00	1205.43
65	975	16.25	0.4	0.068	0.103	0.061	0.007	0.06	0.00
66	990	16.50	0.4	0.068	0.102	0.061	0.007	0.06	0.00
67	1005	16.75	0.3	0.051	0.100	0.046	0.005	0.05	0.00
68	1020	17.00	0.3	0.051	0.099	0.046	0.005	0.05	0.00
69	1035	17.25	0.5	0.085	0.097	0.076	0.008	0.08	0.00
70	1050	17.50	0.5	0.085	0.096	0.076	0.008	0.08	0.00
71	1065	17.75	0.5	0.085	0.094	0.076	0.008	0.08	0.00
72	1080	18.00	0.4	0.068	0.093	0.061	0.007	0.06	0.00
73	1095	18.25	0.4	0.068	0.091	0.061	0.007	0.06	0.00
74	1110	18.50	0.4	0.068	0.090	0.061	0.007	0.06	0.00
75	1125	18.75	0.3	0.051	0.089	0.046	0.005	0.05	0.00
76	1140	19.00	0.2	0.034	0.087	0.031	0.003	0.03	0.00
77	1155	19.25	0.3	0.051	0.086	0.046	0.005	0.05	0.00
78	1170	19.50	0.4	0.068	0.085	0.061	0.007	0.06	0.00
79	1185	19.75	0.3	0.051	0.084	0.046	0.005	0.05	0.00
80	1200	20.00	0.2	0.034	0.083	0.031	0.003	0.03	0.00
81	1215	20.25	0.3	0.051	0.082	0.046	0.005	0.05	0.00
82	1230	20.50	0.3	0.051	0.081	0.046	0.005	0.05	0.00
83	1245	20.75	0.3	0.051	0.080	0.046	0.005	0.05	0.00
84	1260	21.00	0.2	0.034	0.079	0.031	0.003	0.03	0.00
85	1275	21.25	0.3	0.051	0.078	0.046	0.005	0.05	0.00
86	1290	21.50	0.2	0.034	0.077	0.031	0.003	0.03	0.00
87	1305	21.75	0.3	0.051	0.076	0.046	0.005	0.05	0.00
88	1320	22.00	0.2	0.034	0.075	0.031	0.003	0.03	0.00
89	1335	22.25	0.3	0.051	0.074	0.046	0.005	0.05	0.00
90	1350	22.50	0.2	0.034	0.074	0.031	0.003	0.03	0.00
91	1365	22.75	0.2	0.034	0.073	0.031	0.003	0.03	0.00
92	1380	23.00	0.2	0.034	0.073	0.031	0.003	0.03	0.00
93	1395	23.25	0.2	0.034	0.072	0.031	0.003	0.03	0.00
94	1410	23.50	0.2	0.034	0.072	0.031	0.003	0.03	0.00
95	1425	23.75	0.2	0.034	0.071	0.031	0.003	0.03	0.00
96	1440	24.00	0.2	0.034	0.071	0.031	0.003	0.03	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	2.03
FLOOD VOLUME (acft)	1.55
FLOOD VOLUME (cuft)	67655.92
REQUIRED STORAGE (acft)	1.00
REQUIRED STORAGE (cuft)	43649.48
PEAK FLOW (cfs)	4.17

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
382	0	0		42380	0	0	0.00
383	1	1	2426	44806	43593	43593	1.00
384	1	2	2482	47288	46047	89640	2.06
385	1	3	2539	49827	48558	138198	3.17

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	5	1.60	481	481	197	284	382.01	284	0.01
2	10	1.60	481	766	197	568	382.01	568	0.01
3	15	1.16	347	915	197	718	382.02	718	0.02
4	20	2.05	616	1,334	197	1,137	382.03	1,137	0.03
5	25	2.05	616	1,752	197	1,555	382.04	1,555	0.04
6	30	2.72	817	2,372	197	2,175	382.05	2,175	0.05
7	35	2.05	616	2,790	197	2,593	382.06	2,593	0.06
8	40	2.72	817	3,410	197	3,212	382.07	3,212	0.07
9	45	2.72	817	4,029	197	3,832	382.09	3,832	0.09
10	50	2.05	616	4,448	197	4,250	382.10	4,250	0.10
11	55	2.28	683	4,933	197	4,736	382.11	4,736	0.11
12	60	2.72	817	5,553	197	5,355	382.12	5,355	0.12
13	65	3.62	1,085	6,441	197	6,243	382.14	6,243	0.14
14	70	3.62	1,085	7,329	197	7,131	382.16	7,131	0.16
15	75	3.62	1,085	8,216	197	8,019	382.18	8,019	0.18
16	80	3.17	951	8,970	197	8,773	382.20	8,773	0.20
17	85	4.51	1,353	10,127	197	9,929	382.23	9,929	0.23
18	90	4.74	1,421	11,350	197	11,153	382.26	11,153	0.26
19	95	4.06	1,219	12,372	197	12,175	382.28	12,175	0.28
20	100	4.74	1,421	13,595	197	13,398	382.31	13,398	0.31
21	105	6.08	1,823	15,221	197	15,024	382.34	15,024	0.34
22	110	5.63	1,689	16,713	197	16,516	382.38	16,516	0.38
23	115	5.18	1,555	18,071	197	17,873	382.41	17,873	0.41
24	120	5.41	1,622	19,495	197	19,298	382.44	19,298	0.44
25	125	5.63	1,689	20,987	197	20,790	382.48	20,790	0.48
26	130	8.09	2,427	23,217	197	23,020	382.53	23,020	0.53
27	135	9.88	2,964	25,983	197	25,786	382.59	25,786	0.59
28	140	6.52	1,957	27,743	197	27,546	382.63	27,546	0.63
29	145	13.90	4,171	31,717	197	31,520	382.72	31,520	0.72
30	150	15.02	4,507	36,027	197	35,829	382.82	35,829	0.82
31	155	17.03	5,110	40,940	197	40,743	382.93	40,743	0.94
32	160	11.89	3,567	44,310	197	44,113	383.01	44,113	1.01
33	165	3.17	951	45,064	197	44,867	383.03	44,867	1.03
34	170	2.72	817	45,683	197	45,486	383.04	45,486	1.04
35	175	2.72	817	46,303	197	46,106	383.05	46,106	1.06
36	180	0.04	12	46,117	197	45,920	383.05	45,920	1.05

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW IN	VOLUME IN	TOTAL IN BASIN	PERC OUT	TOTAL IN BASIN	BASIN DEPTH	BALANCE IN BASIN	
UNIT PERIOD	(min)	(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
1	5	0.19	57	57	197	-	382.00	-	0.00
2	10	0.49	147	147	197	-	382.00	-	0.00
3	15	0.49	147	147	197	-	382.00	-	0.00
4	20	0.49	147	147	197	-	382.00	-	0.00
5	25	0.49	147	147	197	-	382.00	-	0.00
6	30	0.79	236	236	197	39	382.00	39	0.00
7	35	0.79	236	275	197	78	382.00	78	0.00
8	40	0.79	236	314	197	117	382.00	117	0.00
9	45	0.79	236	353	197	156	382.00	156	0.00
10	50	0.79	236	392	197	195	382.00	195	0.00
11	55	0.79	236	431	197	234	382.01	234	0.01
12	60	1.09	326	559	197	362	382.01	362	0.01
13	65	1.09	326	688	197	491	382.01	491	0.01
14	70	1.09	326	816	197	619	382.01	619	0.01
15	75	1.09	326	945	197	748	382.02	748	0.02
16	80	1.09	326	1,073	197	876	382.02	876	0.02
17	85	1.09	326	1,202	197	1,005	382.02	1,005	0.02
18	90	1.09	326	1,330	197	1,133	382.03	1,133	0.03
19	95	1.09	326	1,459	197	1,262	382.03	1,262	0.03
20	100	1.09	326	1,587	197	1,390	382.03	1,390	0.03
21	105	1.09	326	1,716	197	1,519	382.03	1,519	0.03
22	110	1.09	326	1,844	197	1,647	382.04	1,647	0.04
23	115	1.09	326	1,973	197	1,776	382.04	1,776	0.04
24	120	1.38	415	2,191	197	1,994	382.05	1,994	0.05
25	125	1.09	326	2,319	197	2,122	382.05	2,122	0.05
26	130	1.38	415	2,538	197	2,340	382.05	2,340	0.05
27	135	1.38	415	2,756	197	2,558	382.06	2,558	0.06
28	140	1.38	415	2,974	197	2,776	382.06	2,776	0.06
29	145	1.38	415	3,192	197	2,995	382.07	2,995	0.07
30	150	1.38	415	3,410	197	3,213	382.07	3,213	0.07
31	155	1.38	415	3,628	197	3,431	382.08	3,431	0.08
32	160	1.38	415	3,846	197	3,649	382.08	3,649	0.08
33	165	1.68	505	4,154	197	3,956	382.09	3,956	0.09
34	170	1.68	505	4,461	197	4,264	382.10	4,264	0.10
35	175	1.68	505	4,769	197	4,572	382.10	4,572	0.10
36	180	1.68	505	5,076	197	4,879	382.11	4,879	0.11
37	185	1.68	505	5,384	197	5,187	382.12	5,187	0.12
38	190	1.98	594	5,781	197	5,584	382.13	5,584	0.13
39	195	1.98	594	6,178	197	5,981	382.14	5,981	0.14
40	200	1.98	594	6,576	197	6,378	382.15	6,378	0.15
41	205	2.28	684	7,062	197	6,865	382.16	6,865	0.16
42	210	2.58	773	7,639	197	7,441	382.17	7,441	0.17
43	215	2.88	863	8,304	197	8,107	382.19	8,107	0.19
44	220	2.88	863	8,970	197	8,773	382.20	8,773	0.20
45	225	3.18	953	9,726	197	9,529	382.22	9,529	0.22
46	230	3.18	953	10,481	197	10,284	382.24	10,284	0.24
47	235	3.47	1,042	11,326	197	11,129	382.26	11,129	0.26
48	240	3.47	1,042	12,171	197	11,974	382.27	11,974	0.27
49	245	3.77	1,132	13,106	197	12,909	382.30	12,909	0.30
50	250	4.07	1,221	14,130	197	13,933	382.32	13,933	0.32
51	255	4.37	1,311	15,243	197	15,046	382.35	15,046	0.35
52	260	4.67	1,400	16,447	197	16,250	382.37	16,250	0.37
53	265	4.97	1,490	17,739	197	17,542	382.40	17,542	0.40
54	270	4.97	1,490	19,032	197	18,835	382.43	18,835	0.43
55	275	5.27	1,580	20,415	197	20,217	382.46	20,217	0.46

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TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
56	280	5.56	1,669	21,887	197	21,689	382.50	21,689	0.50
57	285	5.86	1,759	23,448	197	23,251	382.53	23,251	0.53
58	290	5.86	1,759	25,009	197	24,812	382.57	24,812	0.57
59	295	6.16	1,848	26,660	197	26,463	382.61	26,463	0.61
60	300	6.46	1,938	28,401	197	28,204	382.65	28,204	0.65
61	305	7.95	2,386	30,589	197	30,392	382.70	30,392	0.70
62	310	9.44	2,833	33,226	197	33,028	382.76	33,028	0.76
63	315	10.34	3,102	36,130	197	35,933	382.82	35,933	0.82
64	320	11.24	3,371	39,304	197	39,107	382.90	39,107	0.90
65	325	12.73	3,819	42,925	197	42,728	382.98	42,728	0.98
66	330	15.42	4,625	47,353	197	47,156	383.08	47,156	1.08
67	335	4.37	1,311	48,466	197	48,269	383.10	48,269	1.11
68	340	1.38	415	48,684	197	48,487	383.11	48,487	1.11
69	345	0.49	147	48,634	197	48,437	383.11	48,437	1.11
70	350	0.19	57	48,494	197	48,297	383.10	48,297	1.11
71	355	0.09	27	48,323	197	48,126	383.10	48,126	1.10
72	360	0.06	18	48,144	197	47,947	383.09	47,947	1.10

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TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME UNIT PERIOD	TIME (min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	BALANCE IN BASIN (acre-ft)
1	15	0.03	28	28	592	-	382.00	-	0.00
2	30	0.05	42	42	592	-	382.00	-	0.00
3	45	0.05	42	42	592	-	382.00	-	0.00
4	60	0.06	56	56	592	-	382.00	-	0.00
5	75	0.05	42	42	592	-	382.00	-	0.00
6	90	0.05	42	42	592	-	382.00	-	0.00
7	105	0.05	42	42	592	-	382.00	-	0.00
8	120	0.06	56	56	592	-	382.00	-	0.00
9	135	0.06	56	56	592	-	382.00	-	0.00
10	150	0.06	56	56	592	-	382.00	-	0.00
11	165	0.08	70	70	592	-	382.00	-	0.00
12	180	0.08	70	70	592	-	382.00	-	0.00
13	195	0.08	70	70	592	-	382.00	-	0.00
14	210	0.08	70	70	592	-	382.00	-	0.00
15	225	0.08	70	70	592	-	382.00	-	0.00
16	240	0.09	84	84	592	-	382.00	-	0.00
17	255	0.09	84	84	592	-	382.00	-	0.00
18	270	0.11	98	98	592	-	382.00	-	0.00
19	285	0.11	98	98	592	-	382.00	-	0.00
20	300	0.12	112	112	592	-	382.00	-	0.00
21	315	0.09	84	84	592	-	382.00	-	0.00
22	330	0.11	98	98	592	-	382.00	-	0.00
23	345	0.12	112	112	592	-	382.00	-	0.00
24	360	0.12	112	112	592	-	382.00	-	0.00
25	375	0.14	126	126	592	-	382.00	-	0.00
26	390	0.14	126	126	592	-	382.00	-	0.00
27	405	0.16	140	140	592	-	382.00	-	0.00
28	420	0.16	140	140	592	-	382.00	-	0.00
29	435	0.16	140	140	592	-	382.00	-	0.00
30	450	0.12	108	108	592	-	382.00	-	0.00
31	465	0.30	268	268	592	-	382.00	-	0.00
32	480	0.48	428	428	592	-	382.00	-	0.00
33	495	0.81	727	727	592	136	382.00	136	0.00
34	510	0.83	746	882	592	291	382.01	291	0.01
35	525	1.01	906	1,196	592	605	382.01	605	0.01
36	540	1.18	1,064	1,669	592	1,077	382.02	1,077	0.02
37	555	1.51	1,363	2,441	592	1,849	382.04	1,849	0.04
38	570	1.69	1,522	3,371	592	2,780	382.06	2,780	0.06
39	585	1.87	1,680	4,460	592	3,869	382.09	3,869	0.09
40	600	2.04	1,839	5,707	592	5,116	382.12	5,116	0.12
41	615	0.97	876	5,992	592	5,400	382.12	5,400	0.12
42	630	0.99	894	6,294	592	5,702	382.13	5,702	0.13
43	645	1.79	1,612	7,314	592	6,722	382.15	6,722	0.15
44	660	1.81	1,629	8,351	592	7,760	382.18	7,760	0.18
45	675	1.67	1,506	9,266	592	8,675	382.20	8,675	0.20
46	690	1.69	1,523	10,198	592	9,606	382.22	9,606	0.22
47	705	1.40	1,260	10,866	592	10,275	382.24	10,275	0.24
48	720	1.57	1,417	11,692	592	11,100	382.25	11,100	0.25
49	735	2.68	2,414	13,514	592	12,923	382.30	12,923	0.30
50	750	2.86	2,571	15,493	592	14,902	382.34	14,902	0.34
51	765	3.19	2,867	17,769	592	17,177	382.39	17,177	0.39
52	780	3.36	3,023	20,200	592	19,609	382.45	19,609	0.45
53	795	4.15	3,739	23,348	592	22,757	382.52	22,757	0.52
54	810	4.17	3,755	26,511	592	25,920	382.59	25,920	0.60
55	825	2.48	2,229	28,149	592	27,557	382.63	27,557	0.63
56	840	2.49	2,244	29,801	592	29,210	382.67	29,210	0.67
57	855	3.13	2,819	32,029	592	31,437	382.72	31,437	0.72
58	870	2.99	2,694	34,132	592	33,540	382.77	33,540	0.77

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TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
59	885	3.01	2,709	36,248	592	35,657	382.82	35,657	0.82
60	900	2.87	2,583	38,240	592	37,648	382.86	37,648	0.86
61	915	2.73	2,457	40,105	592	39,513	382.91	39,513	0.91
62	930	2.59	2,330	41,844	592	41,252	382.95	41,252	0.95
63	945	1.98	1,784	43,036	592	42,444	382.97	42,444	0.97
64	960	2.00	1,797	44,241	592	43,649	383.00	43,649	1.00
65	975	0.06	56	43,706	592	43,114	382.99	43,114	0.99
66	990	0.06	56	43,170	592	42,578	382.98	42,578	0.98
67	1005	0.05	42	42,621	592	42,029	382.96	42,029	0.96
68	1020	0.05	42	42,071	592	41,479	382.95	41,479	0.95
69	1035	0.08	70	41,549	592	40,958	382.94	40,958	0.94
70	1050	0.08	70	41,028	592	40,436	382.93	40,436	0.93
71	1065	0.08	70	40,507	592	39,915	382.92	39,915	0.92
72	1080	0.06	56	39,971	592	39,379	382.90	39,379	0.90
73	1095	0.06	56	39,435	592	38,844	382.89	38,844	0.89
74	1110	0.06	56	38,900	592	38,308	382.88	38,308	0.88
75	1125	0.05	42	38,350	592	37,759	382.87	37,759	0.87
76	1140	0.03	28	37,787	592	37,195	382.85	37,195	0.85
77	1155	0.05	42	37,237	592	36,646	382.84	36,646	0.84
78	1170	0.06	56	36,702	592	36,110	382.83	36,110	0.83
79	1185	0.05	42	36,152	592	35,561	382.82	35,561	0.82
80	1200	0.03	28	35,589	592	34,997	382.80	34,997	0.80
81	1215	0.05	42	35,039	592	34,448	382.79	34,448	0.79
82	1230	0.05	42	34,490	592	33,898	382.78	33,898	0.78
83	1245	0.05	42	33,940	592	33,349	382.77	33,349	0.77
84	1260	0.03	28	33,377	592	32,785	382.75	32,785	0.75
85	1275	0.05	42	32,827	592	32,236	382.74	32,236	0.74
86	1290	0.03	28	32,264	592	31,672	382.73	31,672	0.73
87	1305	0.05	42	31,714	592	31,123	382.71	31,123	0.71
88	1320	0.03	28	31,151	592	30,559	382.70	30,559	0.70
89	1335	0.05	42	30,601	592	30,010	382.69	30,010	0.69
90	1350	0.03	28	30,038	592	29,446	382.68	29,446	0.68
91	1365	0.03	28	29,474	592	28,883	382.66	28,883	0.66
92	1380	0.03	28	28,911	592	28,319	382.65	28,319	0.65
93	1395	0.03	28	28,347	592	27,756	382.64	27,756	0.64
94	1410	0.03	28	27,784	592	27,192	382.62	27,192	0.62
95	1425	0.03	28	27,220	592	26,628	382.61	26,628	0.61
96	1440	0.03	28	26,656	592	26,065	382.60	26,065	0.60

IV RETENTION BASIN INFILTRATION STUDY

The project runoff volume generated during the 100 year design storm event and stored in the on-site retention system will be designed to infiltrate into the soil to eliminate the presence of standing water and risk of vector control issues within a period of 72 hours in accordance with the City of Coachella Municipal Code. Since infiltration will occur within unpaved retention basin areas, the surface volume of the basin areas will be tabulated so that the allowable infiltration rate can be applied over this surface area

Retention basin calculations in Section III of this report show that the total volume of runoff stored on-site during 100 year storm event over the three separate subareas is **247,322** cu.ft. Assuming the maximum infiltration allowed by City of Coachella (10 gal/s.f./day), the time required to evacuate the stored volume of runoff during the 100 year storm event is:

Maximum allowable infiltration rate:

10 gal/s.f./day = 1.34 cu.ft/s.f./day = 4.02 cu.ft/s.f./72 hours

Total area contributing to infiltration:

42,516 s.f. (SUBAREA A) + 42,380 s.f. (SUBAREA B) + 2,664 s.f. (SUBAREA C)
= **87,560 s.f.**

(4.02 cu.ft/s.f./72 hours) X (87,560 s.f.) = 351,991 cu.ft / 72 hours

The retention basin and adjacent pervious area has the capacity to evacuate 351,991 cu.ft. of runoff volume within a 72 hour period which excess the amount of stored volume during the 100 year storm event (247,322 cu.ft.)

V APPENDIX

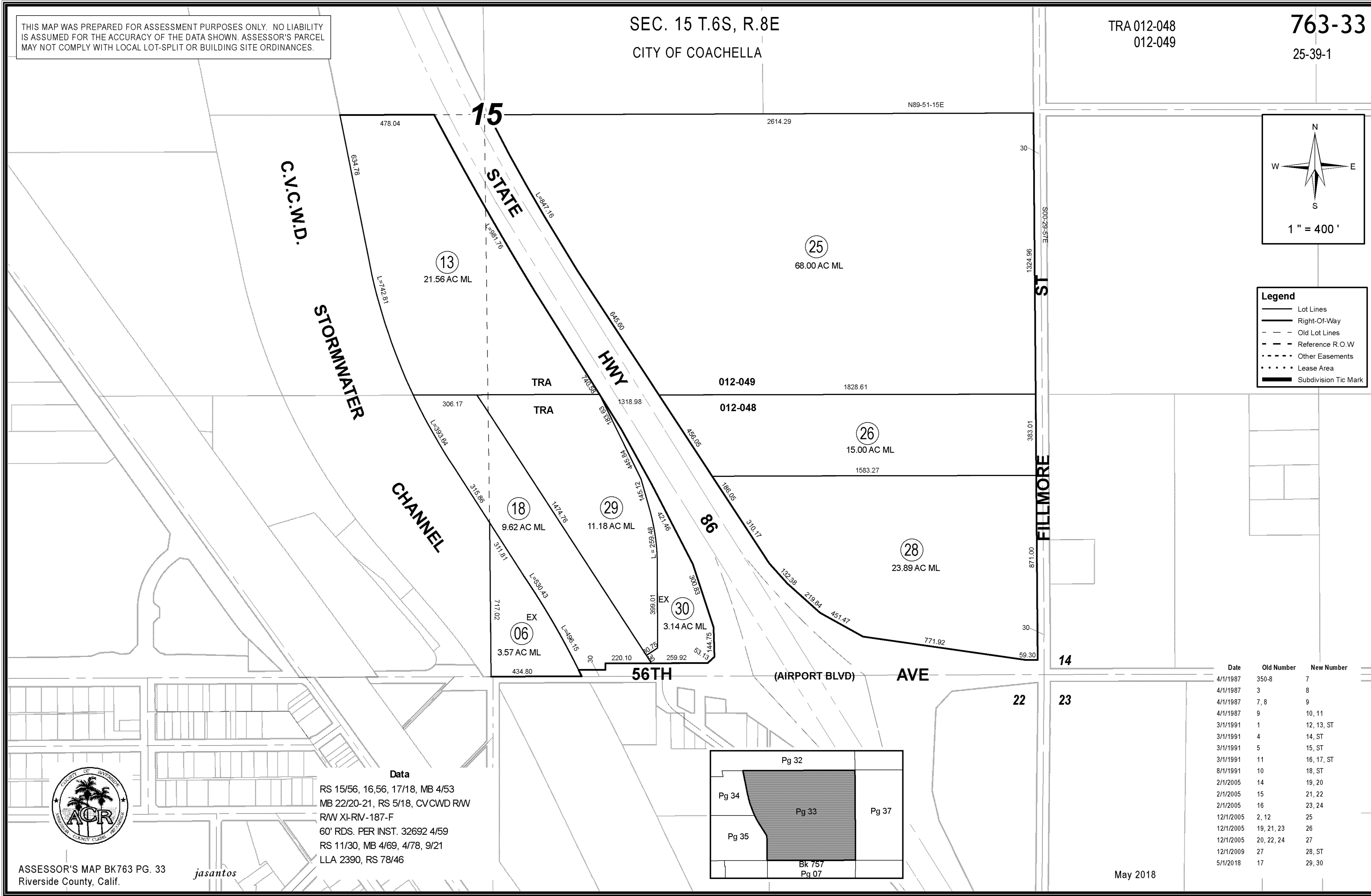
1 IN = 0.25 MI

The Altum Group

Project Vicinity

Coachella Airport Business Park

Public Record



Date	Old Number	New Number
4/1/1987	350-8	7
4/1/1987	3	8
4/1/1987	7, 8	9
4/1/1987	9	10, 11
3/1/1991	1	12, 13, ST
3/1/1991	4	14, ST
3/1/1991	5	15, ST
3/1/1991	11	16, 17, ST
8/1/1991	10	18, ST
2/1/2005	14	19, 20
2/1/2005	15	21, 22
2/1/2005	16	23, 24
12/1/2005	2, 12	25
12/1/2005	19, 21, 23	26
12/1/2005	20, 22, 24	27
12/1/2009	27	28, ST
5/1/2018	17	29, 30

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Latitude and Longitude are the units that represent the *coordinates at geographic coordinate system*. To make a search, use the name of a place, city, state, or address, or click the location on the map to **find lat long coordinates**.

Place Name

Type A Place Name Find

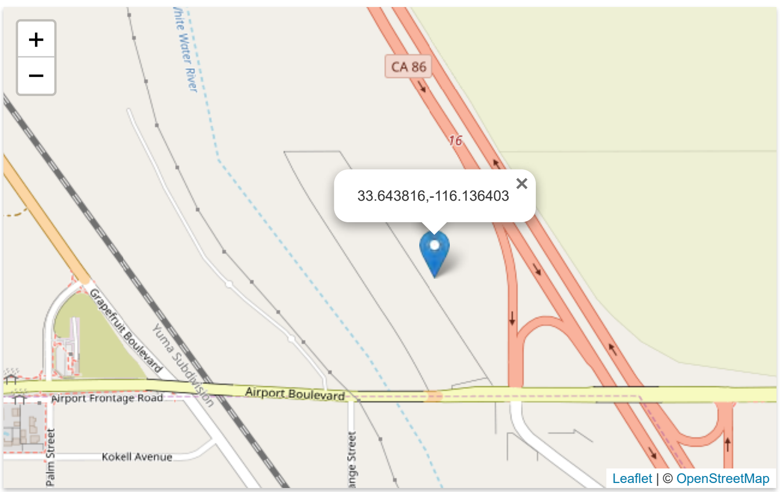
Add the country code for better results. Ex: London, UK

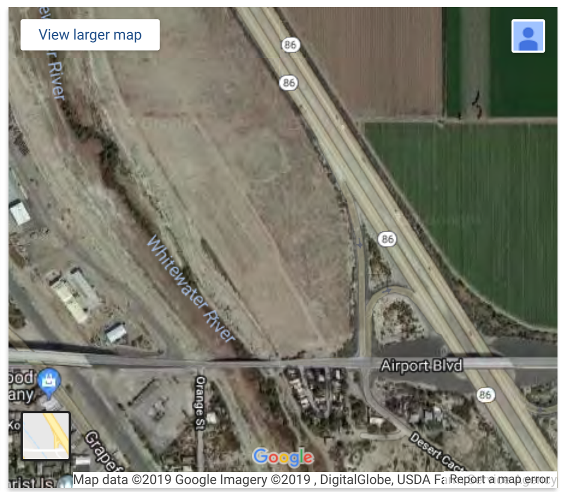
Latitude

33.643816

Longitude

-116.136403





Lat Long	GPS Coordinates
(33.643816, -116.136403)	33° 38' 37.7376'' N 116° 8' 11.0508'' W

Share this location link

<a href="https://www.latlong.net/c/?lat=33.643816&long=-116.136403" target="_blank">

Location page url

https://www.latlong.net/c/?lat=33.643816&long=-116.136403

Copy and paste the html code above in your website to share.

What is Latitude and Longitude?

Just like every actual house has its address (which includes the number, the name of the street, city, etc), every single point on the surface of earth can be specified by the *latitude and longitude coordinates*. Therefore, by using latitude and longitude we can specify virtually any point on earth.

NOAA Atlas 14, Volume 6, Version 2
Location name: Coachella, California, USA*
Latitude: 33.6438°, Longitude: -116.1364°
Elevation: -118.92 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.061 (0.051-0.074)	0.098 (0.081-0.118)	0.148 (0.123-0.180)	0.192 (0.158-0.235)	0.254 (0.203-0.322)	0.305 (0.238-0.395)	0.360 (0.274-0.478)	0.419 (0.310-0.573)	0.504 (0.357-0.719)	0.575 (0.393-0.849)
10-min	0.087 (0.073-0.106)	0.140 (0.117-0.169)	0.212 (0.177-0.258)	0.275 (0.227-0.336)	0.364 (0.290-0.462)	0.438 (0.341-0.567)	0.516 (0.392-0.685)	0.601 (0.444-0.821)	0.723 (0.512-1.03)	0.824 (0.563-1.22)
15-min	0.106 (0.088-0.128)	0.169 (0.141-0.205)	0.257 (0.214-0.312)	0.332 (0.274-0.407)	0.441 (0.351-0.559)	0.529 (0.413-0.685)	0.624 (0.475-0.828)	0.726 (0.537-0.993)	0.874 (0.619-1.25)	0.997 (0.681-1.47)
30-min	0.147 (0.123-0.178)	0.235 (0.196-0.285)	0.358 (0.297-0.434)	0.463 (0.381-0.567)	0.614 (0.489-0.778)	0.737 (0.575-0.954)	0.869 (0.661-1.15)	1.01 (0.748-1.38)	1.22 (0.862-1.74)	1.39 (0.949-2.05)
60-min	0.207 (0.172-0.250)	0.330 (0.275-0.400)	0.501 (0.417-0.609)	0.649 (0.535-0.795)	0.861 (0.686-1.09)	1.03 (0.806-1.34)	1.22 (0.927-1.62)	1.42 (1.05-1.94)	1.71 (1.21-2.43)	1.95 (1.33-2.88)
2-hr	0.285 (0.238-0.345)	0.429 (0.358-0.519)	0.640 (0.532-0.778)	0.832 (0.686-1.02)	1.13 (0.896-1.43)	1.38 (1.07-1.78)	1.66 (1.26-2.21)	1.99 (1.47-2.71)	2.48 (1.76-3.53)	2.91 (1.99-4.29)
3-hr	0.348 (0.290-0.420)	0.510 (0.425-0.617)	0.756 (0.629-0.918)	0.984 (0.812-1.21)	1.34 (1.07-1.70)	1.66 (1.30-2.15)	2.03 (1.54-2.69)	2.45 (1.81-3.35)	3.12 (2.21-4.44)	3.71 (2.54-5.48)
6-hr	0.461 (0.385-0.558)	0.666 (0.556-0.807)	0.983 (0.818-1.19)	1.28 (1.06-1.57)	1.77 (1.41-2.24)	2.20 (1.72-2.85)	2.71 (2.06-3.60)	3.32 (2.45-4.53)	4.28 (3.03-6.11)	5.17 (3.53-7.63)
12-hr	0.545 (0.455-0.659)	0.801 (0.668-0.970)	1.19 (0.993-1.45)	1.56 (1.29-1.92)	2.15 (1.72-2.73)	2.68 (2.09-3.47)	3.30 (2.51-4.38)	4.02 (2.97-5.50)	5.17 (3.66-7.37)	6.21 (4.25-9.18)
24-hr	0.693 (0.613-0.799)	1.05 (0.925-1.21)	1.58 (1.39-1.83)	2.07 (1.81-2.41)	2.82 (2.39-3.40)	3.49 (2.90-4.29)	4.24 (3.44-5.34)	5.11 (4.04-6.61)	6.46 (4.90-8.69)	7.65 (5.62-10.6)
2-day	0.785 (0.695-0.906)	1.21 (1.07-1.39)	1.82 (1.60-2.11)	2.37 (2.07-2.76)	3.19 (2.70-3.84)	3.89 (3.23-4.77)	4.66 (3.78-5.86)	5.52 (4.36-7.14)	6.82 (5.18-9.17)	7.93 (5.82-11.0)
3-day	0.846 (0.748-0.975)	1.31 (1.16-1.51)	1.97 (1.73-2.28)	2.55 (2.23-2.97)	3.41 (2.89-4.10)	4.12 (3.43-5.07)	4.91 (3.98-6.17)	5.78 (4.56-7.46)	7.06 (5.36-9.49)	8.14 (5.97-11.3)
4-day	0.897 (0.794-1.03)	1.39 (1.23-1.60)	2.08 (1.84-2.41)	2.69 (2.35-3.14)	3.58 (3.03-4.31)	4.32 (3.59-5.31)	5.12 (4.16-6.44)	6.01 (4.74-7.76)	7.30 (5.54-9.81)	8.38 (6.15-11.6)
7-day	0.962 (0.851-1.11)	1.47 (1.30-1.70)	2.19 (1.93-2.54)	2.82 (2.46-3.29)	3.73 (3.16-4.49)	4.48 (3.72-5.50)	5.29 (4.29-6.65)	6.18 (4.88-7.98)	7.47 (5.67-10.0)	8.54 (6.27-11.9)
10-day	0.995 (0.881-1.15)	1.52 (1.34-1.75)	2.25 (1.98-2.60)	2.88 (2.52-3.36)	3.81 (3.23-4.58)	4.57 (3.79-5.61)	5.38 (4.37-6.77)	6.28 (4.96-8.11)	7.57 (5.74-10.2)	8.64 (6.35-12.0)
20-day	1.07 (0.947-1.23)	1.64 (1.45-1.89)	2.43 (2.15-2.82)	3.12 (2.73-3.64)	4.11 (3.48-4.95)	4.92 (4.08-6.04)	5.78 (4.69-7.27)	6.72 (5.31-8.69)	8.08 (6.13-10.9)	9.20 (6.76-12.8)
30-day	1.14 (1.01-1.32)	1.77 (1.56-2.04)	2.64 (2.33-3.06)	3.39 (2.96-3.95)	4.47 (3.79-5.38)	5.35 (4.44-6.57)	6.29 (5.10-7.91)	7.31 (5.77-9.44)	8.78 (6.66-11.8)	9.99 (7.33-13.9)
45-day	1.25 (1.11-1.44)	1.97 (1.74-2.27)	2.96 (2.61-3.43)	3.82 (3.34-4.45)	5.04 (4.27-6.07)	6.04 (5.02-7.42)	7.11 (5.77-8.94)	8.26 (6.53-10.7)	9.92 (7.53-13.3)	11.3 (8.29-15.7)
60-day	1.32 (1.17-1.52)	2.10 (1.86-2.42)	3.18 (2.81-3.68)	4.11 (3.60-4.80)	5.45 (4.61-6.56)	6.53 (5.42-8.02)	7.69 (6.24-9.67)	8.94 (7.06-11.6)	10.7 (8.15-14.4)	12.2 (8.97-17.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

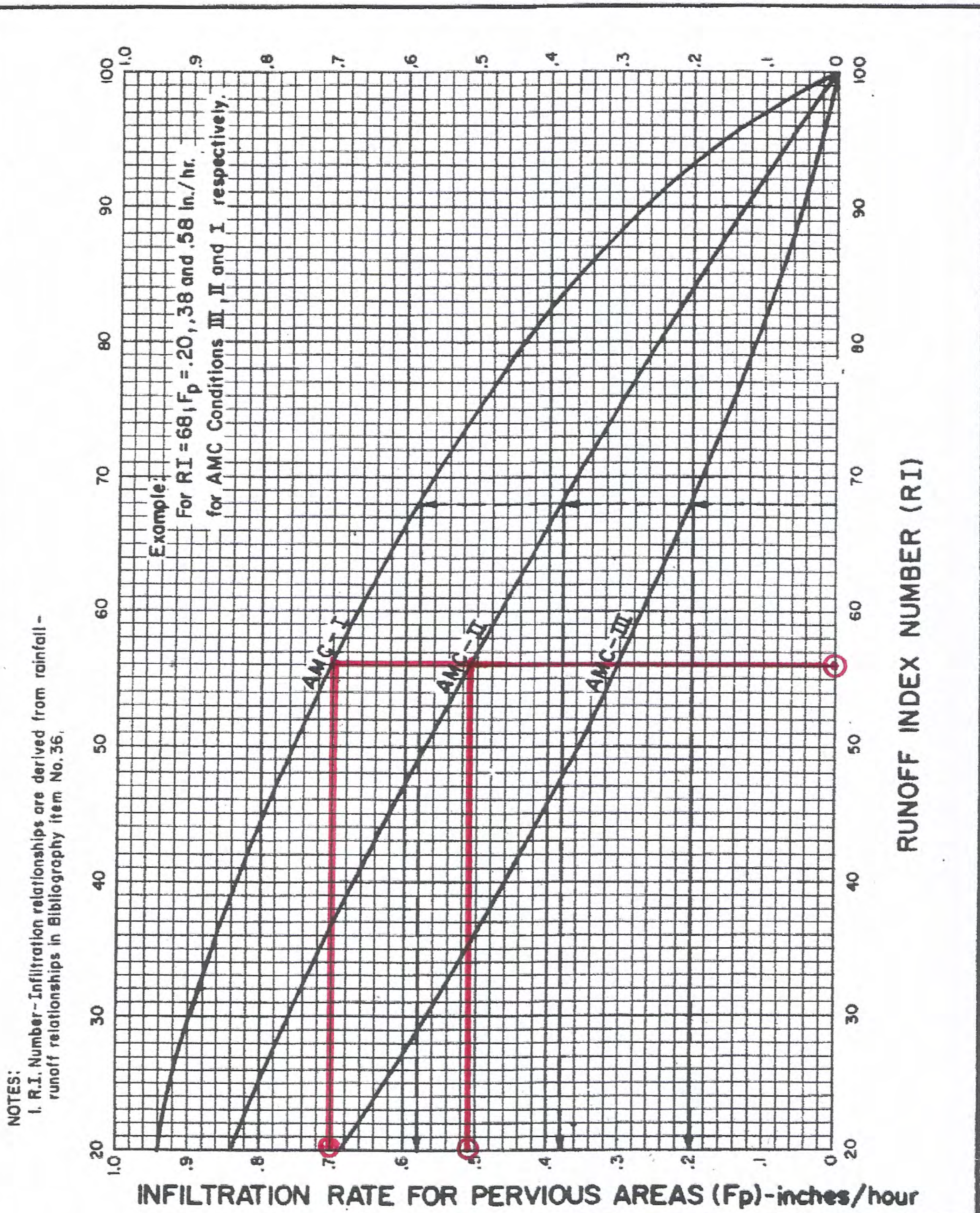
PF graphical

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

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREA



10 YR

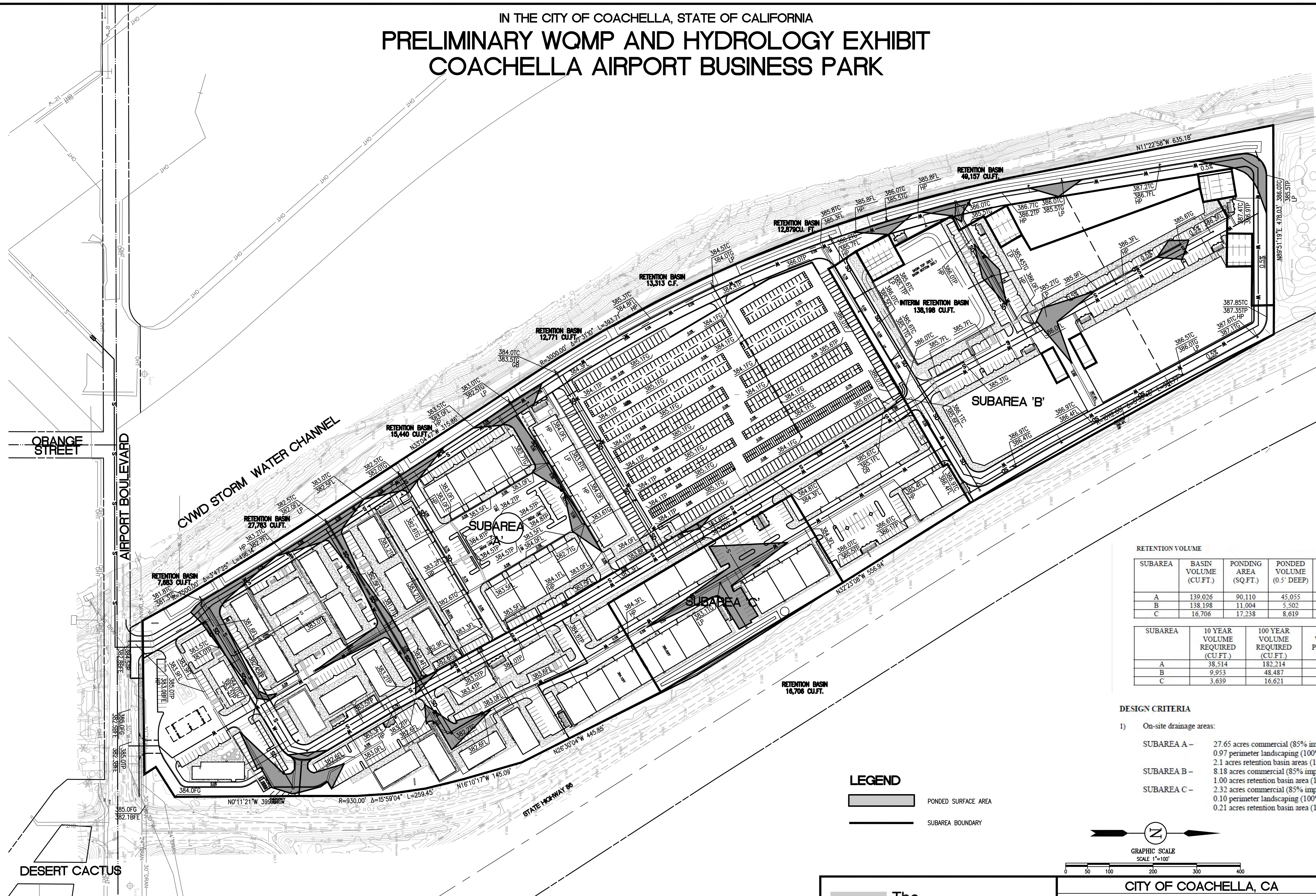
100 YR

RCFC & WCD
HYDROLOGY MANUAL

INFILTRATION RATE FOR PERVIOUS AREAS VERSUS RUNOFF INDEX NUMBERS

IN THE CITY OF COACHELLA, STATE OF CALIFORNIA

PRELIMINARY WQMP AND HYDROLOGY EXHIBIT
COACHELLA AIRPORT BUSINESS PARK



RETENTION VOLUME

SUBAREA	BASIN VOLUME (CU.FT.)	PONDING AREA (SQ.FT.)	PONDED VOLUME (0.5' DEEP)	TOTAL VOLUME PROVIDED (CU.FT.)
A	139,026	90,110	45,055	184,081
B	138,198	11,004	5,502	143,700
C	16,706	17,238	8,619	25,325

SUBAREA	10 YEAR VOLUME REQUIRED (CU.FT.)	100 YEAR VOLUME REQUIRED (CU.FT.)	TOTAL VOLUME PROVIDED (CU.FT.)
A	38,514	182,214	184,081
B	9,953	48,487	143,700
C	3,639	16,621	25,325

DESIGN CRITERIA

1) On-site drainage areas:

SUBAREA A – 27.65 acres commercial (85% impervious)
0.97 perimeter landscaping (100% pervious)
2.1 acres retention basin areas (100% impervious)

SUBAREA B – 8.18 acres commercial (85% impervious)
1.00 acres retention basin area (100% impervious)

SUBAREA C – 2.32 acres commercial (85% impervious)
0.10 perimeter landscaping (100% pervious)
0.21 acres retention basin area (100% impervious)

LEGEND

PONDED SURFACE AREA

SUBAREA BOUNDARY

N

GRAPHIC SCALE
SCALE 1"=100'
0 50 100 200 300 400

The Altum Group
73-710 Fred Waring Dr., Ste. 219
Palm Desert, CA 92260
t.760.346.4750 f. 760.340.0089
TheAltumGroup.com
ENGINEERING | PLANNING | SURVEY | ENVIRONMENTAL

CITY OF COACHELLA, CA

PRELIMINARY WQMP AND HYDROLOGY EXHIBIT
COACHELLA AIRPORT BUSINESS PARK
BEING A PORTION OF THE SOUTH HALF OF SECTION 15, T6S, R8E, SBM

FOR: HAAGEN COMPANY, LLC

SHEET NO. 1 OF 1

Appendix H

Preliminary Water Quality Management Plan

Project Specific
Preliminary Water Quality Management Plan

For: **Coachella Airport Business Park**

City of Coachella

Airport Boulevard at State Highway 86 Expressway
Coachella, CA 92236

ASSESSORS PARCEL NUMBER: 763-330-013, 763-330-018, 763-330-029

Prepared for:

Haagen Company, LLC
12302 Exposition Boulevard
Los Angeles, CA 90064
Telephone: (310) 820-1200
Contact: Christopher Fahey, Chief Operations Officer

Prepared by:

TheAltumGroup
James Bazua, P.E.
73-710 Fred Waring Drive, Suite 219
Palm Desert, CA 92260
Telephone: (760) 346-4750
james.bazua@thealtumgroup.com

James R. Bazua	Date
RCE 58394	Exp. 12/31/20

Original Date Prepared: June 11, 2020
Revision Date(s):

OWNER'S CERTIFICATION

This project-specific Preliminary Water Quality Management Plan (WQMP) has been prepared for:

> Haagen Company, LLC by The Altum Group for the project known as Coachella Airport Business Park

This Preliminary WQMP is intended to comply with the requirements of **The City of Coachella** which includes the requirement for the preparation and implementation of a Final project-specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation of the Final WQMP and will ensure that the Final WQMP is amended as appropriate to reflect up-to-date conditions on the site. The Final 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 the Final WQMP. At least one copy of the Final WQMP will be maintained at the project site or project office in perpetuity.

The undersigned is authorized to certify and to approve implementation of the Final WQMP. The undersigned is aware that implementation of the Final WQMP is enforceable under the City of Coachella Water Quality Ordinance (Municipal Code 13.16 Water Quality Control).

If the undersigned transfers its interest in the subject property/project, the undersigned shall notify the successor in interest of its responsibility to implement the Final WQMP.

"I, the undersigned, certify under penalty of law that I am the owner of the property that is the subject of this Preliminary WQMP, and that the provisions of the Final WQMP will be reviewed for acceptance and that the WQMP will be transferred to future successors in interest."

____
Owner's Signature

Christopher Fahey
Owner's Printed Name

Chief Operating Officer
Owner's Title/Position

6/11/20
Date

Haagen Company, LLC
12302 Exposition Boulevard
Los Angeles, CA 90064
Telephone: (310) 820-1200
CFahey@Haagenco.com
Contact: Christopher Fahey

ATTEST

____
Notary Signature

____
Printed Name

____
Title/Position

____
Date

THIS FORM SHALL BE NOTARIZED BEFORE ACCEPTANCE OF THE PROJECT SPECIFIC FINAL WQMP

Contents

SECTION PAGE

I. Project Description 1
II. Site Characterization 5
III. Pollutants of Concern 7
IV. Hydrologic Conditions of Concern 7
V. Best Management Practices 9
  V.1 Site Design BMP Concepts, LID/Site Design and Treatment Control BMPs 9
    V.1.A Site Design BMP Concepts and LID/Site Design BMPs 11
    V.1.B Treatment Control BMPs 19
    V.1.C Measurable Goal Summary 21
  V.2 Source Control BMPs 22
  V.3 Equivalent Treatment Control BMP Alternatives 26
  V.4 Regionally-Based BMPs 26
VI. Operation and Maintenance Responsibility for BMPs 27
VII. Funding 28

TABLES

Table 1. Pollutant of Concern Summary 7
Table 2. BMP Selection Matrix Based Upon Pollutant of Concern Removal Efficiency 10
Table 3. Implementation of Site Design BMP Concepts 12
Table 4. LID/Site Design BMPs Meeting the LID/Site Design Measurable Goal 17
Table 5: Treatment Control BMP Summary 20
Table 6: Measurable Goal Summary 21
Table 7. Source Control BMPs 22

APPENDICES

A. Conditions of Approval
B. Vicinity Map, WQMP Site Plan, and Receiving Waters Map
C. Supporting Detail Related to Hydrologic Conditions of Concern (If Applicable)
D. Educational Materials
E. Soils Report (if Applicable)
F. Structural BMP and/or Retention Facility Sizing Calculations and Design Details
G. Agreements – CC&Rs, Covenant and Agreements, BMP Maintenance Agreements and/or Other Mechanisms for ensuring ongoing Operation, Maintenance, Funding and Transfer of Requirements for this project-specific WQMP
H. Phase 1 Environmental Site Assessment – Summary of Site Remediation Conducted and Use Restrictions
I. Project-Specific Final WQMP Summary Data Form

I. Project Description

Project Owner:	**Haagen Company, LLC** **12302 Exposition Boulevard** **Los Angeles, CA 90064** **Telephone: (310) 820-1200** **CFahey@Haagenco.com** **Contact: Christopher Fahey – Chief Operating Officer**
Preliminary WQMP Preparer:	James Bazua, P.E. 73-710 Fred Waring Drive, Suite 219 Palm Desert, CA 92260 Telephone: (760) 346.4750
Project Site Address:	**Northwest corner, Airport Boulevard @ State Highway 86 Expressway** **Thermal, CA 92274**
Planning Area/ Community Name/ Development Name:	Heavy Industrial City of Coachella **Coachella Airport Business Park**
APN Number(s):	**763-330-013, 763-330-018, 763-330-029**
Latitude & Longitude:	**33.643816, -116.136403**
Receiving Water:	**Coachella Valley Storm Channel**
Project Site Size:	**Total Site is 42.69 acres**

Standard Industrial Classification (SIC) Code: 1541 – **Industrial Buildings**

Formation of Home Owners' Association (HOA) or Property Owners Association (POA): Y ☐ N ☒

Additional Permits/Approvals required for the Project:

AGENCY	Permit required
State Department of Fish and Wildlife, Fish and Game Code §1602 Streambed Alteration Agreement	Y ☐ N ☒
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Certification	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 ☒
City of Coachella - Building Permit	Y ☒ N ☐
City of Coachella - Grading Permit	Y ☒ N ☐
South Coast Air Quality Management District-PM10 Approval to comply with Rule 403	Y ☒ N ☐
State Water Recourses Control Board - Construction Stormwater General Permit (SWPPP and NOI)	Y ☒ N ☐
Other *(please list in the space below as required)*	

Project Description:

Haagen Co., LLC is proposing to develop the Coachella Airport Business Park (proposed project), a mixed-use business park development which includes warehouse/commercial uses, self-storage, small business, drive thru coffee shop and service station/mini mart-related land uses in the City of Coachella, in Riverside County, California. The project site is located at the northwest corner of the intersection of State Route 86 and Airport Boulevard and is comprised of three parcels totaling approximately 42.69 acres. The proposed project will require a change of zone from M-H (Heavy Industrial) to MS-IP (Manufacturing Service – Industrial Park Overlay) to allow the proposed uses.

The project site is bordered by a vacant, undeveloped property owned by Coachella Valley Water District (CVWD) located immediately north. To the west, the project site is bordered by the Coachella Valley Stormwater Channel, to the east, bordered by SR-86 and beyond followed by agricultural land uses, and to the south, bordered by a mobile home park. A 3.44-acre right-of-way under California Department of Transportation (Caltrans) jurisdiction that is vacant and abuts the southeastern frontage of the project site.

Although the site is adjacent to the Coachella Valley Storm Channel it is currently in the flood plain Zone AE (Base Flood Elevations Provided) based on FEMA Map Number 06065C2270H, Panel 2270 of 3805, reflected in the map revised 3/6/18. Coachella Valley Water District (CVWD) maintains the existing Storm Water Channel and has proposed future channel lining improvements that will remove the entirety of existing Coachella Airport Business Park from the flood plain. However, Coachella Airport Business Park intends to go forward with development in a manner that protects the site from off-site flows by establish elevated grades along affected portion of the project perimeter. CVWD will conduct a Flood Development Review of the project development on behalf of FEMA before Final Engineering drawings are submitted to City of Coachella for first review to confirm that the project design protects the development from off-site flows. Modeling of off-site flows affecting the site under existing and proposed conditions will be submitted to CVWD for review based on the Flood Development Review requirements listed in the CVWD Development Design Guidelines.

The proposed Coachella Airport Business Park Development will be required to collect and store 100% of the runoff generated during the 100 year storm event on-site per City of Coachella drainage standards. Retention facility design details and sizing calculations are included in Appendix F of this Preliminary WQMP report. The project can be separated into three main subareas and storm water collection system boundaries, 1.) the majority of the site is designed to surface flow to a series of drain inlets, gutters and swales where runoff can be collected and conveyed in an underground storm drain system toward retention basins located along the westerly side of the property 2.) a smaller portion of the project located at the northerly interior of the site will drain its surface runoff toward an interim retention basin location 3.) A portion of project located on the Easterly boundary will flow to a single retention basin adjacent to the project boundary. It is anticipated that future improvements to the adjacent Coachella Valley Storm Water Channel proposed by CVWD will lower the hydraulic grade line within the channel sufficiently to remove Coachella Airport Business Park from the flood plain and allow gravity flow of storm runoff from project site. CVWD has confirmed that this would be allowed as long as all State Water Quality Management requirements are met. The current project design is such that gravity flow to the Coachella Valley Storm Water Channel can be achieved with minor changes to the on-site storm drain system (including removal of the interim retention basin) should the Channel be improved.

The maximum depth of any on-site retention basin will be three (3) feet and will be sized to retain the entire storm volume generated on-site during the 10 year design storm. The project site will also provide sufficient capacity to contain the runoff volume generated during the 100 year design storm in combination with the retention basin and shallow ponding on surface streets and parking areas at a depth not to exceed 1.5’ in depth. In the event of an emergency flooding condition, flows exceeding the capacity of the on-site collection system will overflow the southeasterly end of project site toward State Highway 86 right of way and onto an adjacent undeveloped parcel of land. Flows ultimately would then proceed southerly via surface flow where make their way into the Coachella Valley Storm Water Channel. Flows then continue in the channel ultimately to its terminus at the Salton Sea.

On-site retention basins shall be designed in a manner that allows the stored volume generated from the 100 year design storm event to completely evacuate via percolation into the soil within a 72 hour period assuming the maximum percolation rate allowed by City of Coachella of 10 gallons/s.f./day (0.67in./hr). Several City of Coachella drywell infiltration chambers will be used in the design of the storm drain system in order to facilitate the conveyance of the underground storm drain system into the shallow retention basin. However, any additional infiltration provided by these drywells will not be included in calculations to reduce the size of the retention basin or aid in showing that the 100 year storm volume can be evacuated within the allotted time period.

Appendix A of this project-specific Final WQMP excludes a complete copy of the final Conditions of Approval. Appendix B of this project-specific WQMP includes:

a. A Vicinity Map identifying the project site and surrounding planning areas in sufficient detail; and
b. A Site Plan for the project. The Site Plan included as part of Appendix B depicts the following project features:
   - Location and identification of all structural BMPs, including Source Control, LID/Site Design and Treatment Control BMPs.
   - Landscaped areas.
   - Paved areas and intended uses (i.e., parking, outdoor work area, outdoor material storage area, sidewalks, patios, tennis courts, etc.).
   - Number and type of structures and intended uses (i.e., buildings, tenant spaces, dwelling units, community facilities such as pools, recreation facilities, tot lots, etc.).
   - Infrastructure (i.e., streets, storm drains, etc.) that will revert to public agency ownership and operation.
   - Location of existing and proposed public and private storm drainage facilities (i.e., storm drains, channels, basins, etc.), including catch basins and other inlets/outlet structures. Existing and proposed drainage facilities should be clearly differentiated.
   - Location(s) of Receiving Waters to which the project directly or indirectly discharges.
   - Location of points where onsite (or tributary offsite) flows exit the property/project site.
   - Delineation of proposed drainage area boundaries, including tributary offsite areas, for each location where flows exit the project site and existing site (where existing site flows are required to be addressed). Each tributary area should be clearly denoted.
   - Pre- and post-project topography.

Appendix I is a one page form that summarizes pertinent information relative to this project-specific Final WQMP.

II. Site Characterization

Land Use Designation or Zoning: **Heavy Industrial (M-H)**

Current Property Use: **Vacant**

Proposed Property Use: **Commercial Retail and Industrial Buildings**

Availability of Soils Report: Y ☒ N ☐ *Note: A soils report is required if infiltration BMPs are utilized. Attach report in Appendix E.*

Phase 1 Site Assessment: Y ☐ N ☒ *Note: If prepared, attached remediation summary and use restrictions in Appendix H.*

Receiving Waters for Urban Runoff from Site

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use Designated Receiving Waters
Whitewater River	None	MUN, AGR, GWR, REC 1, REC 2, WARM, COLD, WILD, POW	Not designated as RARE (1.0 miles)
Coachella Valley Storm Water Channel	Fecal Indicator Bacteria, Toxaphene, Dieldrin, DDT, PCB, Nitrogen-ammonia and Toxicity	FRSH, REC 1, REC 2, WARM, WILD, RARE	Designated as RARE (0.4 miles)
Salton Sea	Arsenic, Chlorpyrifos, DDT, Enterococcus, Nutrients, Salinity, Chloride, Low Dissolved Oxygen, Nitrogen-ammonia and Toxicity	AQUA, IND, REC1, REC2, WARM, WILD RARE	Designated as RARE (12.5 miles)

Note: 1) The Salton Sea is the terminus for the Coachella Valley Storm Water Channel. However, note that the Salton Sea is not identified as a "Whitewater Region" receiving water as outlined in the Riverside County WQMP.

III. Pollutants of Concern

Table 1. Pollutant of Concern Summary

Pollutant Category	Potential for Project and/or Existing Site	Causing Receiving Water Impairment
Bacteria/Virus (pathogens[1])	Yes	Yes
Heavy Metals	Yes	No
Nutrients	Yes	Yes
Toxic Organic Compounds[2]	No	Yes
Toxaphene[3]	No	Yes
Dieldrin[3]	No	Yes
Dichlorodiphenyltrichloroethane[3]	No	Yes
Polychlorinated Biphenyls[3]	No	Yes
Sediment/Turbidity	Yes	No
Trash & Debris	Yes	No
Oil & Grease	Yes	No

Notes:

1) Pathogens are disease causing virus or bacteria. Pathogens are an impairment in the Coachella Valley Storm Water Channel from Dillon Road to the Salton Sea.
2) Petroleum hydrocarbons are one of the most common organic compounds associated with driveways and parking areas and are a potential pollutant for the site. See Section V.2 for a description of appropriate Source Control BMPs.
3) These synthetic organic compounds have been banned in the United States, but are listed as impairments on the approved US EPA approved 2008/2010 303-d List.

IV. Hydrologic Conditions of Concern

Local Jurisdiction Requires On-Site Retention of Urban Runoff:

Yes ☒ The project will be required to retain urban runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, "Local Land use Authorities Requiring Onsite Retention of Stormwater"). This section does not need to be completed; however, retention facility design details and sizing calculations must be included in Appendix F.

No ☐ This section must be completed.

This Project meets the following condition:

☐ **Condition A**: 1) Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4 or engineered and maintained channel, 2) the discharge is in full compliance with local land use authority requirements for connections and discharges to the MS4 (including both quality and quantity requirements), 3) the discharge would not significantly impact stream habitat in proximate Receiving Waters, **and** 4) the discharge is authorized by the local land use authority.

☐ **Condition B**: The project disturbs less than 1 acre and is not part of a larger common plan of development that exceeds 1 acre of disturbance. The disturbed area calculation must include all disturbances associated with larger plans of development.

☐ **Condition C**: The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by, where applicable, complying with the local land use authority's on-site retention ordinance, or minimizing impervious area on a site and incorporating other Site-Design BMP concepts and LID/Site Design BMPs that assure non-exceedance of pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the local land use authority.

☐ **None:** Refer to Section 3.4 of the Whitewater River Region WQMP Guidance document for additional requirements.

Supporting engineering studies, calculations, and reports are included in Appendix C.

	2 year – 24 hour		10 year – 24 hour	
	Precondition	**Post-condition**	**Precondition**	**Post-condition**
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)				
Duration (minutes)				

V. Best Management Practices

This project implements Best Management Practices (BMPs) to address the Pollutants of Concern that may potentially be generated from the use of the project site. These BMPs have been selected and implemented to comply with Section 3.5 of the WQMP Guidance document, and consist of Site Design BMP concepts, Source Control, LID/Site Design and, if/where necessary, Treatment Control BMPs as described herein.

V.1 SITE DESIGN BMP CONCEPTS, LID/SITE DESIGN AND TREATMENT CONTROL BMPS

Local Jurisdiction Requires On-Site Retention of Urban Runoff:

Yes ☒ The project will be required to retain Urban Runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, "Local Land use Authorities Requiring Onsite Retention of Stormwater). **The LID/Site Design measurable goal has thus been met (100%), and Sections V.1.A and V.1.B do not need to be completed**; however, retention facility design details and sizing calculations must be included in Appendix F, and '100%' should be entered into Column 3 of Table 6 below.

No ☐ Section V.1 must be completed.

This section of the Project-Specific WQMP documents the LID/Site Design BMPs and, if/where necessary, the Treatment Control BMPs that will be implemented on the project to meet the requirements detailed within Section 3.5.1 of the WQMP Guidance document. Section 3.5.1 includes requirements to implement Site Design Concepts and BMPs, and includes requirements to address Pollutants of Concern with BMPs. Further, sub-section 3.5.1.1 specifically requires that Pollutants of Concern be addressed with LID/Site Design BMPs to the extent feasible.

LID/Site Design BMPs are those BMPs listed within Table 2 below which promote retention and/or feature a natural treatment mechanism; off-site and regionally-based BMPs are also LID/Site Design BMPs, and therefore count towards the measurable goal, if they fit these criteria. This project incorporates LID/Site Design BMPs to fully address the Treatment Control BMP requirement where and to the extent feasible. If and where it has been acceptably demonstrated to the local land use authority that it is infeasible to fully meet this requirement with LID/Site Design BMPs, Section V.1.B (below) includes a description of the conventional Treatment Control BMPs that will be substituted to meet the same requirements.

In addressing Pollutants of Concern, BMPs are selected using Table 2 below.

Table 2. BMP Selection Matrix Based Upon Pollutant of Concern Removal Efficiency (1)

(Sources: Riverside County Flood Control & Water Conservation District Design Handbook for Low Impact Development Best Management Practices, dated September 2011, the Orange County Technical Guidance Document for Water Quality Management Plans, dated May 19, 2011, and the Caltrans Treatment BMP Technology Report, dated April 2010 and April 2008)

Pollutant of Concern	Landscape Swale[2, 3]	Landscape Strip[2, 3]	Biofiltration (with underdrain)[2, 3]	Extended Detention Basin[2]	Sand Filter Basin[2]	Infiltration Basin[2]	Infiltration Trench[2]	Permeable Pavement[2]	Bioretention (w/o underdrain)[2, 3]	Other BMPs Including Proprietary BMPs[4, 6]
Sediment & Turbidity	M	M	H	M	H	H	H	H	H	Varies by Product[5]
Nutrients	L/M	L/M	M	L/M	L/M	H	H	H	H	
Toxic Organic Compounds	M/H	M/H	M/H	L	L/M	H	H	H	H	
Trash & Debris	L	L	H	H	H	H	H	L	H	
Bacteria & Viruses (also: Pathogens)	L	M	H	L	M	H	H	H	H	
Oil & Grease	M	M	H	M	H	H	H	H	H	
Heavy Metals	M	M/H	M/H	L/M	M	H	H	H	H	

Abbreviations:

L: Low removal efficiency M: Medium removal efficiency H: High removal efficiency

Notes:

(1) Periodic performance assessment and updating of the guidance provided by this table may be necessary.

(2) Expected performance when designed in accordance with the most current edition of the document, "Riverside County, Whitewater River Region Stormwater Quality Best Management Practice Design Handbook".

(3) Performance dependent upon design which includes implementation of thick vegetative cover. Local water conservation and/or landscaping requirements should be considered; approval is based on the discretion of the local land use authority.

(4) Includes proprietary stormwater treatment devices as listed in the CASQA Stormwater Best Management Practices Handbooks, other stormwater treatment BMPs not specifically listed in this WQMP (including proprietary filters, hydrodynamic separators, inserts, etc.), or newly developed/emerging stormwater treatment technologies.

(5) Expected performance should be based on evaluation of unit processes provided by BMP and available testing data. Approval is based on the discretion of the local land use authority.

(6) When used for primary treatment as opposed to pre-treatment, requires site-specific approval by the local land use authority.

V.1.A Site Design BMP Concepts and LID/Site Design BMPs

This section documents the Site Design BMP concepts and LID/Site Design BMPs that will be implemented on this project to comply with the requirements detailed in Section 3.5.1 of the WQMP Guidance document.

- Table 3 herein documents the implementation of the Site Design BMP Concepts described in sub-sections 3.5.1.3 and 3.5.1.4.
- Table 4 herein documents the extent to which this project has implemented the LID/Site Design goals described in sub-section 3.5.1.1.

Table 3. Implementation of Site Design BMP Concepts

Design Concept	Technique	Specific BMP	Included: Yes	Included: No	Included: N/A	Brief Reason for BMPs Indicated as No or N/A
Site Design BMP Concept 1	**Minimize Urban Runoff, Minimize Impervious Footprint, and Conserve Natural Areas (See WQMP Section 3.5.1.3)**	Conserve natural areas by concentrating or clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition.	☐	☒	☐	Industrial Site layout covers the full parcel.
		Conserve natural areas by incorporating the goals of the Multi-Species Habitat Conservation Plan or other natural resource plans.	☐	☐	☒	Will pay MSHCP fees and/or follow guidelines as required.
		Preserve natural drainage features and natural depressional storage areas on the site.	☐	☐	☒	No natural depressional areas exists onsite. Industrial Site layout covers the full parcel
		Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.	☒	☐	☐	The existing site is vacant. The site will be planted with native, drought tolerant trees and shrubs.
		Use natural drainage systems.	☐	☐	☒	No natural drainage system exists. The site is currently in the flood plain and will be protected by site grading.
		Increase the building floor to area ratio (i.e., number of stories above or below ground).	☐	☒	☐	The site development is consistent with warehouse development and multi-story development is not feasible.
		Construct streets, sidewalks and parking lot aisles to minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.	☒	☐	☐	
		Reduce widths of streets where off-street parking is available.	☐	☐	☒	Opportunities for off-site parking do not exist.
		Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.	☒	☐	☐	
		Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☒	☐	☐	City standard drywells are placed at locations where runoff enters the proposed infiltration BMPs (Retention Basins) to assist in elevation differences.

Table 3. Site Design BMP Concepts (continued)

Design Concept	Technique	Specific BMP	Included: Yes	Included: No	Included: N/A	Brief Reason for Each BMP Indicated as No or N/A
Site Design BMP Concept 2	**Minimize Directly Connected Impervious Area (See WQMP Section 3.5.1.4)**	Design residential and commercial sites to contain and infiltrate roof runoff, or direct roof runoff to landscaped swales or buffer areas.	☒	☐	☐	Runoff is directed to proposed retention basin Infiltration BMP.
		Drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping.	☒	☐	☐	Runoff is directed to proposed retention basin Infiltration BMP.
		Incorporate landscaped buffer areas between sidewalks and streets.	☒	☐	☐	Landscape buffers are provide where sidewalks are proposed on-site. Although, landscaping is typically provided behind sidewalk and not in between sidewalk and streets.
		Use natural or landscaped drainage swales in lieu of underground piping or imperviously lined swales.	☐	☒	☐	Runoff is directed to basin via surface flow over concrete valley gutter. The site layout does not allow for naturally lines swales on interior streets.
		Where soil conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.	☒	☐	☐	City standard drywells are placed at most locations where runoff enters the proposed infiltration BMPs (Retention Basins). The soils report states that the site is not conducive to high infiltration.
		Maximize the permeable area by constructing walkways, trails, patios, overflow parking, alleys, driveways, low-traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces such as pervious concrete, porous asphalt, unit pavers, and granular materials.	☐	☒	☐	Permeable pavers are not practical for this site given heavy blowsand in the desert. However, hardscape surfaces are used only where needed to provide functionality.
		Use one or more of the following:				
		Rural swale system: street sheet flows to landscaped swale or gravel shoulder, curbs used at street corners, and culverts used under driveways and street crossings.	☐	☒	☐	The site layout proposes industrial development and several separate lots. Runoff is directed to permeable infiltration BMPs but only via impermeable gutters. The site is not conducive to high infiltration rates.
		Urban curb/swale system: street slopes to curb; periodic swale inlets drain to landscaped swale or biofilter.	☐	☒	☐	City standard drywells are placed at most locations where runoff enters the proposed infiltration BMPs (Retention Basins).

Design Concept	Technique	Specific BMP	Included: Yes	No	N/A	Brief Reason for Each BMP Indicated as No or N/A
		Dual drainage system: first flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder; high flows connect directly to MS4s.	☐	☒	☐	First flush flows will be captured entirely
		Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☒	☐	☐	All on-site runoff is directed to on-site retention basins.
		Use one or more of the following for design of driveways and private residential parking areas:				
		Design driveways with shared access, flared (single lane at street), or wheel strips (paving only under the tires).	☒	☐	☐	Shared access will be used.
		Uncovered temporary or guest parking on residential lots paved with a permeable surface, or designed to drain into landscaping.	☒	☐	☐	Parking areas drain to on-site retention basins.

Table 3. Site Design BMP Concepts (continued)

Design Concept	Technique	Specific BMP	Included: Yes	Included: No	Included: N/A	Brief Reason for Each BMP Indicated as No or N/A
Site Design BMP Concept 2 (cont'd)	**Minimize Directly Connected Impervious Area (See WQMP Section 3.5.1.4)**	Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☒	☐	☐	City standard drywells are placed at most locations where runoff enters the proposed infiltration BMPs (Retention Basins).
		Use one or more of the following for design of parking areas:				
		Where landscaping is proposed in parking areas, incorporate parking area landscaping into the drainage design.	☒	☒	☐	Landscaped and paved areas drain to the same retention basin common point through City standard drywell infiltration systems.
		Overflow parking (parking stalls provided in excess of the Permittee's minimum parking requirements) may be constructed with permeable pavement.	☐	☒	☐	Permeable pavement is not practical given heavy blowsand and industrial use.
		Other comparable and equally effective Site Design BMP (or BMPs) as approved by the local land use authority (Note: Additional narrative required describing BMP and how it addresses site design concept).	☐	☒	☐	Only the on-site retention system and drywell infiltration chambers are proposed.

Project Site Design BMP Concepts:

A system retention basins designed to capture and retain the 10 year storm event completely as well as the 100 year storm event with shallow ponding on-site is the primary BMP for the proposed development. City standard drywells will also be placed at locations where runoff enters the proposed infiltration BMPs (Retention Basins). These drywell system will be introduced into the on-site drainage system and will aid in capturing pollutants.

Alternative Project Site Design BMP Concepts:

N/A

Table 4. LID/Site Design BMPs Meeting the LID/Site Design Measurable Goal

(1) DRAINAGE SUB-AREA ID OR NO.	(2) LID/SITE DESIGN BMP TYPE* (See Table 2)	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA (Refer to Table 1)	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS (Refer to Table 1)	(5) EFFECTIVENESS OF LID/SITE DESIGN BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS (U, L, M, H/M, H; see Table 2)	(6) BMP MEETS WHICH DESIGN CRITERIA? (Identify as V_{BMP} OR Q_{BMP})	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA (Nearest 0.1 acre)
ALL	INFILTRATION	BACTERIA, NUTRIENTS	BACTERIA, NUTRIENTS	H/M, H/M	V_{BMP}	42.69
TOTAL PROJECT AREA TREATED WITH LID/SITE DESIGN BMPs (NEAREST 0.1 ACRE)						**42.69**

*** LID/Site Design BMPs listed in this table are those that completely address the 'Treatment Control BMP requirement' for their drainage sub-area.**

Justification of infeasibility for sub-areas not addressed with LID/Site Design BMPs

Pollutants of concern are all addressed by the retention basin.

V.1.B TREATMENT CONTROL BMPS

Conventional Treatment Control BMPs shall be implemented to address the project's Pollutants of Concern as required in WQMP Section 3.5.1 where, and to the extent that, Section V.1.A has demonstrated that it is infeasible to meet these requirements through implementation of LID/Site Design BMPs.

☒ The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP completely address the 'Treatment Control BMP requirement' for the entire project site (and where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP Guidance document. Supporting documentation for the sizing of these LID/Site Design BMPs is included in Appendix F. ***Section V.1.B does not need to be completed**.

☐ The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP do **NOT** completely address the 'Treatment Control BMP requirement' for the entire project site (or where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP. ***Section V.1.B must be completed.**

The Treatment Control BMPs identified in this section are selected, sized and implemented to treat the design criteria of V_{BMP} and/or Q_{BMP} for all project (and if required, existing site) drainage sub-areas which were not fully addressed using LID/Site Design BMPs. Supporting documentation for the sizing of these Treatment Control BMPs is included in Appendix F.

Table 5: Treatment Control BMP Summary

(1) DRAINAGE SUB-AREA ID OR NO.	(2) TREATMENT CONTROL BMP TYPE* (See Table 2)	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA (Refer to Table 1)	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS (Refer to Table 1)	(5) EFFECTIVENESS OF TREATMENT CONTROL BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS (U, L, M, H/M, H; see Table 2)	(6) BMP MEETS WHICH DESIGN CRITERIA? (Identify as V_{BMP} OR Q_{BMP})	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA (Nearest 0.1 acre)
	TOTAL PROJECT AREA TREATED WITH TREATMENT CONTROL BMPs (NEAREST 0.1 ACRE)					0.0

V.1.C MEASURABLE GOAL SUMMARY

This section documents the extent to which this project has met the measurable goal described in WQMP Section 3.5.1.1 of addressing 100% of the project's 'Treatment Control BMP requirement' with LID/Site Design BMPs. Projects required to retain Urban Runoff onsite in conformance with local ordinance are considered to have met the measurable goal; for these instances, '100%' is entered into Column 3 of the Table.

Table 6: Measurable Goal Summary

(1) **Total Area Treated with LID/Site Design BMPs** (Last row of Table 4)	(2) **Total Area Treated with Treatment Control BMPs** (Last row of Table 5)	(3) **% of Treatment Control BMP Requirement addressed with LID/Site Design BMPs**
42.69	0	100%

V.2 SOURCE CONTROL BMPS

This section identifies and describes the Source Control BMPs applicable and implemented on this project.

Table 7. Source Control BMPs

BMP Name	Check One		If not applicable, state brief reason
	Included	Not Applicable	
Non-Structural Source Control BMPs			
Education for Property Owners, Operators, Tenants, Occupants, or Employees	☒	☐	
Activity Restrictions	☒	☐	
Irrigation System and Landscape Maintenance	☒	☐	
Common Area Litter Control	☒	☐	
Street Sweeping Private Streets and Parking Lots	☒	☐	
Drainage Facility Inspection and Maintenance	☒	☐	
Structural Source Control BMPs			
Storm Drain Inlet Stenciling and Signage	☒	☐	
Landscape and Irrigation System Design	☒	☐	
Protect Slopes and Channels	☐	☒	Slopes are proposed in retention basins only at 3:1 slope max..
Provide Community Car Wash Racks	☐	☒	Not applicable based on proposed design.
Properly Design*:			
Fueling Areas	☒	☐	
Air/Water Supply Area Drainage	☐	☒	No facilities.
Trash Storage Areas	☒	☐	
Loading Docks	☒	☐	
Maintenance Bays	☐	☒	No facilities.
Vehicle and Equipment Wash Areas	☐	☒	No facilities.
Outdoor Material Storage Areas	☐	☒	No facilities.
Outdoor Work Areas or Processing Areas	☐	☒	No facilities.
Provide Wash Water Controls for Food Preparation Areas	☐	☒	No facilities.

*Details demonstrating proper design must be included in Appendix F.

5.2.1 Non-Structural Source Control BMPs

5.2.1.1 Education

Yes

The owner, as responsible party for implementing the WQMP, will ensure that owner's employees, operators and managers and others as required are made aware of and provided with educational material. Owner is responsible for periodically updating these materials.

5.2.1.2 Activity Restrictions

Yes

Certain activities within the project area may be restricted to enable the owner/operator to meet the City's water quality requirements. For example, to eliminate storm water contamination by oil and grease, service or repair of all vehicles will be restricted to designated areas only.

Similarly, washing of vehicles and equipment shall be restricted to designated areas only which include properly designed wash racks or other areas which meet the intent of the best management practices.

5.2.1.3 Irrigation System and Landscape Maintenance

Yes

Owner shall ensure that the irrigation systems within the project site are operating properly. Owner shall also ensure that the ground's landscaping is maintained regularly so that the project site is in compliance with all City and Coachella Valley Water District water quality requirements.

5.2.1.4 Common Area Litter Control

Yes

Owner shall ensure that employees regularly patrol the site in an effort to keep it free of litter so that the project site is in compliance with all City water quality requirements.

5.2.1.5 Street Sweeping

Yes

Owner shall ensure that the driveways and parking lots within the project are regularly swept so that the project site is in compliance with all City water quality requirements. Streets/driveways and parking lots shall be swept at least quarterly, including just prior to start of the rainy season (October 1st). The frequency shall be no less than the frequency of street sweeping by the Co-Permittee on public streets.

5.2.1.6 Drainage Facility Inspection and Maintenance

Yes

Owner shall ensure that drainage facilities within the project area are regularly inspected (at least annually) and maintained properly so that the project site is in compliance with all City water quality requirements. At a minimum, routine maintenance of drainage facilities should take place in the late summer or early fall prior to the start of the rainy season (October 1st). Drainage facilities must be cleaned if accumulated sediment/debris fills 25% or more of the storage capacity of the facility.

5.2.2 Structural Source Control BMPs

5.2.2.1 MS4 Stenciling and Signage

Yes

Stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language (such as: "NO DUMPING ONLY RAIN IN THE DRAIN") and/or graphical icons to discourage illegal dumping will be provided. Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area will be posted.

5.2.2.2 Landscape and Irrigation System Design

Yes

The project will be designed to include a variety of plants within the landscape areas available, including native, drought tolerant plants. These types of plants use less water, and help reduce the use of fertilizers and pesticides. The irrigation system will be programmable and utilize drip emitters, limiting excess irrigation runoff. The landscape and irrigation system will be designed in accordance with the City of Coachella's water quality and irrigation requirements.

5.2.2.3 Protect Slopes and Channels

No

The project site does not contain any proposed slopes and channels.

5.2.2.4 Provide Community Car Wash Racks

No

The project site will not include community car wash racks as part of the design.

5.2.2.5 Fueling Areas

Yes

Fuel dispensing areas shall include the following design features:

- At a minimum, the fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.
- The fuel dispensing area shall be paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete is prohibited.
- The fuel dispensing area shall have an appropriate slope (2% - 4%) to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of stormwater and to eliminate stormwater flow through the concrete fueling area.
- An overhanging roof structure or canopy shall be provided. The cover's minimum dimensions must be equal to or greater than the area within the grade break or the fuel dispensing area. The cover must not drain onto the fuel dispensing area and facility downspouts (roof drains) must be routed to prevent drainage across the fueling area. The fueling area shall drain to an appropriate Treatment Control BMP prior to discharging to the MS4.
- The fuel dispensing area must be designed to prohibit spills from draining to the street, MS4, or offsite. The project site will not include fueling areas.

5.2.2.6 Air/Water Supply Area Drainage

No

The project site will not include air/water supply areas.

5.2.2.7 Trash Storage Areas

Yes

The project site will include trash storage areas. Trash storage (or trash enclosure) trash dumpsters will have attached covers and shall be leak proof. The entire trash storage surface area will be concrete.

5.2.2.8 Loading Docks

Yes

Loading docks will not include a depressed area for truck loading, but rather be flush with the building Finish Floor elevation. Loading docks are designed in a way that does not collect debris or automotive fluids.

5.2.2.9 Maintenance Bays

No

The project site will not include maintenance bays.

5.2.2.10 Vehicle and Equipment Wash Areas

No

The project site will not include vehicle and equipment wash areas.

5.2.2.11 Outdoor Material Storage Areas

No

The project site will not include outdoor material storage areas.

5.2.2.12 Outdoor Work Areas or Processing Areas

No

The project site will not include outdoor work areas or processing areas.

5.2.2.13 Wash Water Areas for Food Preparation Areas

No

The project site will not include wash water areas for preparation.

Appendix D includes copies of the educational materials (described in Section 3.5.2.1 of the WQMP Guidance document) that will be used in implementing this project-specific WQMP.

V.3 Equivalent Treatment Control BMP Alternatives

This project will not include any other treatment control alternatives.

V.4 Regionally-Based BMPs

This project will not include any regionally-based treatment control BMPs.

VI. Operation and Maintenance Responsibility for BMPs

Appendix G of the project-specific Final WQMP will include copies of CC&Rs, Covenant and Agreements, BMP Maintenance Agreement and/or other mechanisms used to ensure the ongoing operation, maintenance, funding, transfer and implementation of the project-specific WQMP requirements.

Operations and maintenance (O&M) will be performed, as necessary, by Haagen Company, LLC The BMPs for the project are a proposed Retention Basins and drywell infiltration systems. Maintenance of the site and infiltration systems consists primarily of the removal of trash and debris, repair and removal/reinstallation of the system if damaged or saturated by native material (due to wind and water erosion). Any removed material must be hauled away to an approved disposal facility. See Appendix G for a recommended "Infiltration System Maintenance Plan".

O&M staff should inspect the site regularly (suggested monthly/quarterly) to ensure that the site is clear of trash and debris. This can be accomplished when staff is performing other routine maintenance onsite. At the same time, infiltration systems and drainage facilities can be inspected to see if any minor repairs are required. These facilities should be inspected quarterly (at a minimum) and prior to the beginning of the rainy season (October 1st). See Appendix G for a recommended "Infiltration System Maintenance and Inspection Checklist".

Routine inspection and required maintenance of all BMPs and the site should begin immediately upon completion of construction and continue throughout the life of the project. Records of all inspection and repair/modifications shall be kept by Haagen Company, LLC. and its affiliated Companies. The following person shall be responsible for all O&M and inspections, until such time as another staff member is designated:

Haagen Company, LLC
12302 Exposition Boulevard
Los Angeles, CA 90064
Telephone: (310) 820-1200
CFahey@Haagenco.com
Contact: Christopher Fahey, Chief Operating Officer

VII. Funding

Source funding and long term funding will be provided by owner or owner's agent, Haagen Company, LLC. Operations and maintenance of the project BMP is limited in frequency and funding due to the simple nature of the BMP. Funding will be addressed in an agreement which will be included with the Final WQMP.

Appendix A

Conditions of Approval

N/A

Appendix B

Vicinity Map, WQMP Site Plan, and Receiving Waters Map

1 IN = 0.25 MI

The Altum Group

Project Vicinity

Coachella Airport Business Park

1 in = 1 miles

The Altum Group

Receiving Water Exhibit
Coachella Airport Business Park

L:\projects\C1443 Coachella Airport Bus Park\gis\Working Map\Working Map.aprx | 6/11/2020

Public Record

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.

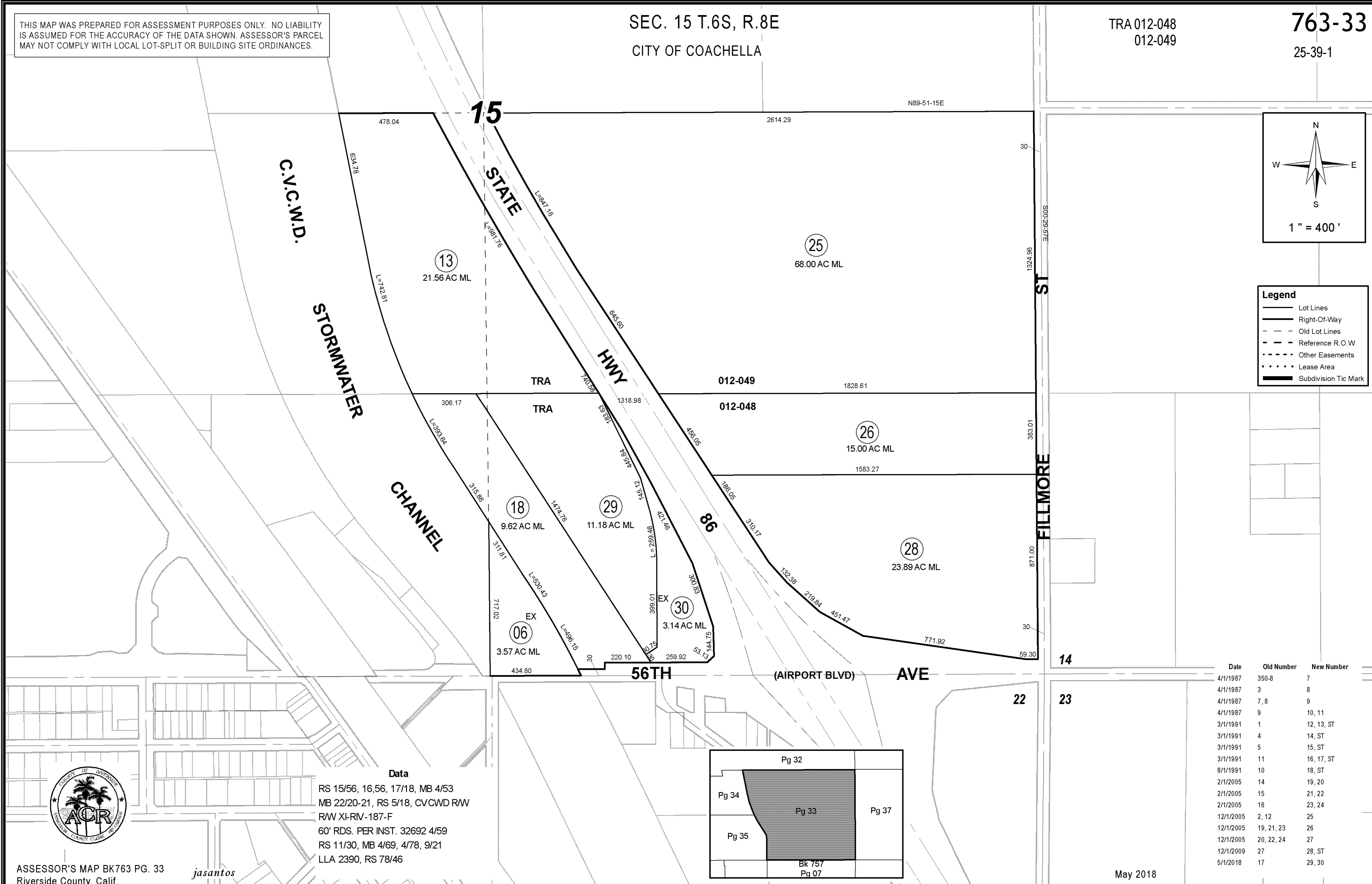
SEC. 15 T.6S, R.8E

CITY OF COACHELLA

TRA 012-048
012-049

763-33

25-39-1



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4/1/1987	350-8	7
4/1/1987	3	8
4/1/1987	7, 8	9
4/1/1987	9	10, 11
3/1/1991	1	12, 13, ST
3/1/1991	4	14, ST
3/1/1991	5	15, ST
3/1/1991	11	16, 17, ST
8/1/1991	10	18, ST
2/1/2005	14	19, 20
2/1/2005	15	21, 22
2/1/2005	16	23, 24
12/1/2005	2, 12	25
12/1/2005	19, 21, 23	26
12/1/2005	20, 22, 24	27
12/1/2009	27	28, ST
5/1/2018	17	29, 30

Data

RS 15/56, 16,56, 17/18, MB 4/53
MB 22/20-21, RS 5/18, CVCWD R/W
R/W XI-RIV-187-F
60' RDS. PER INST. 32692 4/59
RS 11/30, MB 4/69, 4/78, 9/21
LLA 2390, RS 78/46

ASSESSOR'S MAP BK763 PG. 33
Riverside County, Calif.

jasantos

May 2018

Appendix C

Supporting Detail Related to Hydrologic Conditions of Concern

N/A

Appendix D

Educational Materials

After the Storm

A Citizen's Guide to Understanding Stormwater

United States Environmental Protection Agency

EPA 833-B-03-002

January 2003

Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

For more information contact:

or visit

www.epa.gov/npdes/stormwater

www.epa.gov/nps

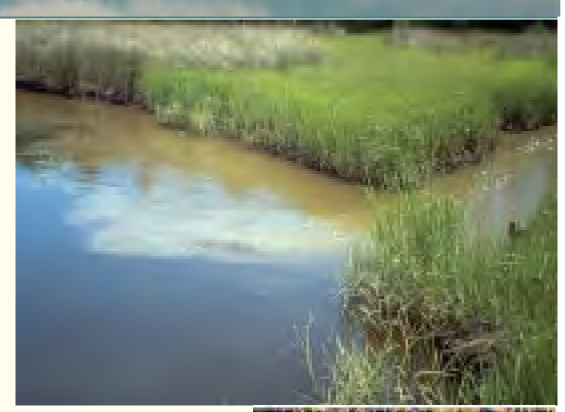
What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

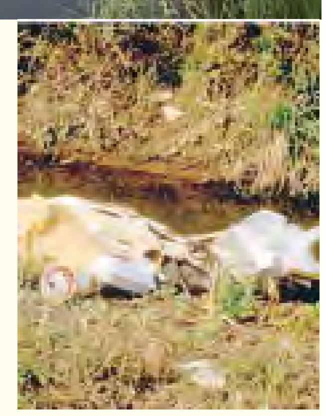
Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution



Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.

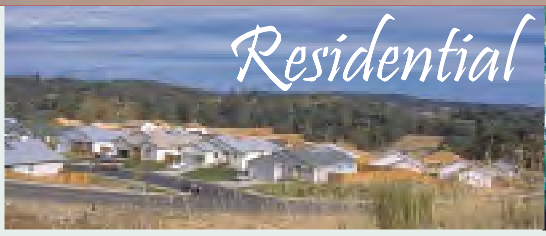


- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.

- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

Stormwater Pollution Solutions

Residential



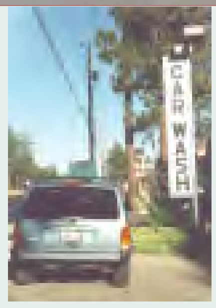
Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Auto care



Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Pet waste

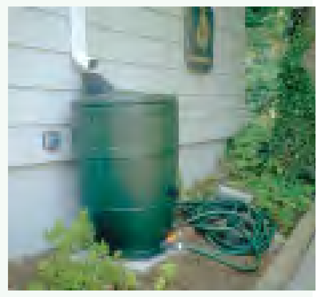
Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.



Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

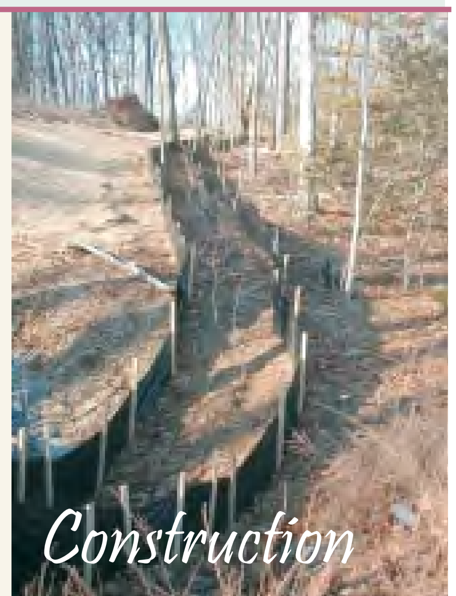
Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

Commercial

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Construction

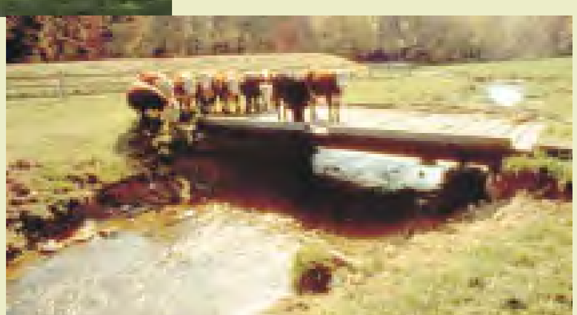


Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

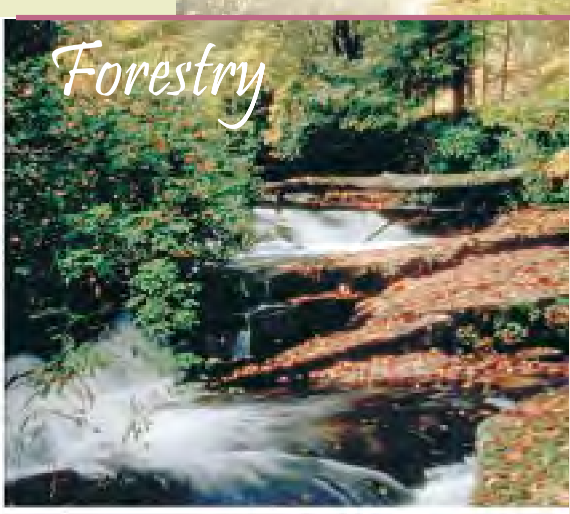
Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

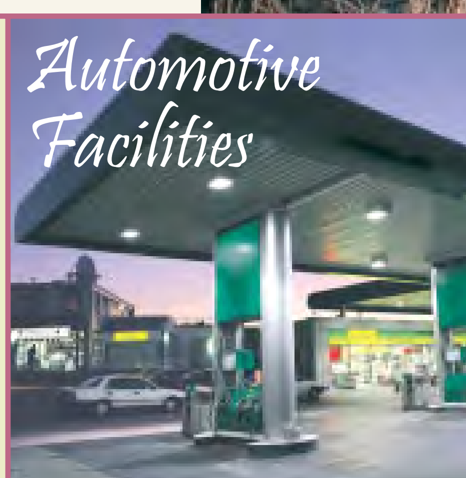
Forestry



Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.

Automotive Facilities



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

RIVERSIDE COUNTY
ANIMAL SERVICES LOCATIONS:

www.rcdas.org

BLYTHE
16450 West Hobson Way
Blythe, CA 92225
760-921-7857

COACHELLA VALLEY ANIMAL CAMPUS
72-050 Petland Place
Thousand Palms, CA 92276
760-343-3644

RIVERSIDE COUNTY ANIMAL SERVICES
6851 Van Buren Blvd.
Riverside, CA 92509
951-688-4340

OTHER ANIMAL SHELTERS:

ANIMAL CARE CENTER OF INDIO
45-355 Van Buren
Indio, CA 92201
760-391-4138

ANIMAL FRIENDS OF THE VALLEYS
29001 Bastron Avenue
Lake Elsinore, CA 92530
951-674-0618
(Serving incorporated Temecula, Wildomar, Lake Elsinore, Murrieta and Canyon Lake)

MARY S. ROBERTS PET ADOPTION CENTER
6185 Industrial Avenue
Riverside, CA 92504
951-688-4340

RAMONA HUMANE SOCIETY
690 Humane Way
San Jacinto 92586
951-654-8002
(Serving Sun City, Menifee, Romoland and Homeland)

Looking to adopt a pet?
This website is linked to many animal shelters.
www.petfinder.com

To report illegal storm drain disposal, call
1-800-506-2555

Or visit our website at www.rcflood.org

E-mail fcnpdes@rcflood.org

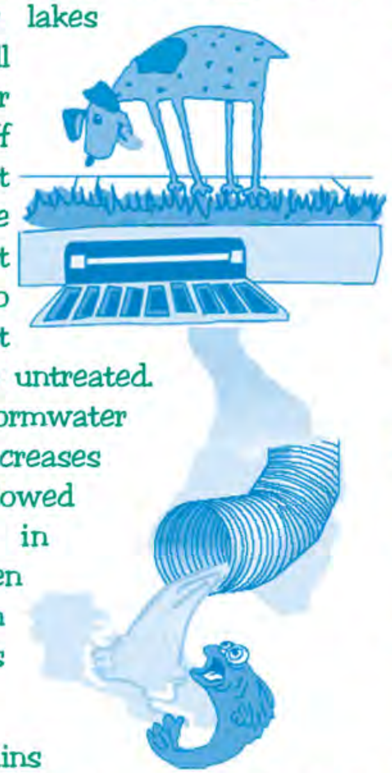
What's the Scoop?

Tips for a Healthy Pet and a Healthier Environment

CREATE A HEALTHY ENVIRONMENT in and around your home by following these simple pet practices. Your pet, family and neighbors will appreciate their clean comfortable surroundings.

HOUSEHOLD PETS

We all love our pets, but pet waste is a subject everyone likes to avoid. Pet waste left on trails, sidewalks, streets and grassy areas can be washed into the nearest waterway when it rains. Even if you can't see streams or lakes near you, rainfall (stormwater) or sprinkler runoff can wash pet waste into the storm drains that carry runoff to the nearest streams or lakes untreated. The risk of stormwater contamination increases if pet waste is allowed to accumulate in outdoor animal pen areas or left on sidewalks, streets or driveways.



Pet waste contains nutrients and bacteria. Nutrients can promote the growth of algae in streams and lakes. Algae can cause fish kills and other environmental damage if it is fed too many nutrients. Pet Waste also contains e. Coli and fecal bacteria, which can cause disease in other animals and humans that come in contact with it when swimming or splashing in streams and lakes. Dogs also carry salmonella and giardia, which can make people sick.

Pet waste that is not picked up and properly disposed can also increase vector problems. Flies and other insects are not only attracted to and feed on pet waste, but can also be infected with diseases and spread those diseases to humans and other animals.

WHAT CAN YOU DO?

- SCOOP up pet waste and flush it down the toilet or place in trash can.
- NEVER DUMP pet waste into a storm drain or catch basin.
- USE the complimentary bags or mutt mitts offered in dispensers at local parks.
- CARRY EXTRA BAGS when walking your dog and make them available to other pet owners who are without.
- TEACH CHILDREN how to properly clean up after a pet.
- TELL FRIENDS AND NEIGHBORS about the ill effects of animal waste on the environment. Encourage them to clean up after pets.

Call 1-800-506-2555 TOLL FREE to report illegal dumping to the storm drain, find the dates and times of local Household Hazardous Waste Collection Events, obtain additional information on stormwater problems and solutions, request presentations about stormwater pollution in your child's classroom, or learn about free grasscycling and composting workshops.

SCOOP THE POOP

Many communities have "Scoop the Poop" laws that govern pet waste cleanup. Some of these laws specifically require anyone who walks an animal off their property to carry a bag, shovel, or scooper. Any waste left by the animal must be cleaned up immediately. CALL YOUR LOCAL CODE ENFORCEMENT OFFICE to find out more about pet waste regulations.

OTHER WAYS TO PROTECT YOUR PETS AND THE ENVIRONMENT

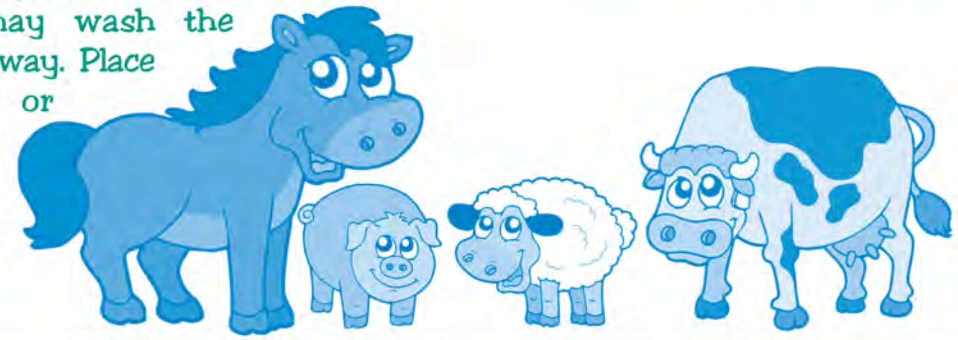
Pets are only one of many sources that contribute to water pollution. However, these other sources of water pollution cannot only harm the environment but also harm your pet. Improperly used or stored lawn fertilizers, pesticides, soaps, grease and vehicle fluids cannot only be washed into local streams and lakes, these chemicals can also harm your pet if they ingest or touch these chemicals. Call 1-800-506-2555 for information regarding how to properly dispose of household hazardous wastes such as these. You can also keep your pets and our environment healthy by properly maintaining your vehicles, and limiting use of pesticides and fertilizers to only the amount that is absolutely needed.

Make sure to not only protect your pets, but to also protect your neighbors pets. NEVER HOSE VEHICLE FLUIDS into the street or gutter. USE ABSORBENT MATERIALS such as cat litter to clean-up spills. SWEEP UP used absorbent materials and place it in the trash.

HORSES AND LIVESTOCK

Fortunate enough to own a horse or livestock? You, too, can play a part in protecting and cleaning up our water resources. The following are a few simple Best Management Practices (BMPs) specifically designed for horses and livestock.

- STORE your manure properly. Do not store unprotected piles of manure in places where stormwater runoff may wash the manure away. Place a cover or tarp over the pile to keep rainwater out.



- BUILD a manure storage facility to protect your pets, property and the environment. These structures usually consist of a concrete pad to protect groundwater and a short wall on one or two sides to make manure handling easier.
- READ the Only Rain Down the Storm Drain brochure titled "Tips for Horse Care" for additional guidance and recommendations. This brochure should be available from your local city office or for download at www.rcflood.org/stormwater.
- KEEP animals out of streams - Horses and livestock can deficate in streams causing stormwater pollution. Livestock and horses in streams can also disturb sensitive habitat and vegetation, causing additional environmental damage. Keep livestock and horses away from streams and use designated stream crossings whenever possible.
- MATERIAL STORAGE SAFETY TIPS
Many of the chemicals found in barns require careful handling and proper disposal. When using these chemicals, be certain to follow these common sense guidelines:
    - ♦ Buy only what you need.
    - ♦ Treat spills of hoof oils like a fuel spill. Use kitty litter to soak up the oil and dispose of it in a tightly sealed plastic bag.
    - ♦ Store pesticides in a locked, dry, well-ventilated area.
    - ♦ Protect stored fertilizer and pesticides from rain and surface water.

RESOURCE CONSERVATION DISTRICTS CAN HELP

Call 1-800-506-2555 for assistance with locating a local conservation district that can help you properly manage your manure, re-establish healthy pastures, control weeds, or identify appropriate grasses for your soils.

Thank you for doing your part to protect your watershed, the environment, your pets and your community!

Helpful telephone numbers and links:

Riverside County Stormwater Protection Partners

Flood Control District	(951) 955-1200
County of Riverside	(951) 955-1000
City of Banning	(951) 922-3105
City of Beaumont	(951) 769-8520
City of Calimesa	(909) 795-9801
City of Canyon Lake	(951) 244-2955
Cathedral City	(760) 770-0327
City of Coachella	(760) 398-4978
City of Corona	(951) 736-2447
City of Desert Hot Springs	(760) 329-6411
City of Eastvale	(951) 361-0900
City of Hemet	(951) 765-2300
City of Indian Wells	(760) 346-2489
City of Indio	(760) 391-4000
City of Lake Elsinore	(951) 674-3124
City of La Quinta	(760) 777-7000
City of Menifee	(951) 672-6777
City of Moreno Valley	(951) 413-3000
City of Murrieta	(951) 304-2489
City of Norco	(951) 270-5607
City of Palm Desert	(760) 346-0611
City of Palm Springs	(760) 323-8299
City of Perris	(951) 943-6100
City of Rancho Mirage	(760) 324-4511
City of Riverside	(951) 361-0900
City of San Jacinto	(951) 654-7337
City of Temecula	(951) 694-6444
City of Wildomar	(951) 677-7751

REPORT ILLEGAL STORM DRAIN DISPOSAL
1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

Stormwater Pollution

What you should know for...

Outdoor Cleaning Activities and Professional Mobile Service Providers

Storm drain pollution prevention information for:

- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

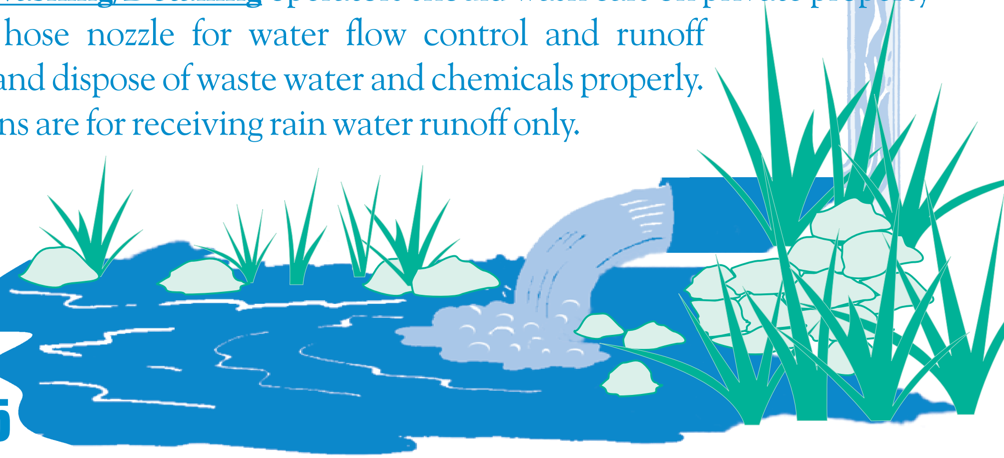
Do you know where street flows actually go?

Storm drains are NOT connected to sanitary sewer systems and treatment plants!

The primary purpose of storm drains is to carry *rain* water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency **Mechanical** repairs should be done in City streets, using drip pans for spills. **Plumbing** should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. **Window/Power Washing** waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled **Carpet Cleaning** wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. **Car Washing/Detailing** operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.

REPORT ILLEGAL STORM DRAIN DISPOSAL
1-800-506-2555



Help Protect Our Waterways!

Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?

Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. ***Each of us*** can do our part to keep stormwater clean by using the suggested BMPs below:

Simple solutions for both light and heavy duty jobs:

Do...consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

Do...prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

Do...use vacuums or other machines to remove and collect loose debris or litter before applying water.

Do...obtain the property owner's permission to dispose of ***small amounts*** of power washing waste water on to landscaped, gravel or unpaved surfaces.

Do...check your local sanitary sewer agency's policies on wash water disposal regulations before disposing of wash water into the sewer. (See list on reverse side)

Do...be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

Do...check to see if local ordinances prevent certain activities.

Do not let...wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.

Report illegal storm drain disposal
Call Toll Free
1-800-506-2555

Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them with being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.

When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlets by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercourse.

Appendix E

Soils Report

GEOTECHNICAL
PROFESSIONALS INC.

GEOTECHNICAL INVESTIGATION
PROPOSED COACHELLA AIRPORT BUSINESS PARK
NWC STATE HIGHWAY 86 AND AIRPORT BOULEVARD
COACHELLA, CALIFORNIA

Prepared for:
Haagen Co., LLC
12302 Exposition Boulevard
Los Angeles, California 90064

Prepared by:
Geotechnical Professionals Inc.
5736 Corporate Avenue
Cypress, California 90630
(714) 220-2211

Project No. 2884.I

September 25, 2018

GEOTECHNICAL
PROFESSIONALS INC.

September 25, 2018

Haagen Co., LLC
12302 Exposition Boulevard
Los Angeles, California 90064

Attention: Mr. Chris Fahey

Subject: Report of Geotechnical Investigation
Proposed Coachella Airport Business Park
NWC State Highway 86 and Airport Boulevard
Coachella, California
GPI Project No. 2884.I

Dear Mr. Fahey:

Transmitted herewith is our report of geotechnical investigation for the subject project. The report presents our evaluation of the foundation conditions at the site and recommendations for design and construction.

We are providing this report in an electronic format. Further copies of the report can be provided if required for City submittal upon request.

We appreciate the opportunity of offering our services on this project and look forward to seeing the project through its successful completion. Feel free to call us if you have any questions regarding our report or need further assistance.

Very truly yours,
Geotechnical Professionals Inc.

James E. Harris, G.E.
Principal

2884-I-01L (09/18)

TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION	1
1.1 GENERAL	1
1.2 PROJECT DESCRIPTION	1
1.3 PURPOSE OF INVESTIGATION	1
2.0 SCOPE OF WORK	2
3.0 SITE CONDITIONS	3
3.1 SURFACE CONDITIONS	3
3.2 SUBSURFACE SOILS	3
3.3 GROUNDWATER AND CAVING	4
4.0 CONCLUSIONS AND RECOMMENDATIONS	5
4.1 GENERAL	5
4.2 MITIGATION OF SETTLEMENT	6
4.3 SEISMIC CONSIDERATIONS	7
4.3.1 General	7
4.3.2 Strong Ground Motion Potential	8
4.3.3 Potential for Ground Rupture	8
4.3.4 Liquefaction	8
4.2.5 Lateral Spreading	9
4.4 EARTHWORK	10
4.4.1 Clearing	10
4.4.2 Excavations	11
4.4.3 Subgrade Preparation	12
4.4.4 Material for Fill	12
4.4.5 Placement and Compaction of Fills	13
4.4.6 Shrinkage and Subsidence	13
4.4.7 Trench/Wall Backfill	14
4.4.8 Observation and Testing	14
4.5 SHALLOW FOUNDATIONS	14
4.5.1 General	14
4.5.2 Allowable Bearing Pressures – Spread Footings	15
4.5.3 Lateral Load Resistance	15
4.5.4 Footing Excavation Observation	16
4.6 MAT FOUNDATIONS	16
4.7 FOUNDATION CONCRETE	17
4.8 BUILDING FLOOR SLABS	17
4.9 LATERAL EARTH PRESSURES	18
4.10 CORROSIVITY	19
4.11 DRAINAGE	19
4.12 EXTERIOR CONCRETE AND MASONRY FLATWORK	19
4.13 STORM WATER INFILTRATION	19
4.14 PAVED AREAS	20
4.15 GEOTECHNICAL OBSERVATION AND TESTING	21
5.0 LIMITATIONS	22

REFERENCES

TABLE OF CONTENTS - CONTINUED

APPENDICES

A CONE PENETRATION TESTS
B EXPLORATORY BORINGS
C LABORATORY TESTS

LIST OF FIGURES

FIGURE NO.

1 Site Location Map
2 Site Plan

APPENDIX A

A-1 Cone Penetrometer Diagram
A-2 to A-24 Cone Penetration Test Results

APPENDIX B

B-1 to B-9 Logs of Borings

APPENDIX C

C-1 Atterberg Limits Test Results
C-2 to C-6 Direct Shear Test Results
C-7 to C-9 Consolidation Test Results
Table 1 Corrosivity Test Results

1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of the geotechnical investigation performed by Geotechnical Professionals Inc. (GPI) for the proposed business park in Coachella, California. The geographical site location is shown on the Site Location Map, Figure 1.

1.2 PROJECT DESCRIPTION

We understand that the proposed improvements at the site will consist of a new business park with single-story buildings of various sizes on a 43-acre parcel. The buildings will include large warehouses, small warehouses, small business, self-storage buildings, a service station, and a drive-thru coffee shop. Preliminary plans indicate the footprint of the buildings will range from approximately 103,300 square feet (sf) for the large warehouse to 4,000 sf for the coffee shop. Currently, thirty-two buildings are planned for the site plus 14 self-storage buildings. The proposed buildings will cover a footprint of approximately 677,000 sf. Additional improvements will include paved vehicular drives and parking as well as landscaping. The preliminary layout of the proposed development is shown on Figure 2.

We have assumed that the buildings will be tilt-up, masonry block, or wood construction. Based on our experience with similar projects, we expect that the structures will have maximum column and wall loads on the order of 30 to 100 kips and 2 to 5 kips per lineal foot, respectively.

Information regarding proposed finish grades for the development is not known at this time. We assume that finish grades will be found at or near existing grades and no changes of grade not more than 3 to 4 feet from existing grades.

Since structural loads or grades can significantly impact the performance of the proposed development, we should perform additional evaluations if the final grades and/or loads vary significantly from those discussed herein.

1.3 PURPOSE OF INVESTIGATION

The primary purpose of this investigation and report is to provide an evaluation of the existing geotechnical conditions at the site as they relate to the design and construction of the proposed development. More specifically, this investigation was aimed at providing geotechnical recommendations for planning earthwork, and design of foundations, floor slabs, and pavements.

2.0 SCOPE OF WORK

Our scope of work for this investigation consisted of review and use of existing geotechnical data, field exploration, laboratory testing, engineering analysis, and the preparation of this report.

The field exploration program consisted of 23 Cone Penetration Tests (CPT's) and 11 exploratory borings. The locations of the explorations are shown on the Site Plan, Figure 2.

The CPT's were advanced to depths ranging from 50 to 80 feet below existing site grades. Detailed logs of the CPT's and a summary of the equipment used are presented in Appendix A. The borings were drilled using hollow-stem auger equipment to depths of 6 to 81½ feet below existing site grades. Details of the drilling and Logs of Borings are presented in Appendix B.

Laboratory soil tests were performed on selected representative samples as an aid in soil classification and to evaluate the engineering properties of the soils. The geotechnical laboratory testing program included determinations of moisture content and dry density, Atterberg Limits, grain size, compressibility (consolidation), shear strength (direct shear), collapse, R-value, and corrosion. Laboratory testing procedures and results are summarized in Appendix C.

Soil corrosivity testing was performed by HDR under subcontract to GPI. R-value testing was performed by Geologic Associates under subcontract to GPI. Their test results are presented in Appendix C.

Engineering evaluations were performed provide geotechnical and foundation recommendations. The results of our evaluations are presented in the remainder of this report.

3.0 SITE CONDITIONS

3.1 SURFACE CONDITIONS

The site is located on an undeveloped parcel located directly between State Route 86 and an unlined storm water channel (Whitewater River). We observed no evidence of previous development at the site. Historic aerials (historicaerials.com) indicate the land has been undeveloped since prior the 1950's. Minor grading may have been performed along the property lines associated with the channelization of Whitewater River and the roadway construction.

The site is bounded by Airport Road to the south, State Route 86 to the east, undeveloped land to the north, and the storm water channel to the west.

The site is relatively flat sloping very gently to the south. In general, the north side of the site is approximately 8 feet higher than the southern side over a distance of approximately 3,000 feet. Existing ground surface elevations ranged from about -112 to -120 feet MSL based on a topographic map. The Civil Engineer is using a project datum that is 500 feet greater than actual MSL elevations to avoid negative elevations. The elevations on our exploration logs reflect the project datum.

Along the property limits, there are minor slopes adjacent to the site. State Route 86 is, in general, a few feet higher than the site with a minor descending slope. Directly adjacent to the western side of the site, an unpaved maintenance road is located at the top of the storm channel on a berm, which is approximately 2 to 3 feet higher than the project site at the southern end of the site and approximately 8 to 10 feet higher than the project site at the northern end of the site. The berm appears to have been constructed as a levee for the storm water channel. The bottom of the storm channel appears to be on the order of 6 to 8 feet lower than project site.

3.2 SUBSURFACE SOILS

Our field investigation disclosed a subsurface profile consisting of native soils. Detailed descriptions of the conditions encountered are shown on the Logs of CPT's and Borings in Appendices A and B, respectively.

Though significant fill soils were not encountered, some fills are expected at the top of the slope immediately adjacent to the storm water channel.

The natural soils consist of interbedded layers of sands, silts, and clays and their mixtures. The consistencies of the sandy soils ranged typically from loose to medium dense in the upper 30 feet and medium dense to dense at greater depths. The sandy soils in the upper 30 feet exhibit moderate strength and moderate to low compressibility characteristics. Very dense sand layers were encountered at depths greater than approximately 55 to 60 feet.

The fine grained soils (silts and clays) are generally firm to stiff with some very stiff to hard layers in the upper 20 feet. In general, the fine-grained soils within the upper 20 to

30 feet varied from firm to stiff and moderately compressible. The underlying fine-grained soils become predominantly stiffer with depth, exhibiting moderate strength and moderate to low compressibility characteristics.

Clay soils were not observed in the near surface soils. The near surface soils can be anticipated to have very low expansion characteristics.

3.3 GROUNDWATER AND CAVING

In the borings, groundwater was measured at depths of 14 to 20 feet immediately after drilling. Due to the method of drilling, accurate depths to groundwater and the potential for caving were very difficult to determine. Groundwater may rise from the deeper measured levels if allow to stabilize with time. Based on the moisture content of the soil samples, we anticipate a stabilized groundwater level at a depth of 10 to 15 feet below existing grade. The historical high groundwater has not been determined in the area by the State of California. We recommend a design groundwater depth of 10 feet for the project

The sandy soils are expected to cave in dry loose soils in the upper 10 feet of the soil profile and severely cave below the groundwater.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 GENERAL

Based on the results of our investigation, it is our opinion that from a geotechnical engineering viewpoint it is feasible to develop the site as proposed. The most significant geotechnical issues that will affect the design and construction of the proposed structures are as follows:

- The site is located in an area mapped by the City of Coachella as having a potential for soil liquefaction. Some of the sandy soils underlying the site at depths from 10 to 55 feet below existing grade exhibit a potential for liquefaction in the event of a design earthquake. We estimate that the maximum settlements at the site in the event of a design earthquake would range from approximately 2½ to 3 inches. See Section 4.2 for methods to mitigate settlement.

- To help limit total and differential settlements of the proposed buildings to the magnitudes described above either mat foundations, pile foundations and pile supported structural floor slabs, or ground improvement will be required. If ground improvement is performed to limit settlements to an acceptable magnitude, the buildings can be supported on conventional spread footings.

- Prior to construction of the building foundations (conventional or mat), disturbed soils and a portion of dry, compressible soils should be removed and replaced as properly compacted fill. Deeper removals will be required if conventional footings tied together with grade beams are used for buildings. The depth of removals and details regarding grading are provided in the “Earthwork” section of this report.

- Removals are also recommended in the pavement for drives and parking and under minor structures, in order to provide a consistent, moist layer of soils for uniform support. The depth of removals and details regarding grading are provided in “Earthwork” section of this report.

- The near surface soils exhibit soluble sulfate contents that are detrimental to concrete. The foundation concrete should conform to the requirements for severe sulfate exposure as outlined in ACI 318, Section 4.3.

- The on-site soils should be considered severely corrosive to buried metals. If buried metal elements are required, a corrosion engineer should be consulted.

Our recommendations related to the geotechnical aspects of the development of the site are presented in the subsequent sections of this report.

4.2 MITIGATION OF SETTLEMENT

The maximum allowable total and differential settlements for shallow foundations and slabs on grade, from all sources, is typically on the order of 1½ inches and ¾-inch, respectively in Southern California. For mat foundations, the maximum allowable total and differential settlements, from all sources, is typically on the order of 4 inches and 2 inches, respectively. Sources include static (gravity) and seismic causes.

The site soil profile includes compressible and potentially liquefiable soils in the upper 55 feet. The potential building settlement under both static and earthquake loads could be mitigated by specially designed spread footings, mat foundations, pile foundations, or in-place ground modification methods (ground improvement) supporting conventional shallow foundations.

Structural mitigation measures for the impacts of the seismic settlements of shallow foundations could be implemented by the Structural Engineer. The risk associated with not mitigating seismic settlement by the methods in the above paragraph should be fully understood. With proper structural mitigation measures, the risk would include the building not being fully functional after a design seismic event causing the predicted seismic settlement. The floor slab and footings of the building may need to be re-leveled by compaction grouting or underpinning following a seismic event. The utility connections may also need to be repaired. The structural mitigation must be designed such that the structure would not collapse during a design seismic event causing a life and safety issue. On past, similar projects the footings were tied together with grade beams to help mitigate the impacts of seismic settlement and supported on a relatively thick layer of properly compacted soil. The details of the structural mitigation should be determined by the Project Structural Engineer.

Other potential structural mitigation methods are also provided in “Foundation Type” section of this report.

Pile foundations should be designed to resist both static loads and downdrag loads caused from seismic settlement by embedding the pile to sufficient depths below the liquefiable soil layers.

We reviewed typical methods used in Southern California such as vibro-replacement (stone columns), deep soil mixing (soil-cement columns), and rammed aggregate piers.

Vibro-replacement utilizes a large vibrating probe (mandrel) to create a cavity which is filled with gravel or crushed stone, and compacted as the mandrel is removed. The result is a stone column with the stone pushed laterally into the soil. Based on past discussions with a geotechnical specialty contractor, stone columns would not be effective to reduce the total settlements (static and seismic) due high silt or clay content of liquefiable soils, and relatively thin layers of liquefiable soils at the site. Stone columns are effective for densifying thicker, clean, loose sand layers, which are not prevalent at the site.

Rammed aggregate piers consist of drilled holes that are filled with aggregate base that is mechanically compacted as it is placed and were considered. Rammed aggregate piers are not effective in densifying surrounding soils and typically do not extend to the depth of soils exhibiting a potential for liquefaction.

Deep soil mixing involves the creation of soil/cement mixed columns extending through the soft compressible soil deposits and portion of the liquefiable soils. The resultant is similar to that of stone columns in that the method results in lower compressibility and increased shear strengths of soils below slabs and foundations. Deep soil mixing can reduce both anticipated static and seismic settlement in both the siltier sands and the significant layers of cohesive soils at the site. The soil mixing would have to reduce the static and seismic settlements to a magnitude acceptable to the Structural Engineer (typically 1½ inches or less) in order to utilize conventional spread foundations.

The proposed structures can be supported on deep foundations. Because of the anticipated seismic settlement, a pile supported structural slab would also be needed, if the previously described settlements are not tolerable and risk of floor slab damage is not acceptable. In order to limit settlement to an acceptable value, pile foundations would need to resist the downdrag of soils from liquefaction occurring above a depth of 45 feet. The total length of the piles to support this downdrag load as well as the building loads would likely be on the order of 65 to 75 feet. For the single story buildings proposed at the site, pile foundations are not likely to be economically feasible. If pile foundations were to be selected for the project, it is our opinion that the most feasible type of deep foundation would be an Augercast Pile. This type of foundation consists of a pressure-grouted pile constructed in a hollow-stem auger. The pile is especially suited for construction below groundwater. If desired, supplemental recommendations can be provided.

If mat foundations or shallow foundations with structural mitigation are not acceptable for any of the buildings, an evaluation should be made if pile foundations or deep soil mixing are economically feasible for the single story buildings planned for the site. Our report can be provided to specialty design-build contractors experienced in deep soil mixing and/or augercast piles to determine which of these methods appear to be the most cost effective to sufficiently reduce settlement of the buildings.

4.3 SEISMIC CONSIDERATIONS

4.3.1 General

The site is located in a seismically active area and is likely to be subjected to strong ground shaking due to earthquakes on nearby faults.

We assume the seismic design of the proposed development will be in accordance with the California Building Code, 2016 edition. For the 2016 CBC, a Soil Class D may be used. The seismic code values can be obtained directly from the tables in the building code using the above values and appropriate United States Geological Survey web site (earthquake.usgs.gov). The Project Structural Engineer should determine the seismic design method.

4.3.2 Strong Ground Motion Potential

Based on published information (earthquake.usgs.gov), the most significant fault in the proximity of the site is the San Andreas Fault, which is located about 2½ miles from the site.

During the life of the project, the site will likely be subject to strong ground motions due to earthquakes on nearby faults. Based on the USGS website (earthquake.usgs.gov), we computed that the site could be subjected to a peak ground acceleration (PGA_M) of 0.80g for a magnitude 6.9 earthquake. This acceleration has been computed using the mapped Maximum Considered Geometric Mean peak ground acceleration from ASCE 7-10 (ASCE, 2010) and a site coefficient (F_{PGA}) based on site class. The predominant earthquake magnitude was determined using a 2-percent probability of exceedance in a 50-year period, or an average return period of 2,475 years. The structural design will need to incorporate measures to mitigate the effects of strong ground motion.

4.3.3 Potential for Ground Rupture

There are no known active faults crossing or projecting through the site. The site is not located in an Alquist-Priolo Earthquake Fault Zone. Therefore, ground rupture due to faulting is considered unlikely at this site.

4.3.4 Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils undergo a temporary loss of strength during severe ground shaking and acquire a degree of mobility sufficient to permit ground deformation. In extreme cases, the soil particles can become suspended in groundwater, resulting in the soil deposit becoming mobile and fluid-like. Liquefaction is generally considered to occur primarily in loose to medium dense deposits of saturated sandy soils. Thus, three conditions are required for liquefaction to occur: (1) a sandy soil of loose to medium density; (2) saturated conditions; and (3) rapid, large strain, cyclic loading, normally provided by earthquake motions.

The site is located within an area mapped by the City of Coachella as having a potential for soil liquefaction (City of Coachella, 2014). The State of California has not determined a historical high groundwater depth in the project area. Groundwater was encountered at depths of 14 to 20 feet below existing grades immediately after drilling in our recent explorations.

Revisions to the 2016 California Building Code, ASCE 7-10, and Special Publication 117A (CGS, 2008) require that the ground motion used for this evaluation be based on the Peak Ground Acceleration (PGA_M) adjusted for site class effects. This value is computed using the mapped Maximum Considered Geometric Mean (MCE_G) peak ground acceleration for a Site Class B and a site coefficient, F_{PGA}. In accordance with the 2016 CBC, we considered a ground acceleration of 0.80g for a magnitude 6.9 earthquake for our analyses, which corresponds to the PGA_M obtained using the methods described above.

The potential for liquefaction was evaluated using the methods presented by the NCEER and updated by Robertson (Robertson, 2009) and modifications provided in Special Publication 117A. Criterion for liquefaction susceptibility of the fine-grained soils was based on methods presented in Bray and Sancio (2006). We used a groundwater depth of 10 feet for our evaluations.

The soils encountered in our CPT's below the groundwater level are predominantly layers of medium dense to dense silty sands interbedded with layers of firm to very stiff layers of silts and clays. At depths of approximately 35 to 45 feet, the layers of silty sands generally become dense to very dense and silts and clays become very stiff to hard.

In general, the clays below foundation and groundwater level are resistant to liquefaction based on criteria in Bray and Sancio (2006). This conclusion is based upon the plasticity indices of soils below design water level being greater than 12. A portion of the clays have plasticity indices between 12 and 18, which are more resistant to liquefaction but susceptible to cyclic mobility.

Based on our evaluation of the field data, generally isolated and thin layers of silty sands occurring at depths of approximately 10 to 55 feet exhibit a potential for liquefaction. Based on our analyses, we computed an overall potential seismic-induced liquefaction settlement of 2½ to 3 inches. Differential seismic settlement is estimated to be 1¼- to 2-inches across a span of 40 feet.

4.3.5 Lateral Spreading

A potential result of soil liquefaction at the site is lateral spreading. Lateral spreading is defined as the horizontal movement of soils resulting from the loss of shear strength during liquefaction combined with either a sloping ground surface or a nearby free face condition. Conditions contributing to the potential for lateral spreading include the extent and severity of liquefaction, grain size of liquefiable materials, distance to the causative fault, and extent of surficial grade changes.

The unlined storm water channel on the east side of the site is an open face excavation (free face condition) with an estimated depth on the order of approximately 6 to 8 feet. The slope to the storm water channel is approximately 100 to 150 feet from the western property line at the site. The project site is essentially flat with a very minor ground slope of about 0.3 percent towards the southeast paralleling the storm water channel.

These conditions along with the liquefaction potential of underlying soils are consistent with areas that may be subject to lateral spreading.

We evaluated the potential for lateral spreading towards the open face excavation of the storm water channel. A lateral displacement was determined using the calculated Lateral Displacement Index (LDI) as described by Zhang et. al. (2004) for the site geometry. The analyses evaluate the topographic and subsurface information to determine the potential lateral displacement induced by the movement of the site towards the free face caused by severe liquefaction of a continuous layer beneath the site.

The LDI was calculated for soil layers having the potential for liquefaction utilizing the CPT data for the site, we calculated LDI for the CPT's within the western boundary of the project site. Utilizing this geometry and the analytical method described above, we determined the potential total lateral-spreading induced displacement from approximately 3 to 12 inches could occur at the western portion of the site.

As the discussed above, lateral spreading requires continuous liquefiable layers across the site in a westerly direction to the drainage channel. We reviewed 9 cross sections of CPT data toward the channel. Evidence of distinct and consistent liquefiable layers across the site toward the channel could only be identified in a few of the cross sections. Based on this data, lateral spreading has a moderate potential to adversely impact the site in limited areas of the site with displacements on the order discussed above.

Other empirical methods (Youd,1997) indicate that for lateral spreading to occur, the layers subject to liquefaction should be continuous across the site and have an overburden-normalized standard penetration test blowcount (sandy soils) of less than 15. Our data did not indicate continuous layers across the site with these blowcounts.

If mat foundations or footings tied together with grades beams are used to support the buildings, minor amounts of lateral spreading as discussed above is not expected to adversely impact the building from a life and safety standpoint. Some minor displacement of the buildings, utility connections, and parking lot along the west side of the site due to lateral spreading in the event of a design earthquake may occur but repairing the structures, pavements and other site improvements would likely be more cost-effective than ground improvement methods. Ground improvement required to resist the potential impacts of lateral spreading would likely consist of a deep barrier wall with multiple rows of soil-cement columns along the entire western boundary of the property.

4.4 EARTHWORK

The earthwork anticipated at the project site will consist of clearing, overexcavation of disturbed and natural soils, subgrade preparation, and placement and compaction of fill.

4.4.1 Clearing

Prior to grading, the areas to be developed should be stripped of vegetation, pavements, foundations, and cleared of all debris. Buried obstructions, such as utilities and tree roots, should be removed. Although none were encountered, any cesspools or septic systems exposed during construction should be removed in their entirety. The resulting excavation should be backfilled as recommended in the "Subgrade Preparation" and "Placement and Compaction of Fill" sections of this report. As an alternative, cesspools can be backfilled with a lean sand-cement slurry. Deleterious materials generated during the clearing operations should be removed from the site. At the conclusion of the clearing operations, a representative of GPI should observe and accept the site prior to any further grading.

4.4.2 Excavations

Excavations at the site will include removal of unsuitable soils, foundation excavations and trenching for utility lines.

Prior to placement of fills or construction of the buildings, existing disturbed soils and a portion of the dry, compressible natural soils within the building areas should be removed and replaced as properly compacted fill. These materials require densification to provide uniform and adequate support of foundations, slab-on-grade floors, and pavements.

For planning purposes, we recommend that removals within footprints of buildings supported on spread footings extend to 7 feet below existing grades or 5 feet below footings, whichever is deeper. We recommend that removals within the footprints of buildings supported on mat foundations extend to 4 feet below existing grades or 2 feet below foundations, whichever is deeper. The purpose of these removals is to remove and recompact the dry, low-density natural soils near the ground surface and disturbed soils, if encountered. If undocumented fills are encountered within the building footprints, we also recommend removal and replacement as properly compacted fill.

In proposed pavement areas, removals should extend to 2-feet below existing grades. Existing grade refers to elevations at locations of explorations.

The actual depths of removal will need to be confirmed in the field during grading by a representative of GPI.

The depth of removals may be reduced by 2-feet if the exposed subgrade soils in the building and parking areas are moisture conditioned and densified in-place using heavy vibratory equipment as discussed in “Subgrade Preparation”. The contractor will need to demonstrate that the recommended compaction has been achieved by provided test pits for access for density testing.

The removals should extend laterally beyond the edge of footing a minimum distance equal to the depth of overexcavation/compaction below finish grade (i.e. a 1:1 projection below the edge of footings).

Where not removed by the aforementioned excavations, existing utility trench backfill should be removed and replaced as properly compacted fill. This is especially important for deeper fills such as existing sewers and storm drains. For planning purposes, removals over the utilities should extend to within 1-foot of the top of the pipe. For utilities, which are 5 feet or shallower, the removal should extend laterally 1-foot beyond both sides of the pipe. For deeper utilities, the removals should include a zone defined by a 1:1 projection upward (and away from the pipe) from each side of the pipe. The actual limits of removal will be confirmed in the field. We recommend that all known utilities be shown on the grading plan.

Temporary construction excavations may be made vertically without shoring to a depth of 4 feet below adjacent grade. For deeper cuts up to 10 feet, the slopes should be properly shored or sloped back to at least 1:1 or flatter. Caving should be anticipated in excavations attempted in dry sands or below the groundwater level. As such, dewatering, shoring, excavation, and backfill methods should be developed by the contractor for structures or utilities that are anticipated to extend below the groundwater. Surcharge loads should not be permitted within a horizontal distance equal to the height of cut from the top of the excavation or 5 feet from the top of the slopes, whichever is greater, unless the cut is properly shored. Excavations that extend below an imaginary plane, inclined at 45 degrees below the edge of any adjacent existing site facilities, should be properly shored to maintain support of adjacent elements. All excavations and shoring systems should meet the minimum requirements given in the most current State of California Occupational Safety and Health Standards.

4.4.3 Subgrade Preparation

After the recommended cuts and removals are performed and prior to placing fills or construction of the proposed improvements, the subgrade soils should be scarified to a depth of 12 inches, moisture conditioned, and compacted to at least 95 percent (90 percent cohesive soils) of the maximum dry density, determined in accordance with ASTM D1557. Moistening of the dry sandy soils anticipated at the site can usually be accomplished by deep ripping and liberal watering (including “rainbirds” or flooding) prior to compaction.

If the removals are reduced by 2-feet, as provided as an option in “Excavations” section of this report, the exposed subgrade soils in building and parking areas should be moisture-conditioned and proofrolled a minimum of six passes with a heavy vibratory pad-foot-roller (minimum 40,000 pounds dynamic force) until the soils have been compacted to at least 95 percent (90 percent cohesive soils) of maximum dry density. Proofrolling should continue until the required compaction has been achieved to a depth of at least 2 feet below the exposed subgrade, as measured by in-place density testing.

The fill soils within the upper 12 inches below building floor slabs and the pavement base should be compacted to dry densities equal to at least 95 percent (90 percent cohesive soils) of maximum dry density (ASTM D-1557).

4.4.4 Material for Fill

The surficial on-site soils are, in general, suitable for use as compacted fill. On-site clays, if encountered, should not be used where non-expansive fill is specified or recommended. Imported fill material should be predominately granular (containing no more than 40 percent fines - portion passing No. 200 sieve) and non-expansive (Expansion Index of 20 or less). The import should also exhibit a minimum R-value of 40, consistent with the existing near surface soils. GPI should be provided with a sample (at least 50 pounds) and notified of the location of soils proposed for import at least 72 hours in advance of importing. Each proposed import source should be sampled, tested and accepted for use prior to delivery of the soils to the site. Soils imported prior to acceptance by GPI may be rejected if not suitable.

Soils used for compacted fills should not contain particles greater than 6 inches in size.

While not anticipated at the site, on-site inert demolition debris, such as concrete and asphalt, may be reused in the compacted fills provided approval is provided by the reviewing regulatory agency and the owner. The material should be crushed to the consistency of aggregate base and blended with the on-site or imported soils.

4.4.5 Placement and Compaction of Fills

Fill soils should be placed in horizontal lifts, moisture-conditioned, and mechanically compacted to at least 95 percent (90 percent cohesive) for of the maximum dry density in building and pavement areas, in accordance with ASTM D-1557. In pavement areas, including the parking structure pavements on grade, the upper 12 inches should be compacted to 95 percent (90 percent for cohesive soils). The optimum lift thickness will depend on the compaction equipment used and can best be determined in the field. The following uncompacted lift thickness can be used as preliminary guidelines.

Plate Compactors	4-6 inches
Track Equipment, Small Vibratory or Static Rollers (5-ton±)	6-8 inches
Scrapers and Heavy Loaders	8-12 inches

The maximum lift thickness should not be greater than 12 inches.

Fills consisting of the on-site clays and silts should be placed at a moisture content of 1 to 3 percent over the optimum moisture content in order to achieve the required compaction. Granular fills should be placed at a moisture content of 0 to 2 percent over the optimum moisture content. The moisture content of the soils encountered in the upper 5 to 10 feet of the explorations was generally well below the optimum moisture content. As such, significant moisture conditioning (wetting) may be required prior to replacing the soils as properly compacted fill. The contractors should allow for moistening of these materials in their bids.

Once moisture conditioned and properly compacted, the exposed soils should not be allowed to dry out prior to covering. A representative of GPI should confirm the moisture content of the subgrade soils immediately prior to placement of concrete or additional fill.

During backfill of excavations, the fill should be properly benched into the construction slopes as it is placed in lifts.

4.4.6 Shrinkage and Subsidence

Shrinkage is the loss of soil volume caused by compaction of fills to a higher density than before grading. Subsidence is the settlement of in-place subgrade soils caused by loads generated by large earthmoving equipment. For earthwork volume estimating purposes, an average shrinkage value of about 15 to 20 percent and subsidence of 0.1 to 0.2 feet may be assumed for the surficial soils. These values are estimates only and exclude losses due to removal of vegetation or debris. Actual shrinkage and subsidence will depend on the types of earthmoving equipment used and should be determined during grading.

4.4.7 Trench/Wall Backfill

Utility trench and wall backfill consisting of the on-site material or imported sand should be mechanically compacted in lifts. Letting or flooding should not be permitted. The on-site silts (or clays if encountered) should not be used in retaining wall backfill. Moistening of the on-site soils should be anticipated prior to backfill. Lift thickness should not exceed those values given in the "Compacted Fill" section of this report. GPI should observe and test trench and wall backfills as they are placed.

In backfill areas where mechanical compaction of soil backfill is impractical due to space constraints, sand-cement slurry may be substituted for compacted backfill. The slurry should contain one sack of cement per cubic yard and have a maximum slump of 5 inches. Within the building area, the slurry should contain two sacks of cement per cubic yard. When set, such a mix typically has the consistency of compacted soil.

4.4.8 Observation and Testing

A representative of GPI should observe excavations, subgrade preparation, and fill placement activities. Sufficient in-place field density tests should be performed during fill placement and in-place compaction to evaluate the overall compaction of the soils. Soils that do not meet minimum compaction requirements should be reworked and tested prior to placement of any additional fill.

4.5 SHALLOW FOUNDATIONS

4.5.1 General

On similar projects, proposed buildings have been supported on spread footings tied together laterally with grade beams provided the static and seismic settlements as designed by the Project Structural Engineer.

In order to help mitigate the seismic settlements (total and differential) at the site after remedial grading, the Structural Engineer should also consider additional structural mitigation beyond connecting the footings with grade beams. The actual method of structural mitigation should be determined by the Project Structural Engineer.

As discussed in Section 4.2 “Mitigation of Settlement” of the report, mat foundations, pile foundations, or ground improvement may also be used to mitigate the potential liquefaction settlements. Recommendations for a mat foundation are provided in Section 4.5 of this report. GPI can provide recommendations for the other mitigation methods, if the static and seismic settlements (total and differential) are beyond the structural mitigation methods provided above and mat foundations are not feasible for the building type.

The subsurface soils should be prepared in accordance with the recommendations given in this report.

4.5.2 Allowable Bearing Pressures – Spread Footings

Based on the shear strength and elastic settlement characteristics of the natural and recompacted on-site soils, static allowable net bearing pressures of up to 3,000 pounds per square foot (psf) may be used for both continuous footings and isolated column footings for the proposed building addition or other lightly-loaded structures. These bearing pressures are for dead-load-plus-live-load, any may be increased one-third for short-term, transient, wind and seismic loading. The actual bearing pressure used may be less than the value presented above and can be based on economics and structural loads to determine the minimum width for footings as discussed below. The maximum edge pressures induced by eccentric loading or overturning moments should not be allowed to exceed these recommended values.

The following minimum footing widths and embedments are recommended for the corresponding allowable bearing pressure.

STATIC BEARING PRESSURE (psf)	**MINIMUM FOOTING WIDTH (inches)**	**MINIMUM FOOTING* EMBEDMENT (inches)**
3,000	48	24
2,500	24	24
2,000	18	18
1,500	15	15

* Refers to minimum depth below lowest adjacent grade at the time of foundation construction.

A minimum footing width of 15 inches should be used even if the actual bearing pressure is less than 1,500 psf.

Total static settlement of the column footings (100 kips maximum load) is expected to be on the order of 1-inch or less. Total static settlement of the wall footings (2 to 4 kips per lineal foot maximum load) is expected to be on the order of ¾-inch or less. Maximum differential settlements between similarly loaded adjacent footings or along a 40-foot span are expected to be on the order of ½-inch or less. Similar settlements are anticipated for lightly loaded structures supported on 2 feet of properly compacted fill.

The above settlements should be included with the anticipated seismic settlement caused by liquefaction when evaluating the total settlement of the building or other lightly loaded structures.

The above estimates are based on the assumption that the recommended earthwork will be performed and that the footings will be sized in accordance with our recommendations.

4.5.3 Lateral Load Resistance

Soil resistance to lateral loads will be provided by a combination of frictional resistance between the bottom of foundations and underlying soils, and by passive soil pressures acting against the embedded sides of the foundations. For frictional resistance, a coefficient of friction of 0.35 may be used for design. In addition, an allowable lateral bearing pressure equal to an equivalent fluid weight of 300 pounds per cubic foot may be used, provided the foundations are poured tight against the compacted fill. These values may be used in combination without reduction.

4.5.4 Footing Excavation Observation

Prior to placement of concrete and steel, a representative of GPI should observe and approve all footing and grade beam excavations.

4.6 MAT FOUNDATIONS

The sizes and foundation pressures for mat foundations may vary significantly for the different buildings planned for the project. We evaluated mat foundations for a warehouse building with a footprint of 160 feet by 400 feet and for an office building with a footprint of 300 feet by 75 feet. We assumed that the mat pressure for the warehouse building may be on the order of 300 psf and 150 psf for the office building. Other building sizes and mat pressure can be evaluated as the project develops.

The bearing pressure near the center of a mat (approximately 400 feet length and 160 feet width in dimension) is assumed to be on the order of 300 psf for the warehouse building. We estimate the ground surface under the center portions of the loaded area having the above dimensions and the aforementioned applied pressure will settle approximately ¾-inch. The outside edge of this area under the same loading conditions is expected to settle approximately 3/8-inch. The outside corner of this area under the same loading conditions is expected to settle less than ¼-inch.

The bearing pressure near the center of a mat (approximately 300 feet length and 75 feet width in dimension) is assumed to be on the order of 150 psf for the office building. We estimate the ground surface under the center portions of the loaded area having the above dimensions and the aforementioned applied pressure will settle approximately ½-inch. The outside edge of this area under the same loading conditions is expected to settle approximately ¼-inch. The outside corner of this area under the same loading conditions is expected to settle less than ¼-inch.

The static settlements assume a uniformly applied pressure and do not include the effects (stiffness) of the mat. The actual settlement of the mat will depend on the stiffness of the mat, its ability to distribute the loads and should be determined by the Structural Engineer.

The above settlements should be included with the anticipated seismic settlement caused by liquefaction when evaluating the total settlement of the building.

For the structural analysis of the mat foundation, we recommend using an uncorrected modulus of subgrade reaction of 180 pci. This value is based on a 1-foot square bearing area and medium dense sands and stiff clays. We recommend this modulus be reduced by 75 percent to a value of 45 pci to account for the size of the mat foundation.

The allowable soil bearing pressure will be significantly greater than the average bearing pressures required for the mat foundation as discussed above. At localized thickened areas of the mat, such as columns and point of load applications, a static allowable net bearing pressure of 2,000 pounds per square foot may be used subject to the dimensions provided for spread footings. These allowable bearing pressures are for dead-plus-live loads, and may be increased one-third for short-term, transient, wind and seismic loading.

We should review the final mat design to confirm the estimated values.

4.7 FOUNDATION CONCRETE

Laboratory testing by HDR (Appendix C) indicates that the near surface soils exhibit a soluble sulfate content of 137 to 4,080 mg/kg (0.01 to 0.44 percent by weight). For the 2016 CBC, foundation concrete should conform to the requirements for severe sulfate exposure as outlined in ACI 318, Section 4.3.

4.8 BUILDING FLOOR SLABS

Slab-on-grade floors should be supported on non-expansive, granular compacted soils (Expansion Index less than 20) as discussed in the “Placement and Compaction of Fill” section. On-site clayey soils, if encountered, should not be placed within 2 feet of the finished grade in building floor slab area.

Settlement of the slab-on-grade floors should be anticipated in the event of liquefaction from a seismic event. Distress to the floor slabs may need to be repaired and/or the floor slabs may need to be releveled.

A vapor/moisture retarder should be placed under slabs that are to be covered with moisture-sensitive floor coverings (wood, vinyl, tile, etc.). Currently, common practice is to use a 10 or 15 mil polyethylene product or a 15-mil polyolefin product such as Stego Wrap for this purpose. Whether the concrete slab is placed directly on the vapor barrier or on a clean sand layer between the slab and vapor retarder is a decision for the Project Architect and General Contractor, as it is not a geotechnical issue. If covered by sand, the sand layer should be about 2 inches thick and contain less than 5 percent by weight passing the No. 200 sieve. Based on our explorations and laboratory testing, the near-surface soils at the site are not suitable for this purpose. The sand layer should be nominally compacted using light equipment. The sand placed over the vapor retarder should only be slightly moist. If the sand gets wet (for example as a result of rainfall or excessive moistening) it must be allowed to dry prior to placing concrete. Care should be taken to avoid infiltration of water into the sand layer after placement of the concrete slab, such as at slab cut-outs and other exposures. A sand layer is not required beneath the vapor retarder, but we take no exception if one is provided.

It should be noted that the material used as a vapor retarder is only one of several factors affecting the prevention of moisture accumulation under floor coverings. Other factors include maintaining a low water-cement ratio for the concrete used for the floor slab, effective sealing of joints and edges (particularly at pipe penetrations) as well as excess moisture in the concrete. The manufacturer of the floor coverings should be consulted for establishing acceptable criteria for the condition of the floor surface prior to placing moisture-sensitive floor coverings.

For lateral resistance design, a coefficient of friction value of 0.35 between aggregate base or select fill and concrete may be used. For a slab on a visqueen moisture barrier, a coefficient of 0.1 should be used. For a concrete slab on Stego Wrap, a coefficient of 0.3 may be used, which is consistent with recommendations provided by the American Concrete Institute (ACI).

For elastic design of slabs-on-grade supporting sustained concentrated loads, a modulus of subgrade reaction (k) of 180 pounds per cubic inch (pounds per square inch per inch of deflection) may be used. This value is for a 1-foot by 1-foot square loaded area and should be adjusted by the structural designer for the area of the proposed building slab using appropriate elastic theory.

Although not tested, the upper silty sands and sandy silts are anticipated to have a low potential for expansion. As such, there are no geotechnical requirements for minimum floor slab thickness or reinforcing.

4.9 LATERAL EARTH PRESSURES

Based on information available to us at the time this report was prepared, no major retaining walls or basements were planned on the site. The following recommendations are provided for walls less than 8 feet in height. We recommend that non-expansive, granular soils be used as wall backfill.

Active earth pressures can be used for designing walls that can yield at least ½-inch laterally in 10 feet of wall height under the imposed loads. For level backfill comprised of on-site granular soils, the magnitude of active pressures are equivalent to the pressures imposed by a fluid weighing 35 pounds per cubic foot (pcf). This pressure may also be used for the design of temporary excavation support.

At-rest pressures should be used for restrained walls that remain rigid enough to be essentially non-yielding. At-rest pressures imposed by a fluid weighing 52 pounds per cubic foot should be used for granular backfill.

If the design of retaining walls requires seismic earth pressures to be included, a lateral pressure equivalent to a fluid with a unit weight of 25 pcf may be used. This pressure should be combined with the active earth pressure presented above for a total lateral earth pressure (active plus seismic) equal to a fluid weighing 60 pcf. If walls are designed using at-rest pressures, a total lateral earth pressure may be limited to 60 pcf.

Walls subject to surcharge loads should be designed for an additional uniform lateral pressure equal to one-third and one-half the anticipated surcharge pressure for unrestrained and restrained walls, respectively.

The wall backfill should be well-drained to relieve possible hydrostatic pressure or designed to withstand these pressures. A drain consisting of perforated pipe and gravel wrapped in filter fabric should be used. One cubic foot of rock should be used for each lineal foot of pipe. The fabric (non-woven filter fabric, Mirafi 140N or equivalent) should be lapped at the top.

Wall footings should be designed as discussed in the "Foundations" section.

4.10 CORROSIVITY

Resistivity testing of representative samples of the on-site surficial soils by HDR indicate that the soils are severely corrosive to ferrous metals (resistivity measurements of 160 to 1,040 ohm-cm). GPI does not practice corrosion engineering. Should the use of buried metal pipe be proposed, a corrosion engineer, such as HDR, should be consulted.

4.11 DRAINAGE

Positive surface gradients should be provided adjacent to all structures so as to direct surface water run-off and roof drainage away from foundations and slabs toward suitable discharge facilities. The introduction of water into the existing fill soils can result in subsidence. Long-term ponding of surface water should not be allowed on pavements or adjacent to buildings.

4.12 EXTERIOR CONCRETE AND MASONRY FLATWORK

Exterior concrete and masonry flatwork should be supported on non-expansive, compacted fill. The use of the clayey soils, if encountered, within 2 feet of the slab subgrade should not be permitted unless differential heave is tolerable. This includes exterior sidewalks, stamped concrete, non-traffic pavement, pavers, etc. Prior to placement of concrete, the subgrade should be prepared as recommended in the "Subgrade Preparation" section of this report.

4.13 STORM WATER INFILTRATION

Current regulations require that storm water be infiltrated in the site soils of new developments when possible. The soil types present at the site control the ability of water to infiltrate into the subgrade. Based on our subsurface investigation, groundwater was encountered within 14 feet of the existing ground surface at portions of the site and the upper 15 feet of the soil profile consists predominantly of loose to medium dense silty sands and firm to stiff sandy silts.

Our analysis indicate that the silty sands and sandy silts in the upper 15 feet of the soil profile exhibit a potential for settlement from liquefaction upon saturation. Storm water infiltration into the underlying soils may adversely impact the proposed buildings and improvements as well as the adjacent public roadways. We do not recommend storm water infiltration for the subject site unless the risk is acceptable for potential liquefaction settlement of soils underlying infiltration areas.

If on-site infiltration of storm water is used, we recommend that infiltration areas adjacent to the building and property lines should be avoided. We recommend any infiltration device be located at least 40 feet from the proposed building and property lines. Storm water infiltration should also not be allowed within 10 feet vertically from the current groundwater level which excludes most buried chamber systems.

If infiltration devices are proposed for the project, the rate of infiltration should be determined by on-site percolation tests at the location and depth of the proposed infiltration devise. Infiltration tests should be performed in accordance to Riverside County guidelines (Riverside, 2011).

4.14 PAVED AREAS

Preliminary pavement design has been based on an assumed R-value of 40. The California Division of Highways Design Method was used for design of the recommended preliminary pavement sections. Final pavement design should be based on R-value testing performed near the conclusion of rough grading. The following pavement sections are recommended for planning purposes only.

PAVEMENT SUBGRADE

PAVEMENT AREA	TRAFFIC INDEX	SECTION THICKNESS (inches)	
		Asphalt Concrete	**Aggregate Base Course**
Auto Parking	4	3	4
Circulation Drives	5	3	4
Truck Drives	6	3	7
		Portland Cement Concrete	**Aggregate Base Course**
Auto Parking	4	6	---
Circulation Drives	5	6	---
Truck Drives	6	6.5	---

The pavement subgrade underlying the aggregate base or concrete should be properly prepared and compacted in accordance with the recommendations outlined under "Subgrade Preparation".

The Portland cement concrete used for paving should have a modulus of rupture of at least 550 psi (equivalent to an approximate compressive strength of 3,700 psi) at the time the pavement is subjected to truck traffic.

The pavement base course (as well as the top 12 inches of the subgrade soils) should be compacted to at least 95 percent of the maximum dry density (ASTM D-1557). Aggregate base should conform to the requirements of Section 26 of the California Department of Transportation Standard Specifications for Class II aggregate base (three-quarter inch maximum) or Section 200-2 of the Standard Specifications for Public Works Construction (Green Book) for untreated base materials, excluding processed miscellaneous base.

The above recommendations are based on the assumption that the base course and compacted subgrade will be properly drained. The design of paved areas should incorporate measures to prevent moisture build-up within the base course which can otherwise lead to premature pavement failure. For example, curbing adjacent to landscaped areas should be deep enough to act as a barrier to infiltration of irrigation water into the adjacent base course.

4.15 GEOTECHNICAL OBSERVATION AND TESTING

We recommend that a representative of GPI observe earthwork during construction to confirm that the recommendations provided in our report are applicable during construction. The earthwork activities include grading, compaction of fills, subgrade preparation, pavement construction and foundation excavations. If conditions are different than expected, we should be afforded the opportunity to provide an alternate recommendation based on the actual conditions encountered.

5.0 LIMITATIONS

The report, exploration logs, and other materials resulting from GPI's efforts were prepared exclusively for use by Haagen Co., LLC and their consultants in designing the proposed development. The report is not intended to be suitable for reuse on extensions or modifications of the project or for use on any project other than the currently proposed development as it may not contain sufficient or appropriate information for such uses. If this report or portions of this report are provided to contractors or included in specifications, it should be understood that they are provided for information only.

Soil deposits may vary in type, strength, and many other important properties between points of exploration due to non-uniformity of the geologic formations or to man-made cut and fill operations. While we cannot evaluate the consistency of the properties of materials in areas not explored, the conclusions drawn in this report are based on the assumption that the data obtained in the field and laboratory are reasonably representative of field conditions and are conducive to interpolation and extrapolation.

Furthermore, our recommendations were developed with the assumption that a proper level of field observation and construction review will be provided during grading, excavation, and foundation construction by GPI. If field conditions during construction appear to be different than is indicated in this report, we should be notified immediately so that we may assess the impact of such conditions on our recommendations. If construction phase services are performed by others they must accept full responsibility for all geotechnical aspects of the project including this report.

Our investigation and evaluations were performed using generally accepted engineering approaches and principles available at this time and the degree of care and skill ordinarily exercised under similar circumstances by reputable Geotechnical Engineers practicing in this area. No other representation, either expressed or implied, is included or intended in our report.

Respectfully submitted,
Geotechnical Professionals Inc.

Donald A. Cords, G.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
DONALD A. CORDS
No. GE 2529
GEOTECHNICAL
STATE OF CALIFORNIA

James E. Harris, G.E.
Principal

SEP 25 2018

REGISTERED PROFESSIONAL ENGINEER
JAMES E. HARRIS, IV
No. GE 2100
GEOTECHNICAL
STATE OF CALIFORNIA

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BASE MAP REPRODUCED FROM GOOGLE MAPS © 2018

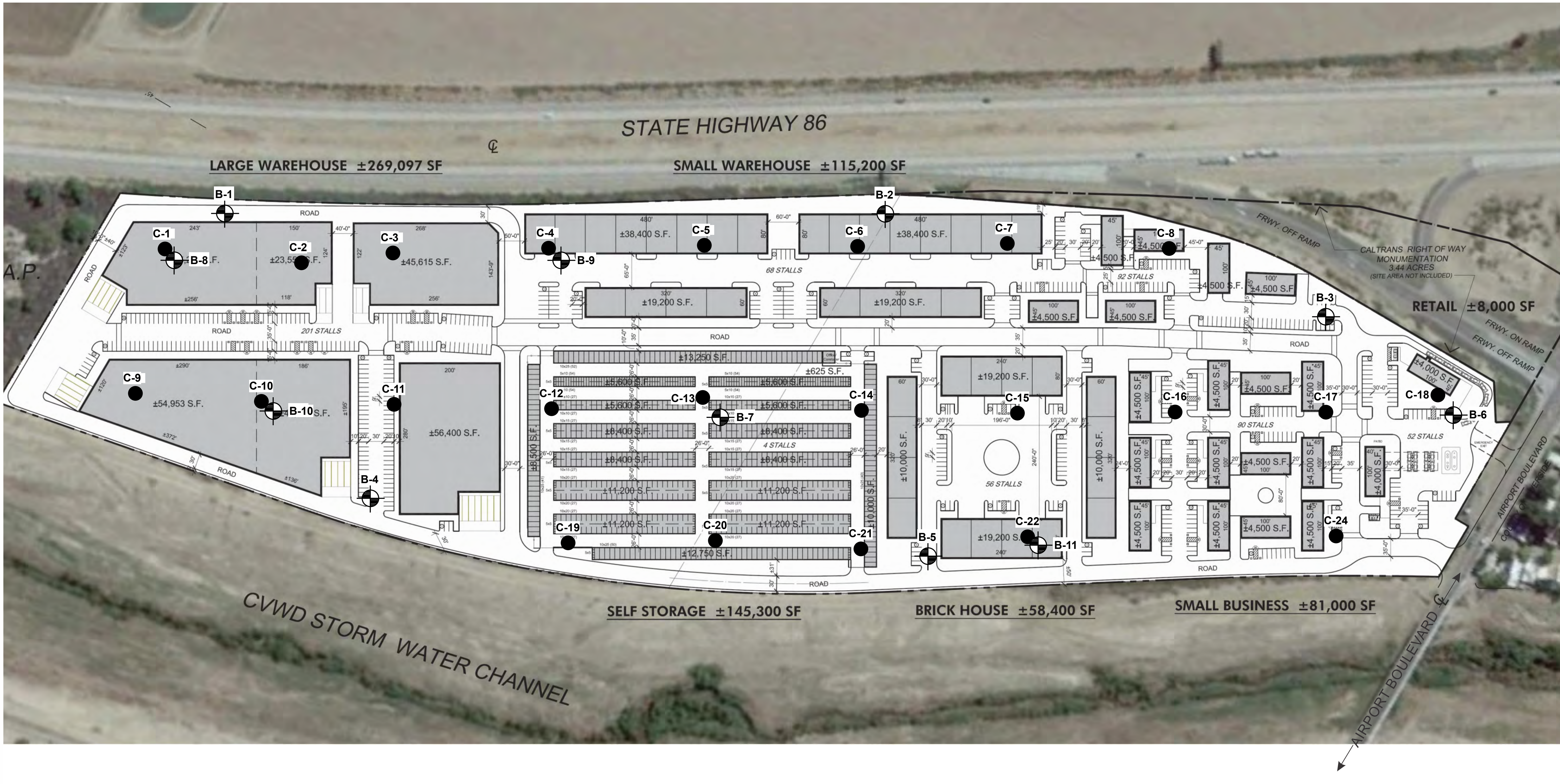
GEOTECHNICAL PROFESSIONALS, INC.

COACHELLA BUSINESS PARK

GPI PROJECT NO.: 2884.I	SCALE: 1" = 3000'

SITE LOCATION MAP

FIGURE 1



EXPLANATION

B-11 APPROXIMATE LOCATION AND NUMBER OF EXPLORATORY BORING

C-24 APPROXIMATE LOCATION AND NUMBER OF CONE PENETRATION TEST

BASE MAP REPRODUCED FROM PROPOSED SITE PLAN BY MCKENTLY MALAK ARCHITECTS DATED 5/1/18

GPI GEOTECHNICAL PROFESSIONALS, INC.

COACHELLA BUSINESS PARK

GPI PROJECT NO.: 2884.I

SCALE: 1" = 200'

SITE PLAN

FIGURE 2

APPENDIX A

APPENDIX A

CONE PENETRATION TESTS

Twenty-three Cone Penetration Tests (CPT's) were performed at the site. The soundings were advanced to depths of 50 to 80 feet below existing grades. One proposed CPT was not performed due to the location being inaccessible due to soft sands. The locations of the CPT's are shown on the Site Plan, Figure 2.

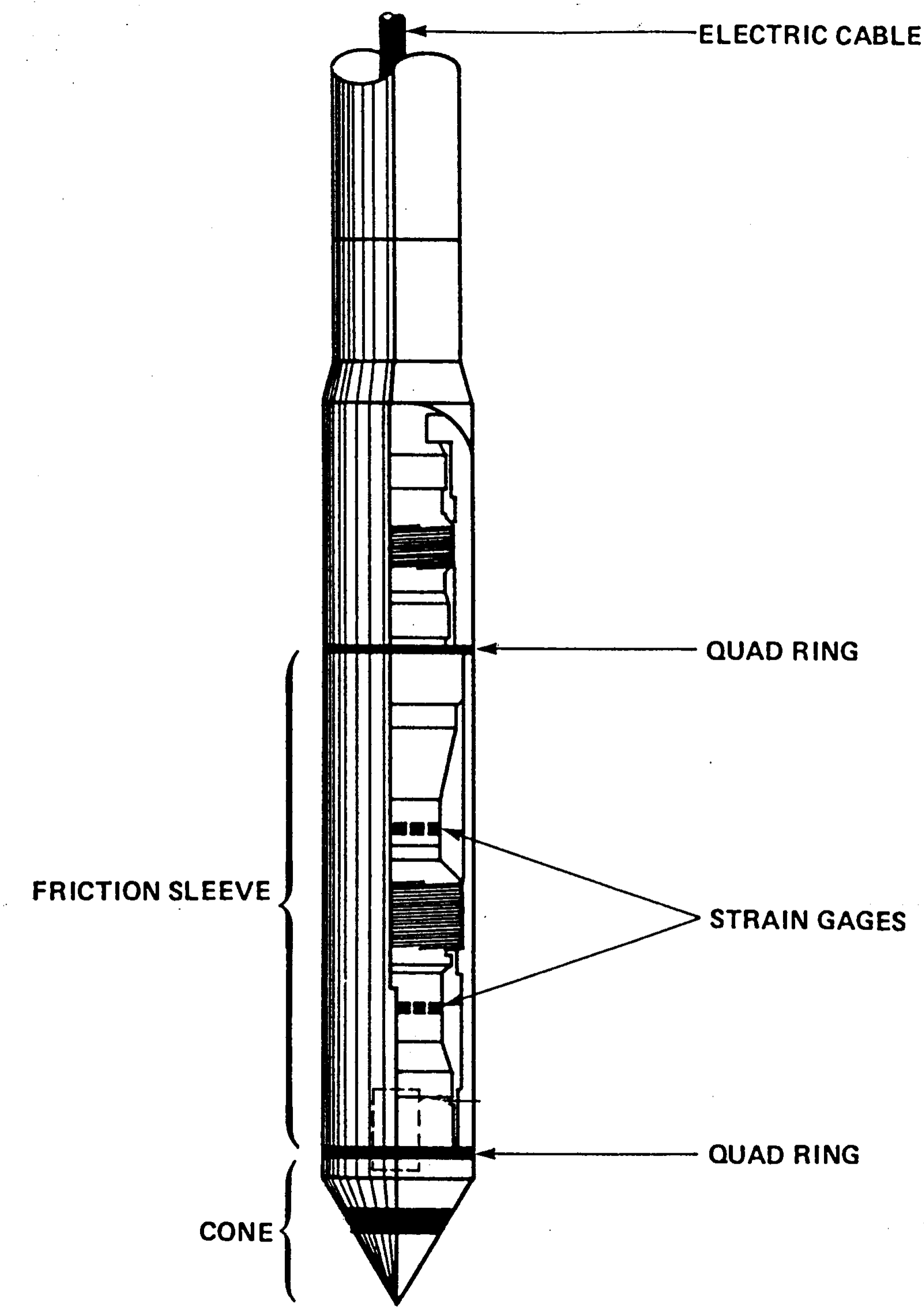
The Cone Penetration Test consists of pushing a cone-tipped probe into the soil deposit while simultaneously recording the cone tip resistance and side friction resistance of the soil to penetration (refer to Figure A-1). The CPT described in this report was conducted in general accordance with ASTM specifications (ASTM D 5778) using an electric cone penetrometer.

The CPT equipment consists of a cone assembly mounted at the end of a series of hollow sounding rods. A set of hydraulic rams is used to push the cone and rods into the soil while a continuous record of cone and friction resistance versus depth is obtained in both analog and digital form at the ground surface. A specially designed truck is used to transport and house the test equipment and to provide a 30-ton reaction to the thrust of the hydraulic rams.

Standard data obtained during a CPT consists of continuous stratigraphic information with close vertical resolution. Stratigraphic interpretation is based on relationships between cone tip resistance and friction resistance. The calculated friction ratio (CPT friction sleeve resistance divided by cone tip resistance) is used as an indicator of soil type. Granular soils typically have low friction ratios and high cone resistance, while cohesive or organic soils have high friction ratios and low cone resistance. These stratigraphic material categories form the basis for all subsequent calculations which utilize the CPT data.

Computer plots of the reduced CPT data acquired for this investigation are presented in Figures A-2 through A-24 of this appendix. The field testing and computer processing was performed by Kehoe Testing and Engineering under subcontract to Geotechnical Professionals Inc. (GPI). The interpreted soil descriptions were prepared by GPI.

The CPT locations were laid out in the field by measuring from existing site features. Ground surface elevations at the CPT locations were estimated from topographic map dated July 5, 2018 by The Altum Group using a project datum and should be considered approximate. The project datum is 500 feet greater than actual MSL elevations to avoid negative elevations.



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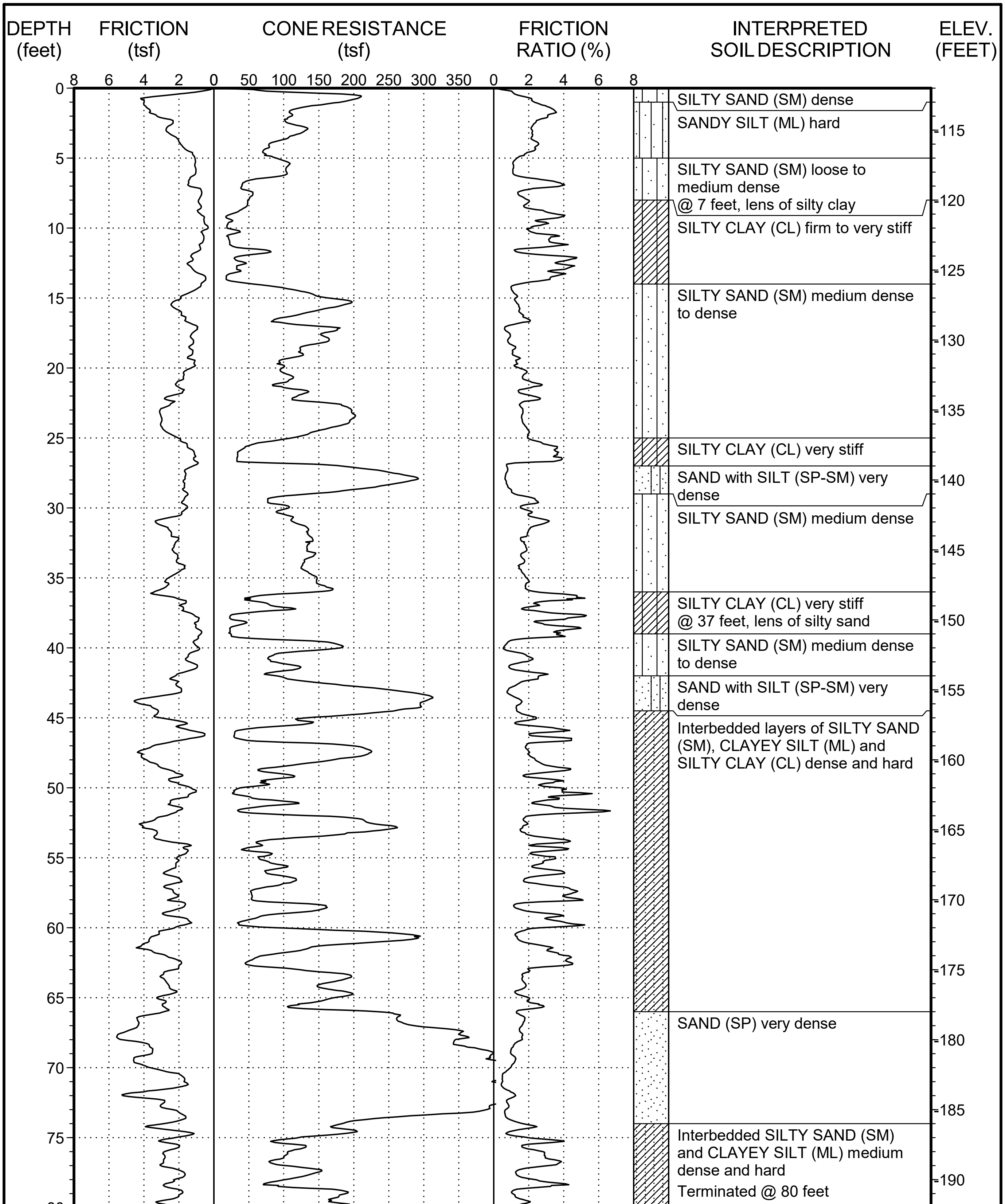
CONE PENETROMETER

FIGURE A-



Date performed:7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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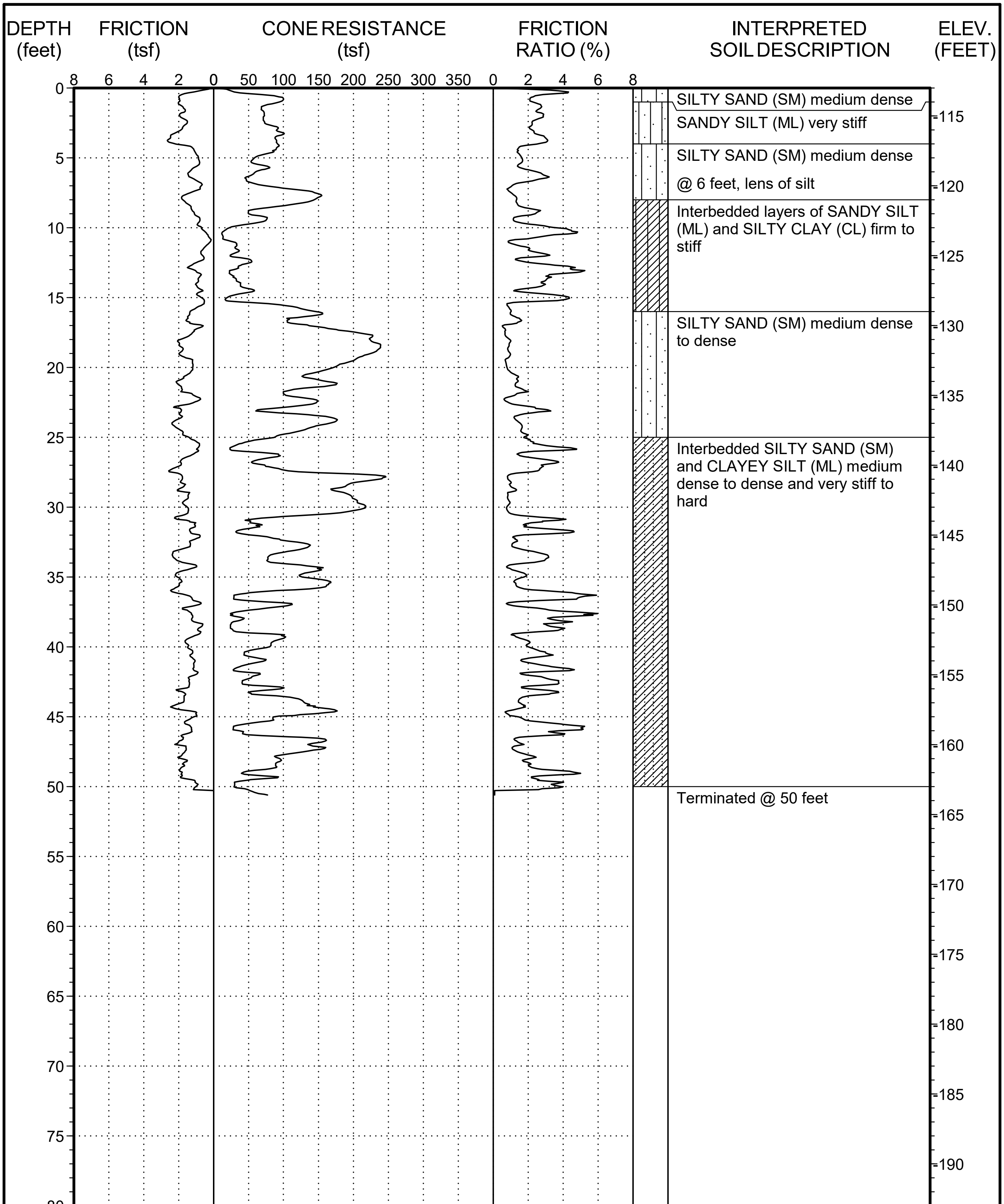
LOG OF CPT NO. C-1

FIGURE A-2



Date performed: 7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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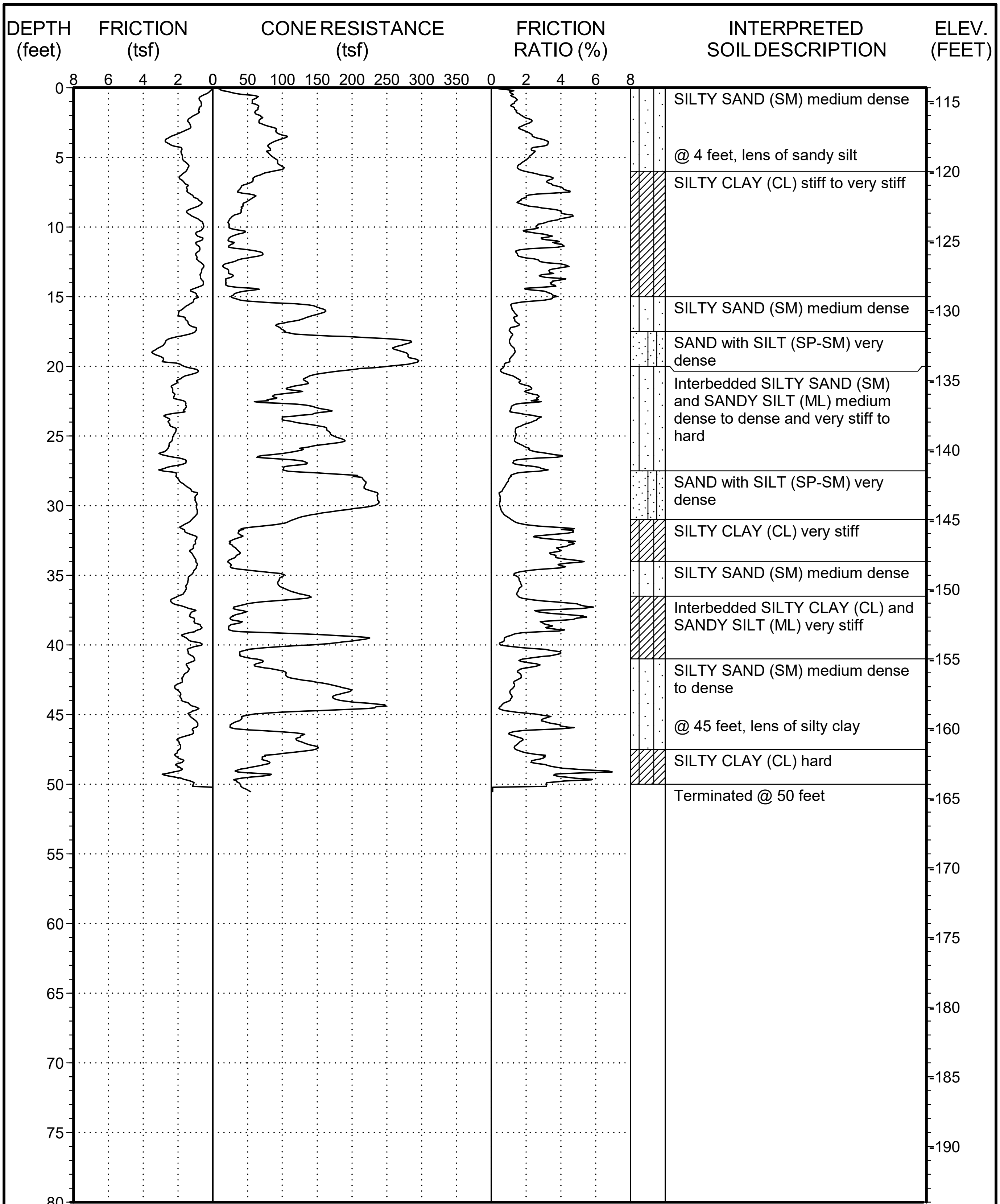
LOG OF CPT NO. C-2

FIGURE A-3



Date performed: 7-20-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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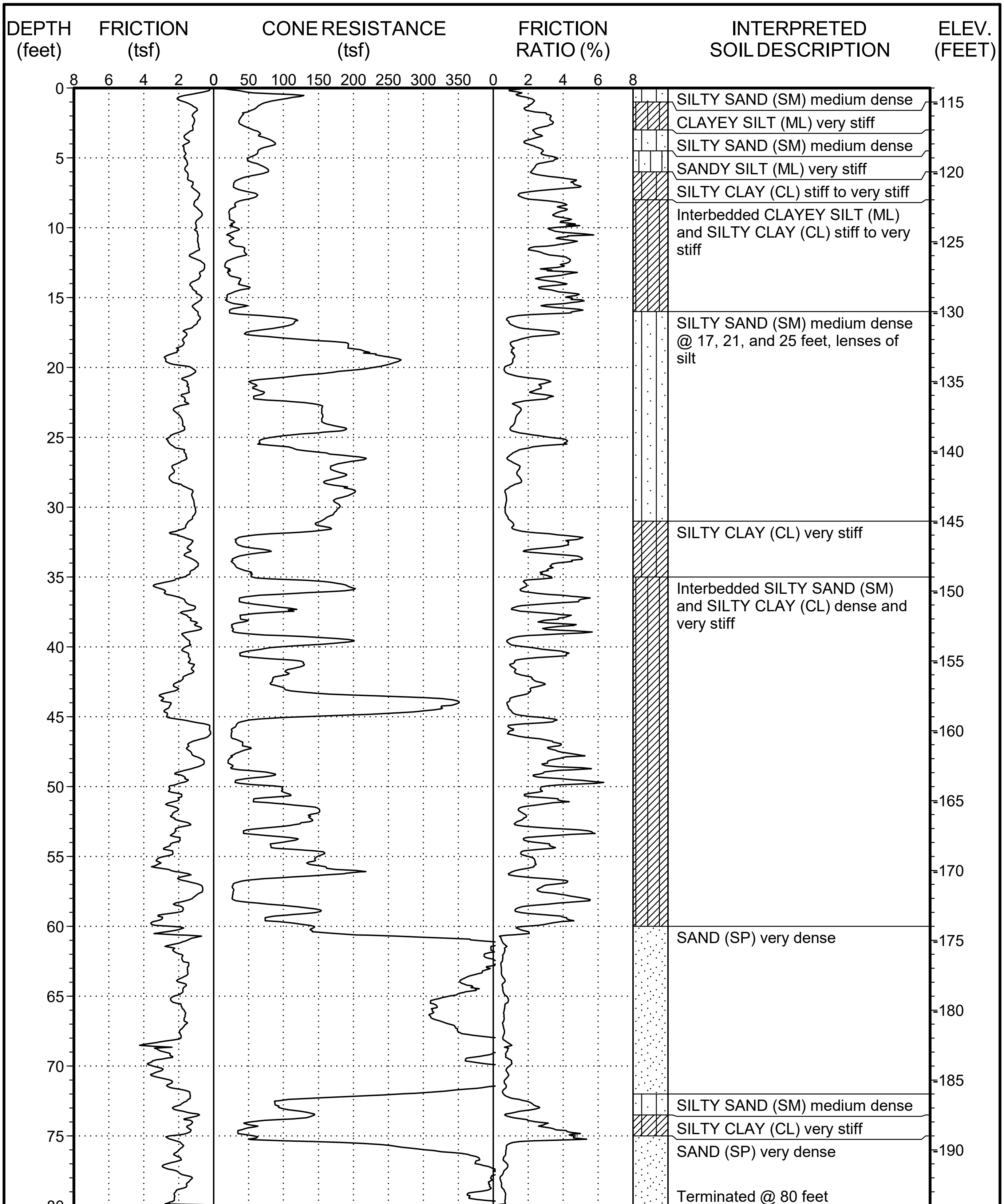
LOG OF CPT NO. C-3

FIGURE A-4



Date performed: 7-20-18

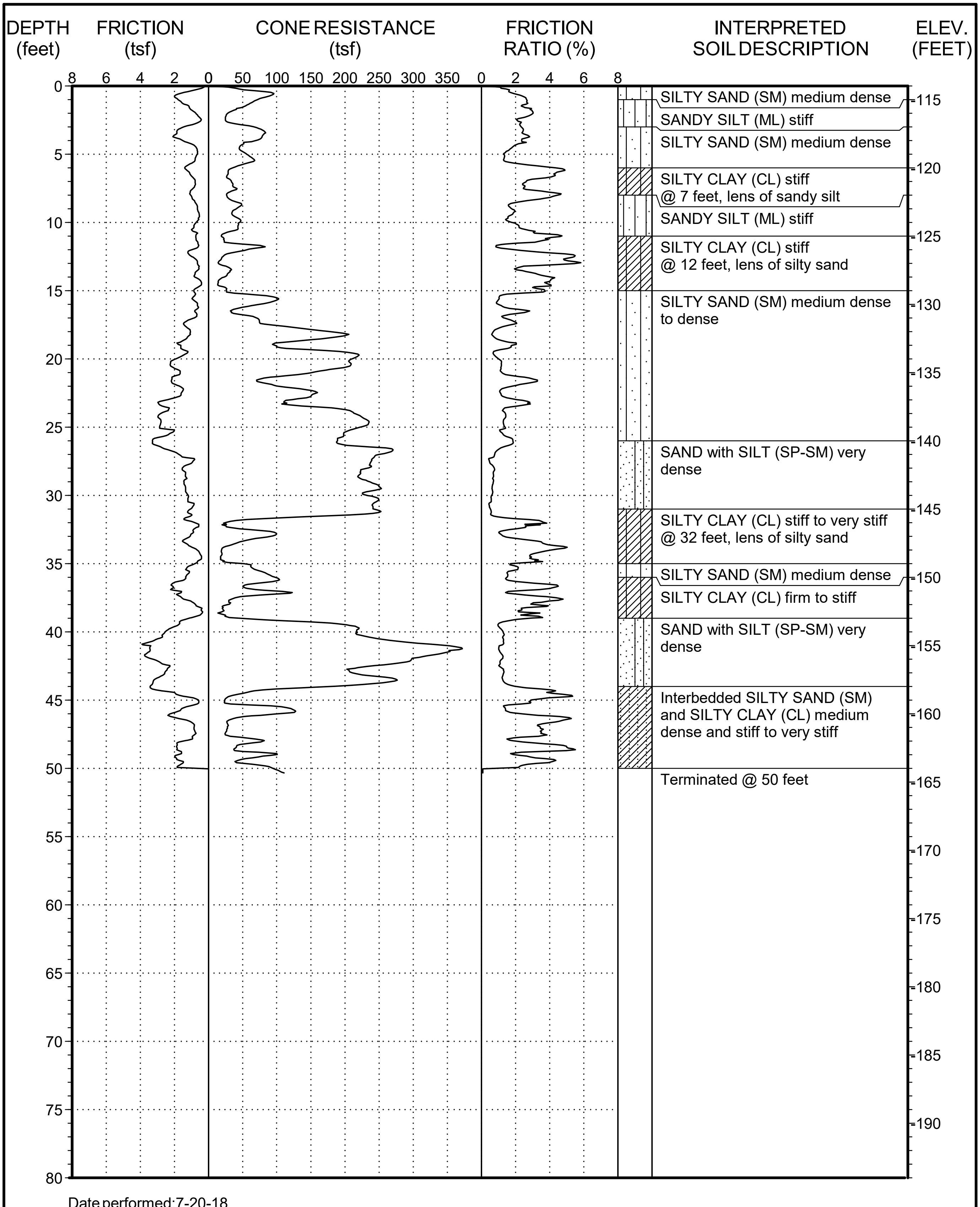
This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

PROJECT NO.: 2884.I

COACHELLA

LOG OF CPT NO. C-4

FIGURE A-5



This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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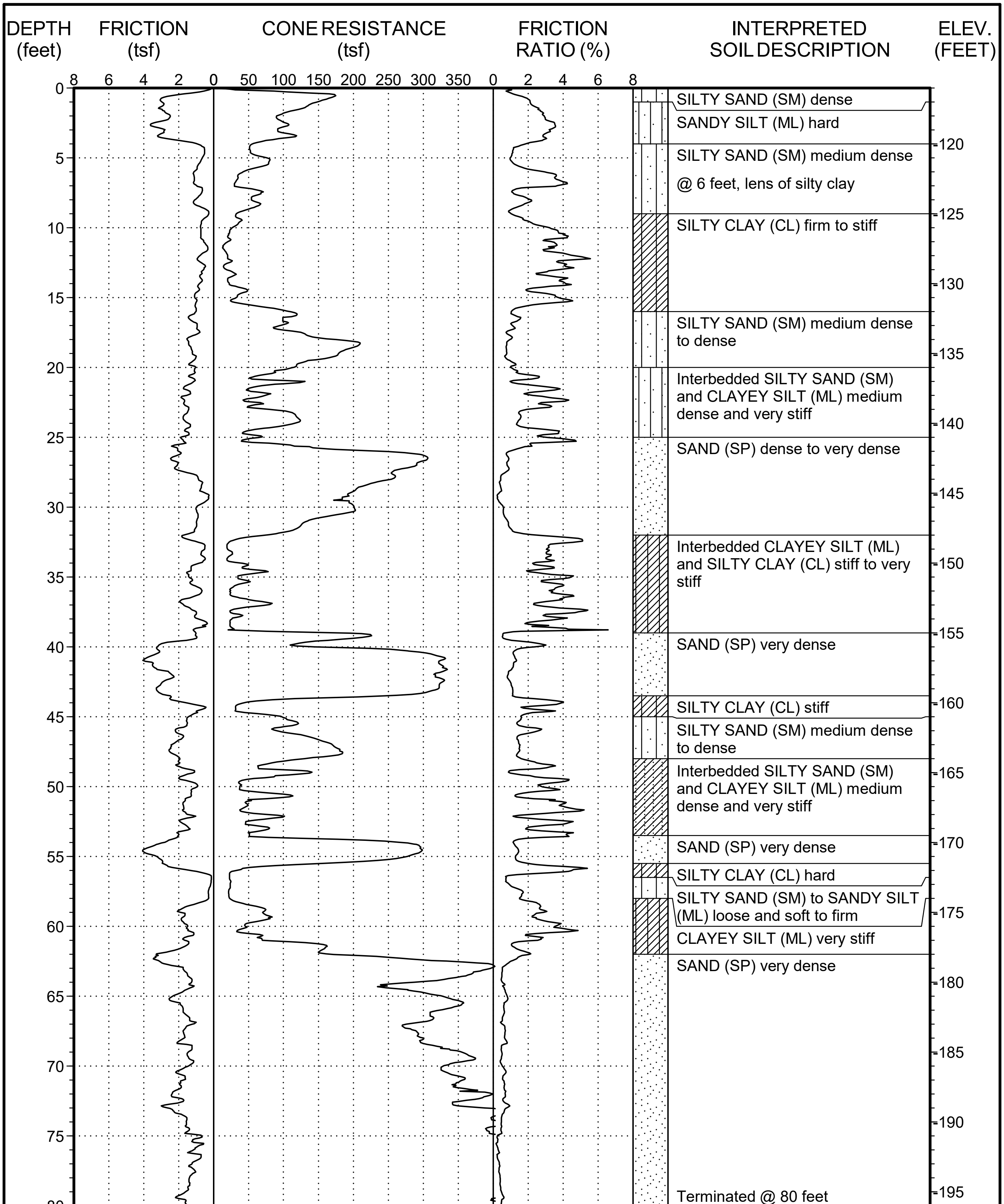
LOG OF CPT NO. C-5

FIGURE A-6



Date performed: 7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

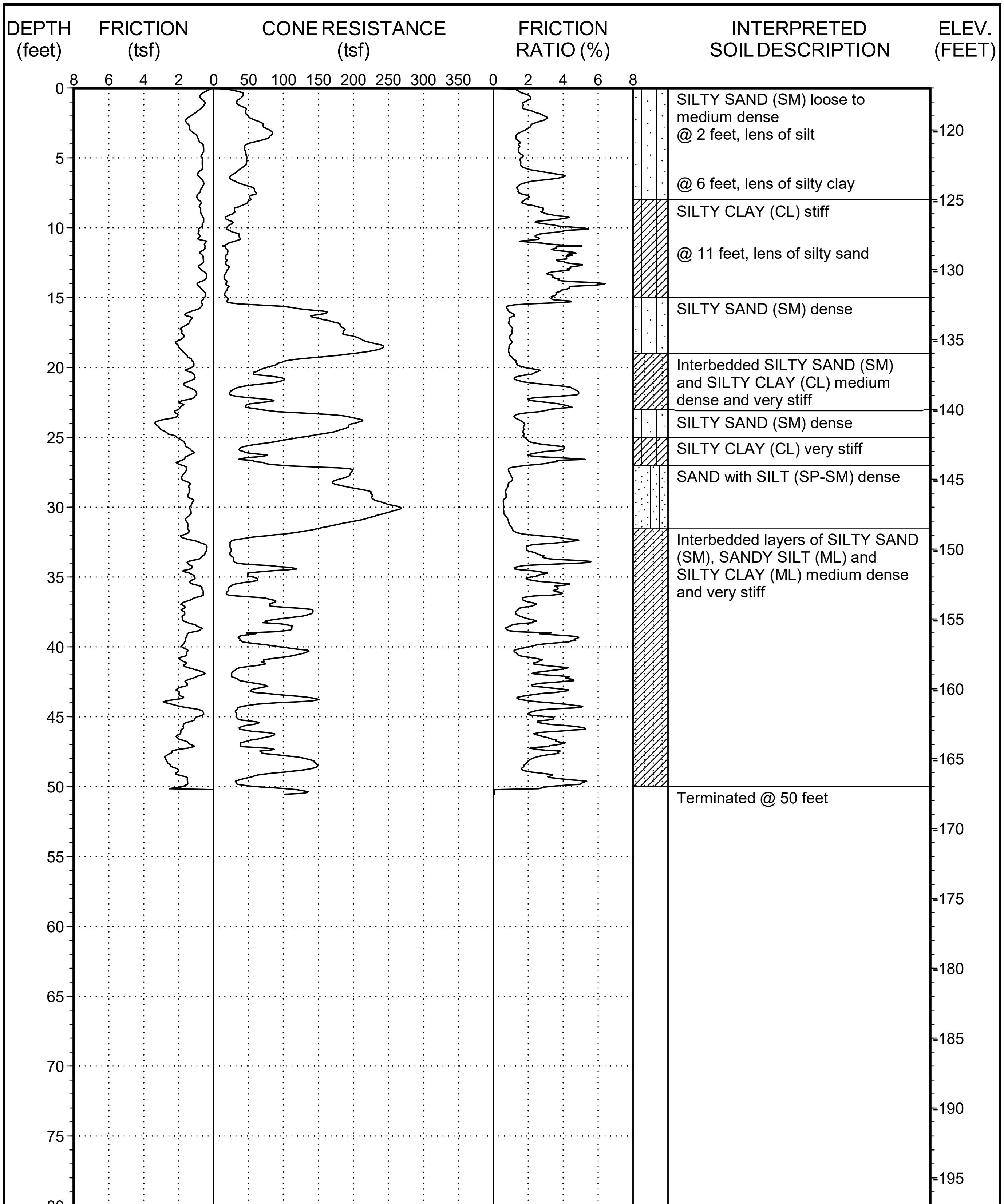
GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF CPT NO. C-6

FIGURE A-7



Date performed:7-20-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

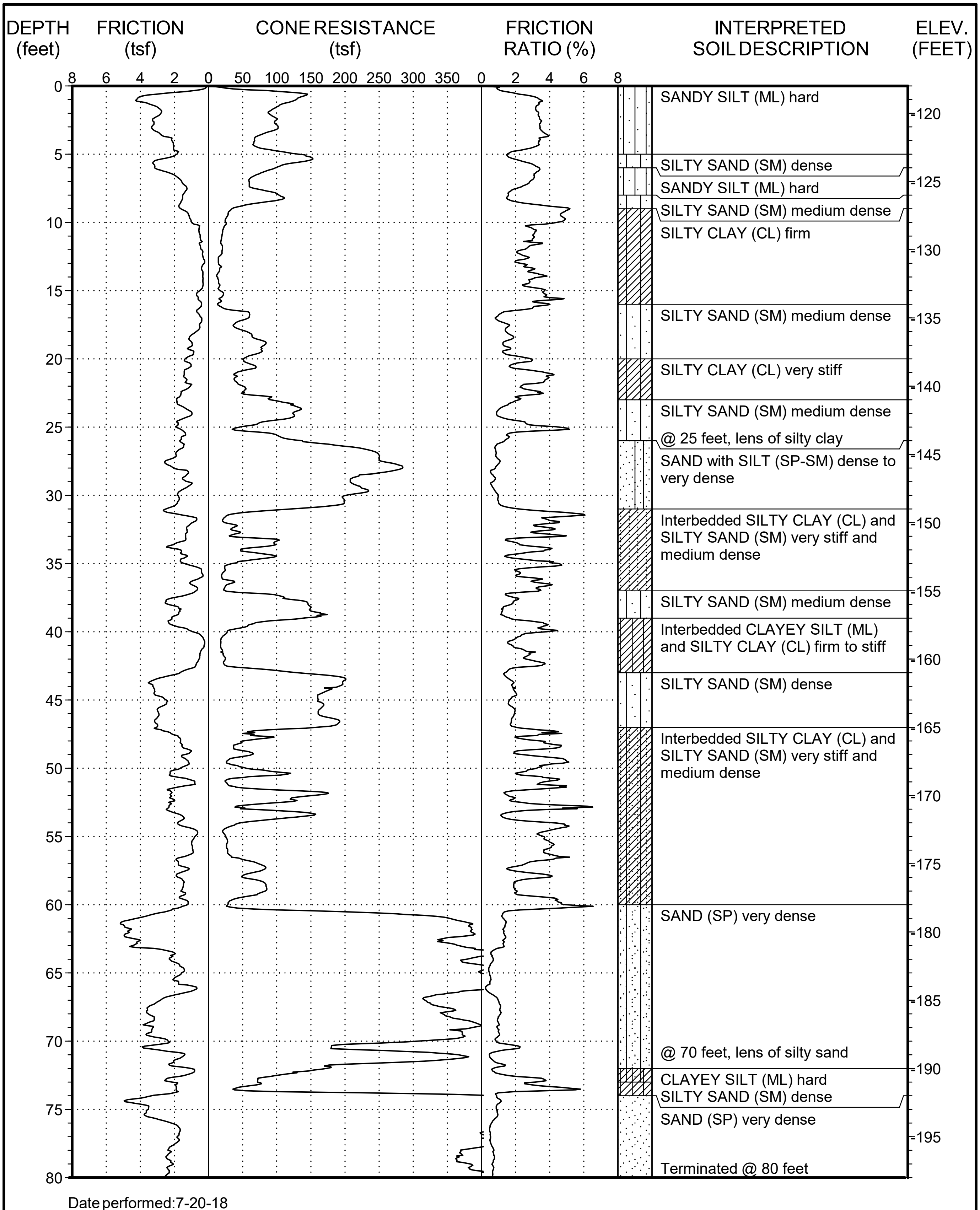
GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF CPT NO. C-7

FIGURE A-8



This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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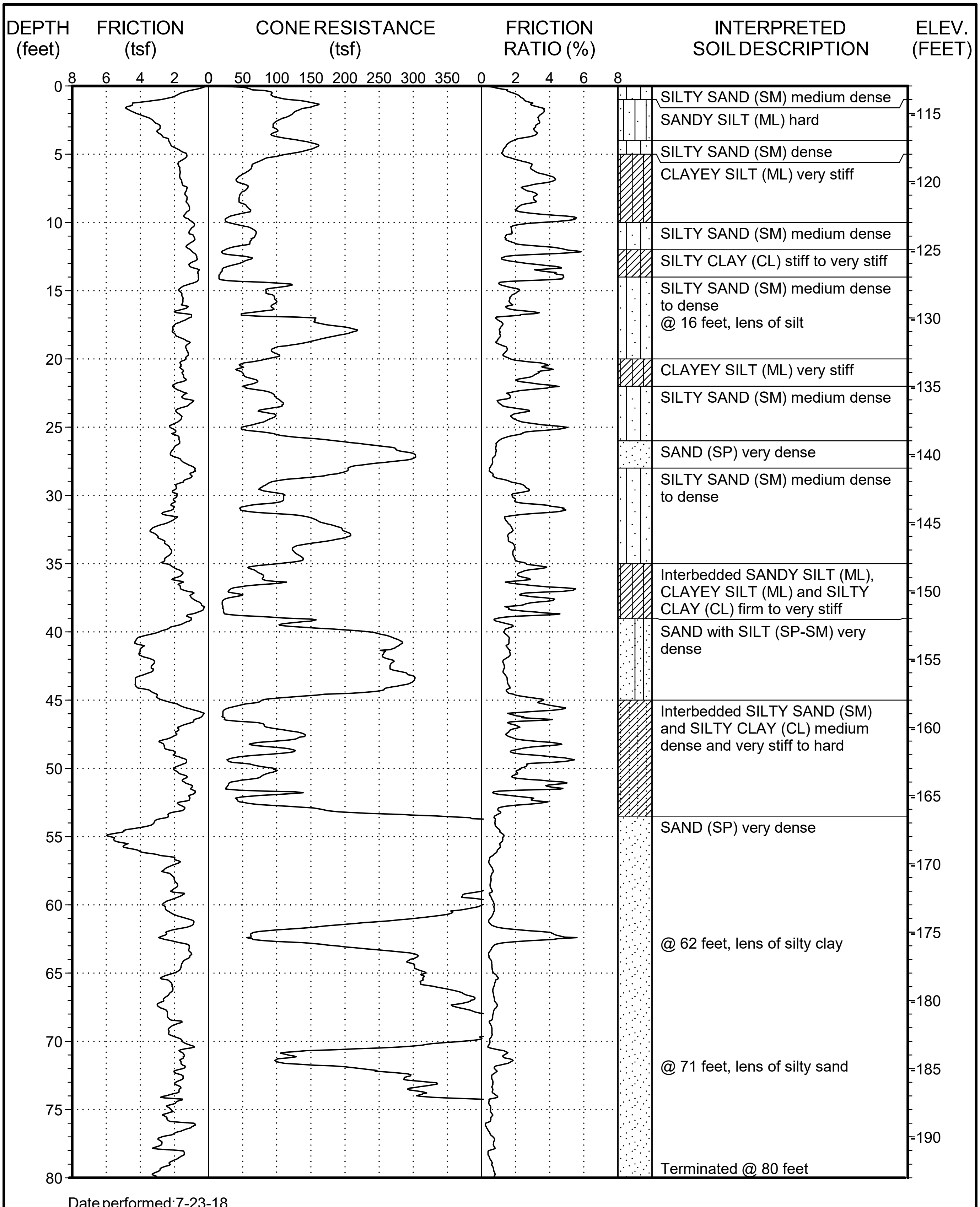
LOG OF CPT NO. C-8

FIGURE A-9



This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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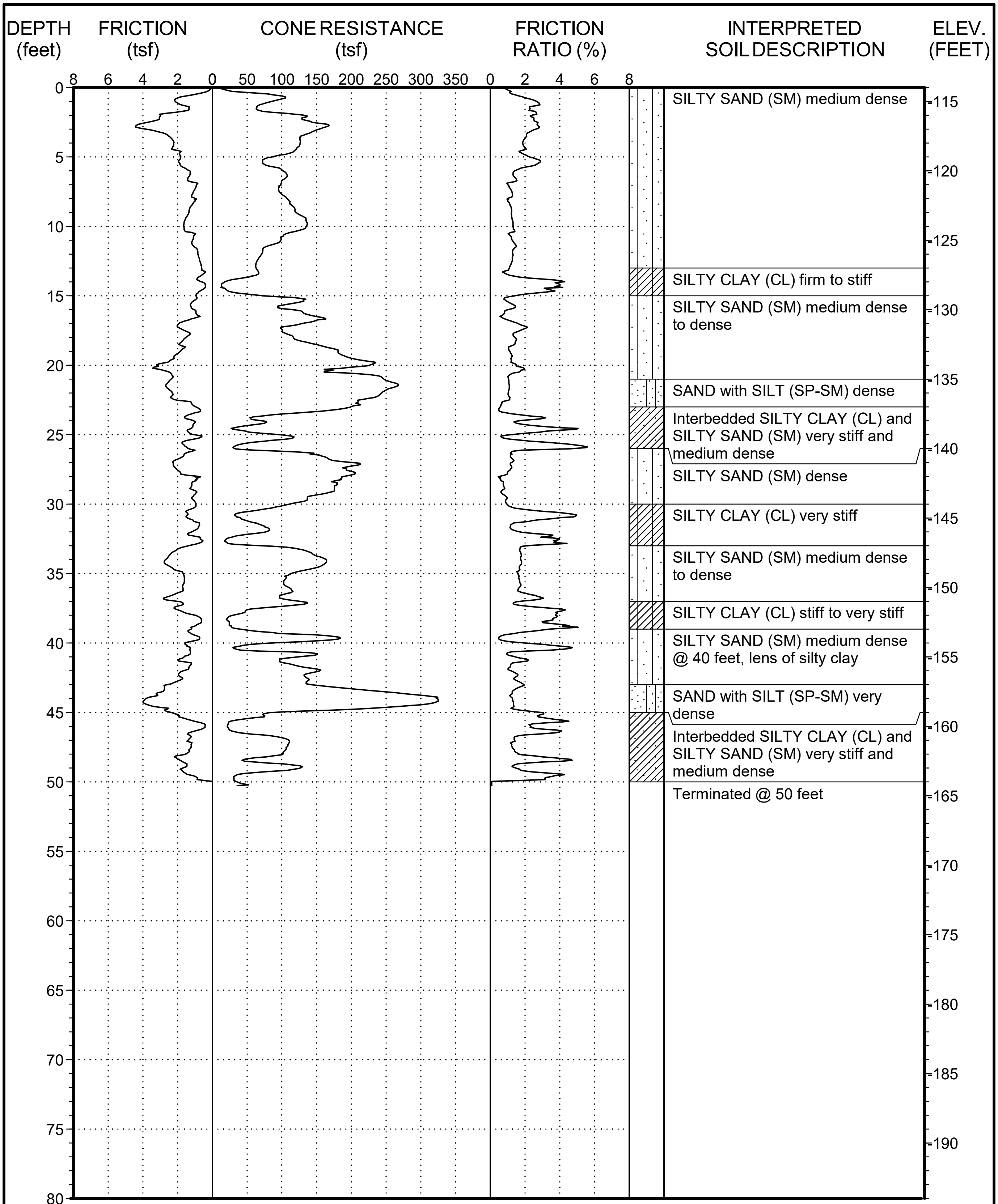
LOG OF CPT NO. C-9

FIGURE A-10



Date performed:7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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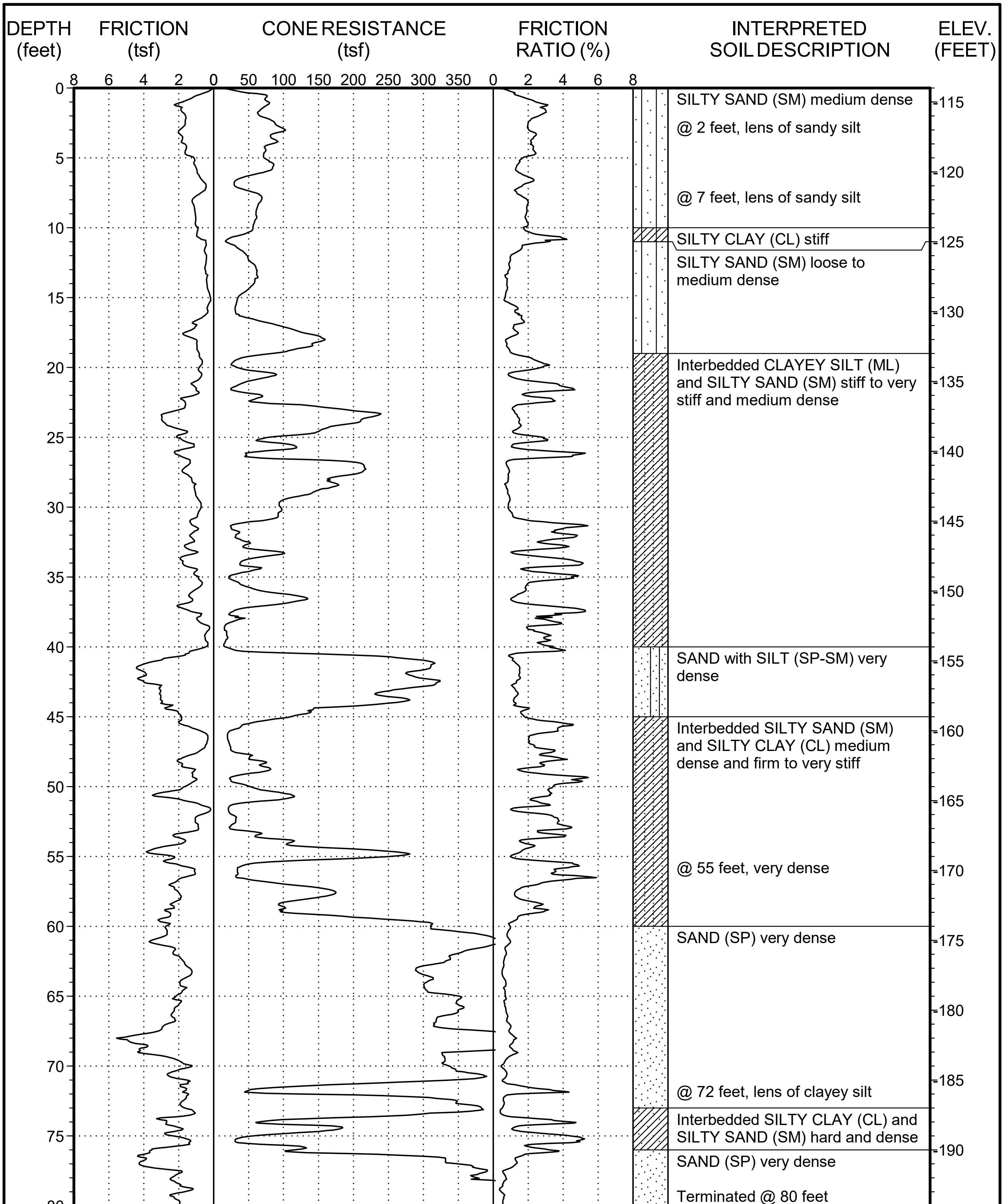
LOG OF CPT NO. C-10

FIGURE A-11



Date performed: 7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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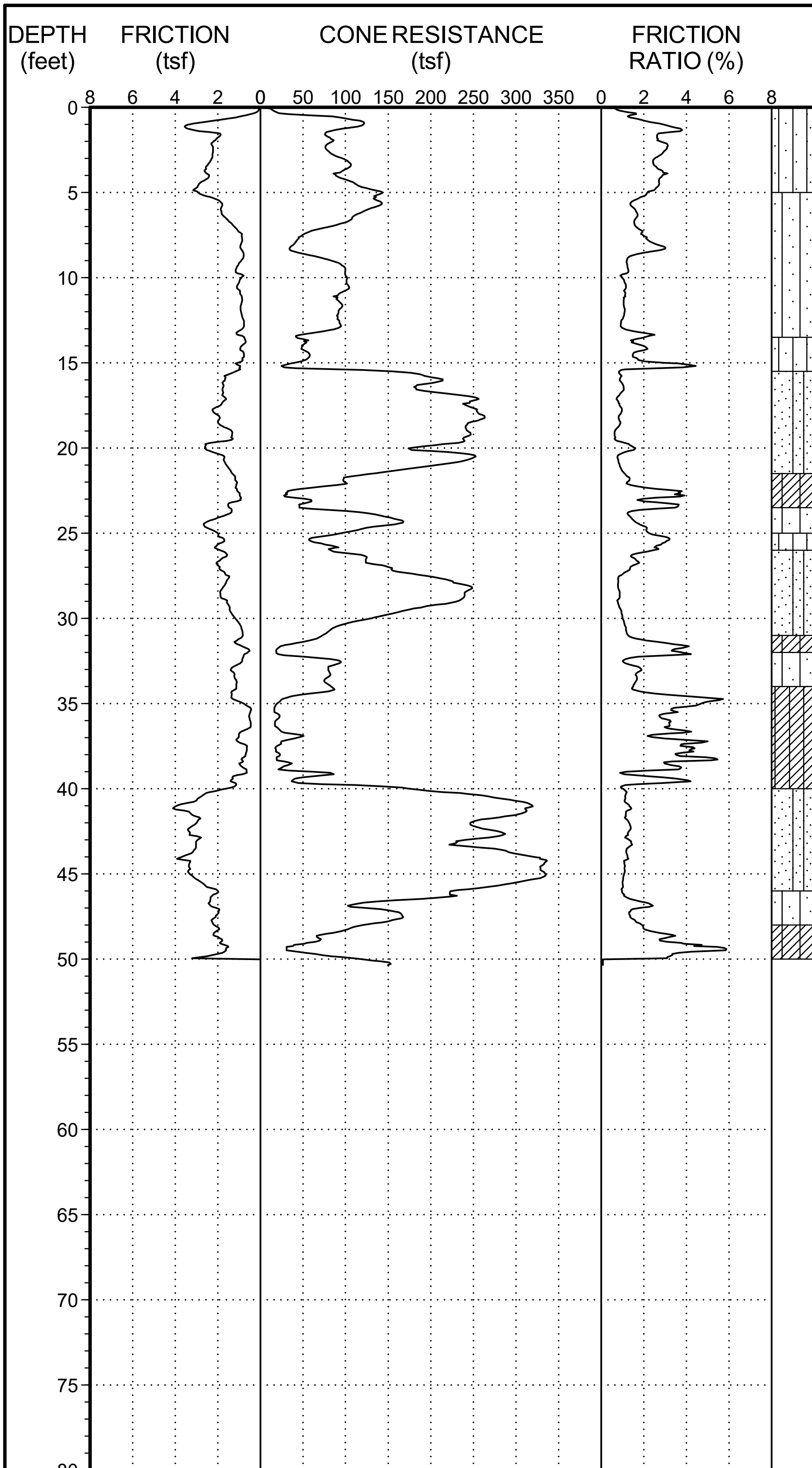
LOG OF CPT NO. C-11

FIGURE A-12



INTERPRETED SOIL DESCRIPTION	ELEV. (FEET)
SANDY SILT (ML) hard	115
SILTY SAND (SM) medium dense @ 7 feet, lens of clayey silt	120
	125
SANDY SILT (ML) stiff	
SAND with SILT (SP-SM) dense	130
	135
SILTY CLAY (CL) very stiff	
SILTY SAND (SM) dense	
SANDY SILT (ML) very stiff to hard	140
SAND with SILT (SP-SM) dense	
SILTY CLAY (CL) stiff	145
SILTY SAND (SM) medium dense	
Interbedded CLAYEY SILT (ML) and SILTY CLAY (CL) firm to very stiff	150
SAND with SILT (SP-SM) very dense	155
	160
SILTY SAND (SM) medium dense	
SILTY CLAY (CL) hard	
Terminated @ 50 feet	165
	170
	175
	180
	185
	190

Date performed: 7-19-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I
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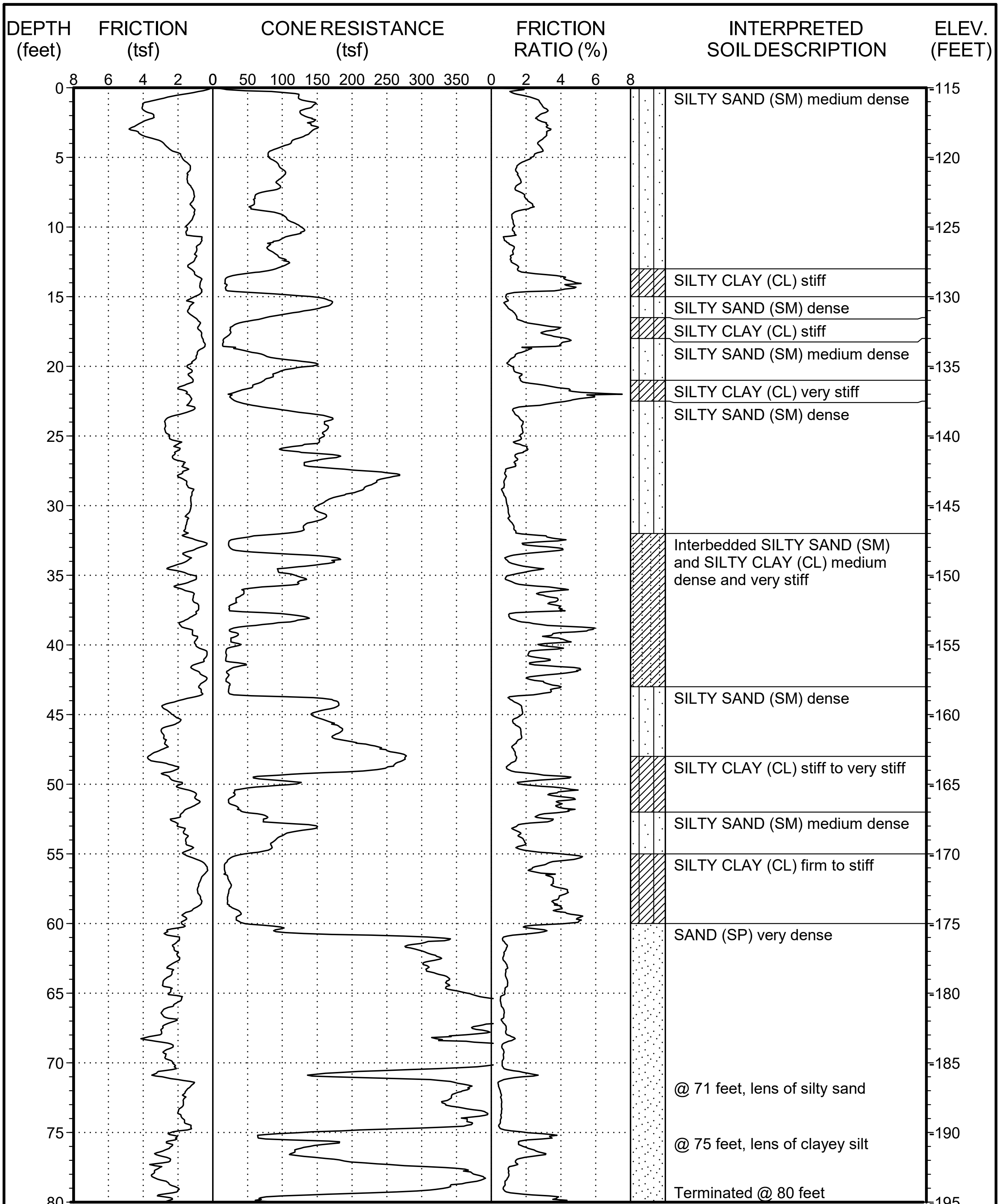
LOG OF CPT NO. C-12

FIGURE A-13



Date performed:7-19-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I
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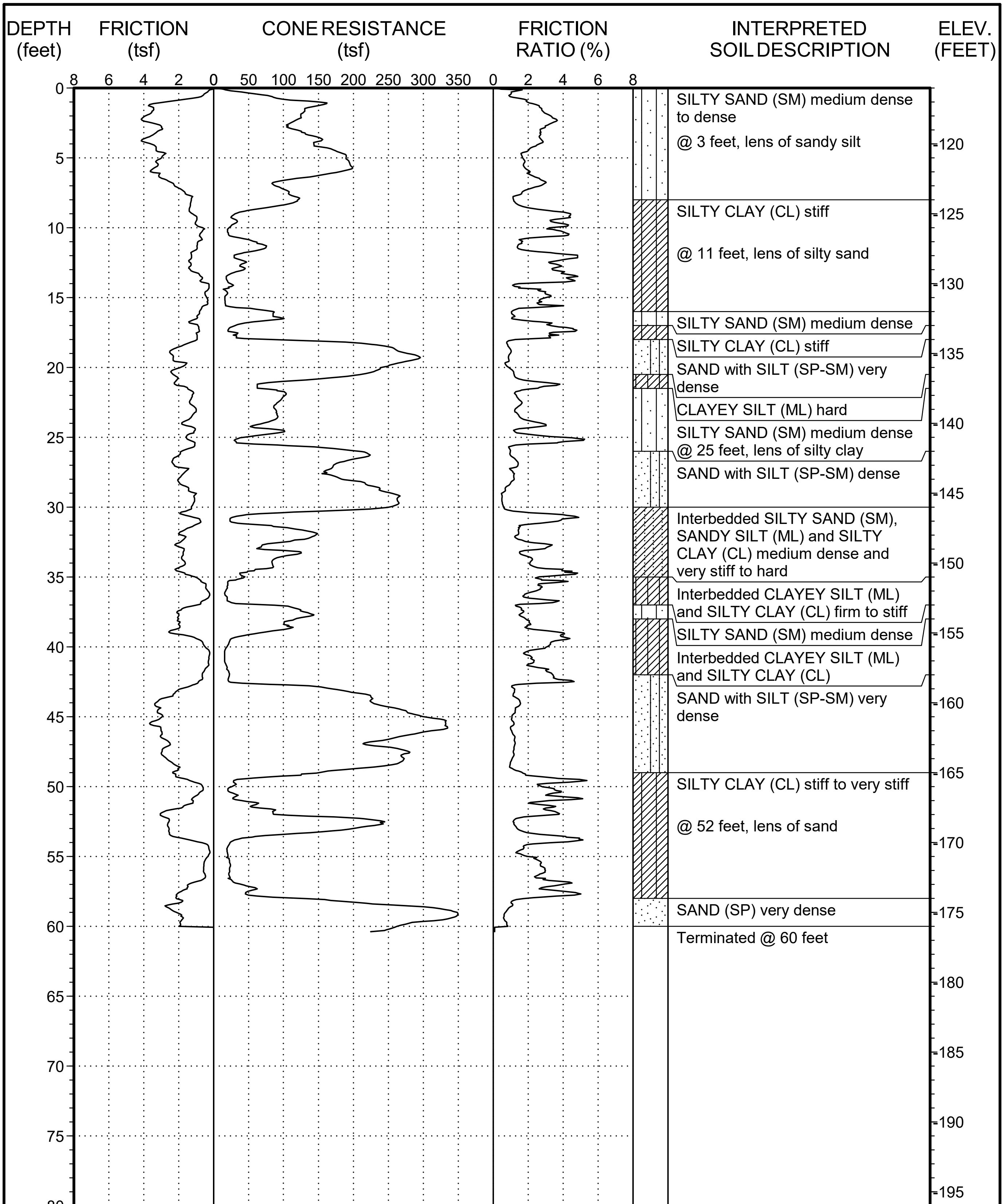
LOG OF CPT NO. C-13

FIGURE A-14



Date performed:7-19-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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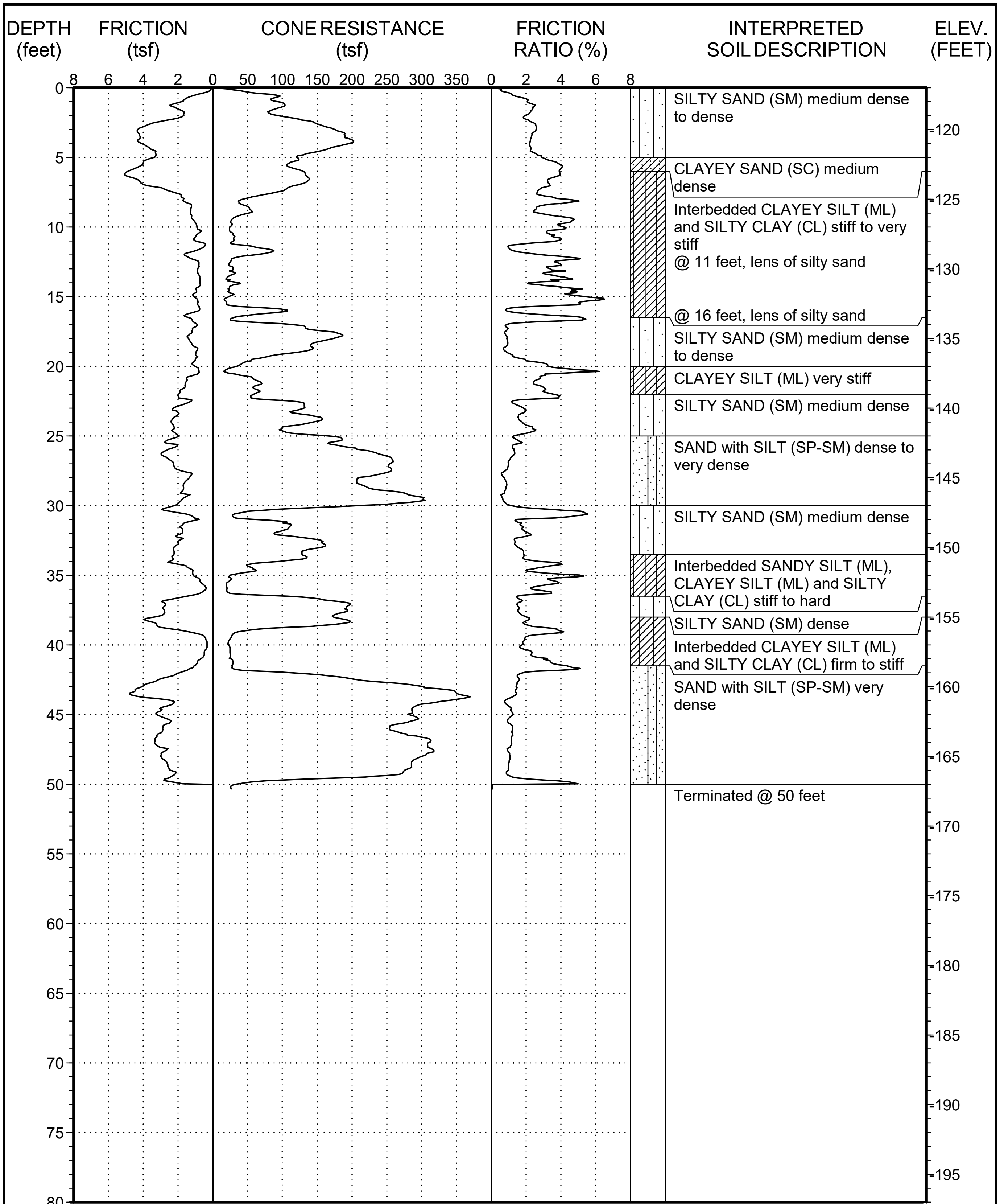
PROJECT NO.: 2884.I
COACHELLA

LOG OF CPT NO. C-14

FIGURE A-15



Date performed:7-19-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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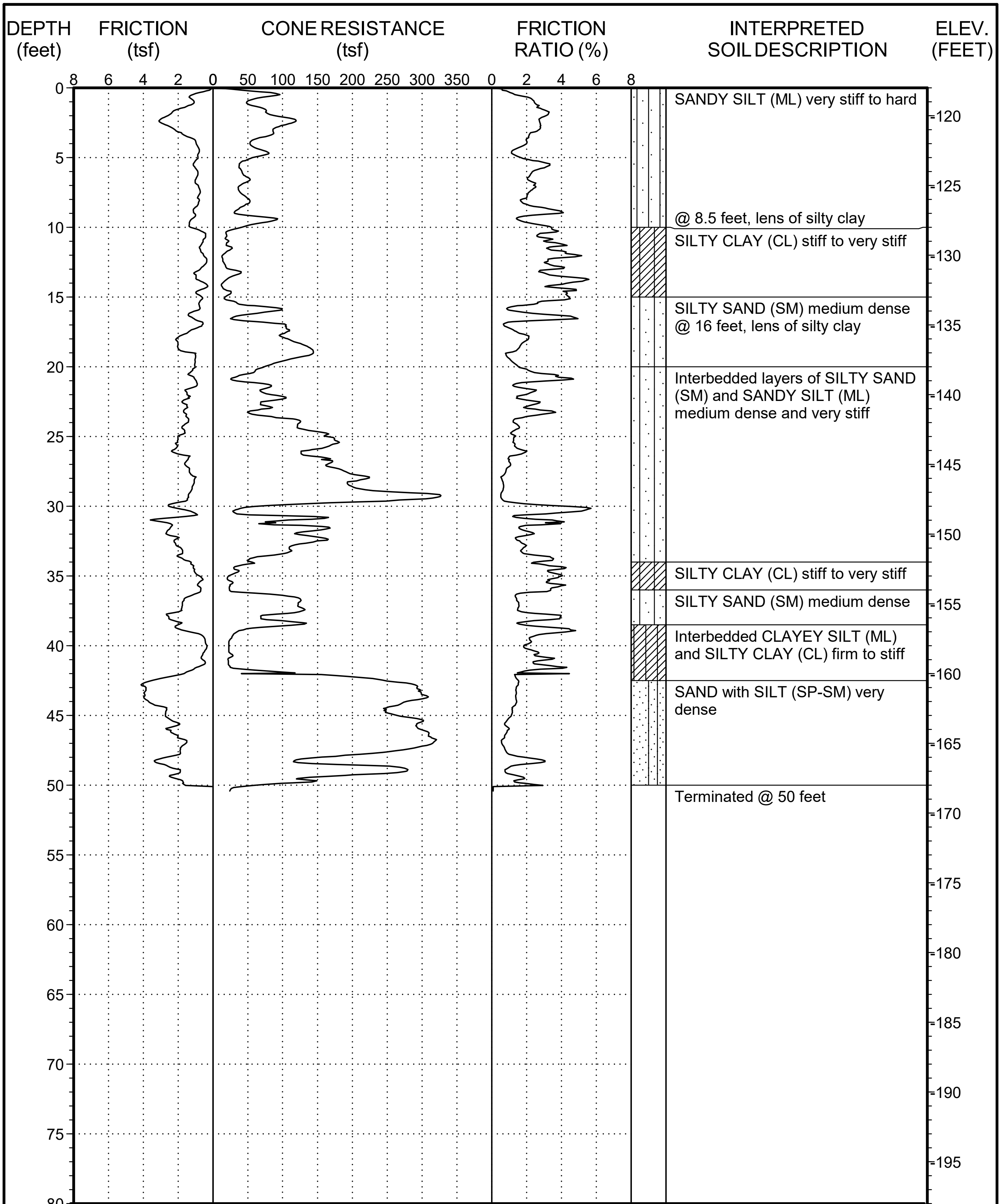
PROJECT NO.: 2884.I
COACHELLA

LOG OF CPT NO. C-15

FIGURE A-16



Date performed: 7-19-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I

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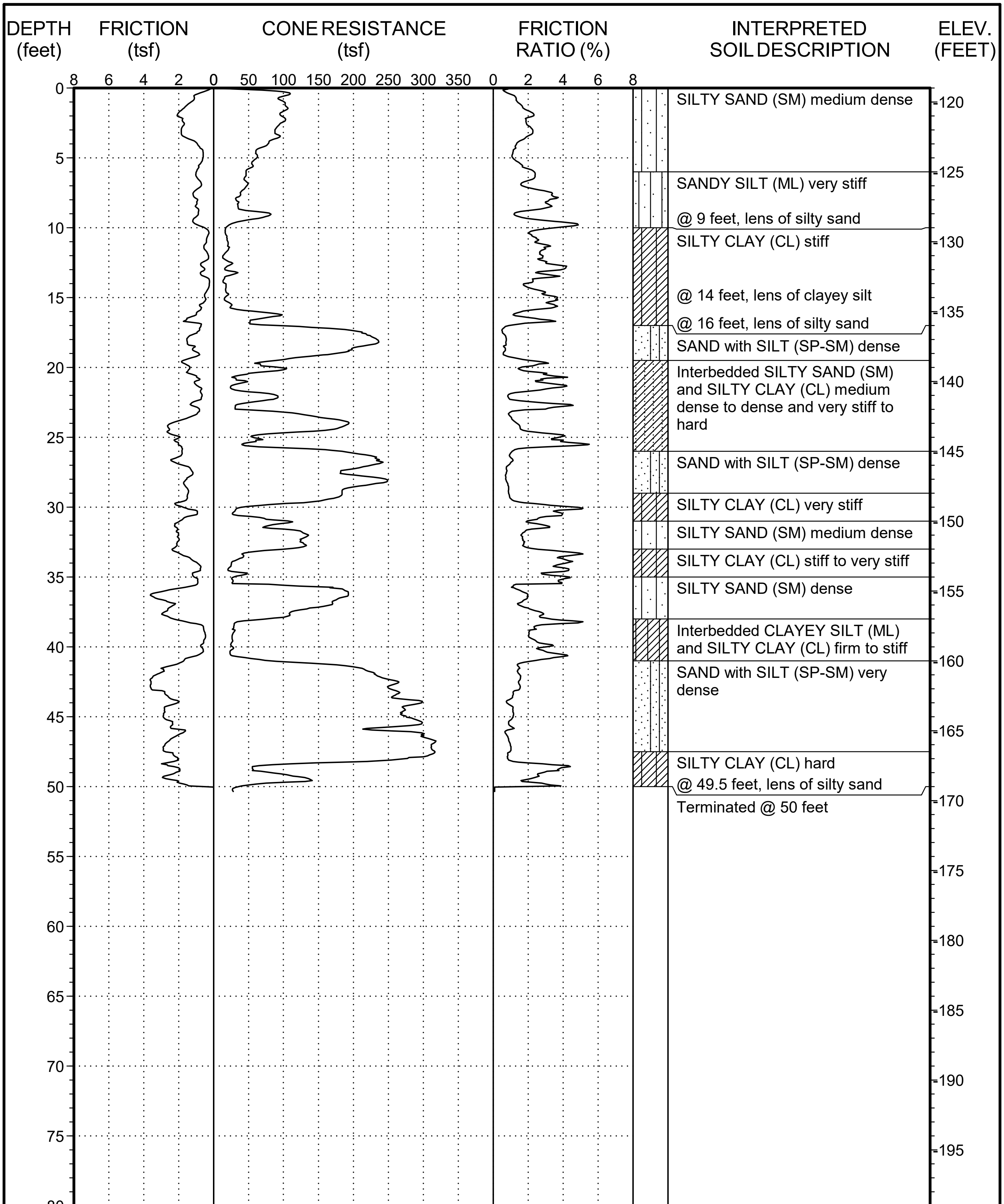
LOG OF CPT NO. C-16

FIGURE A-17



Date performed:7-19-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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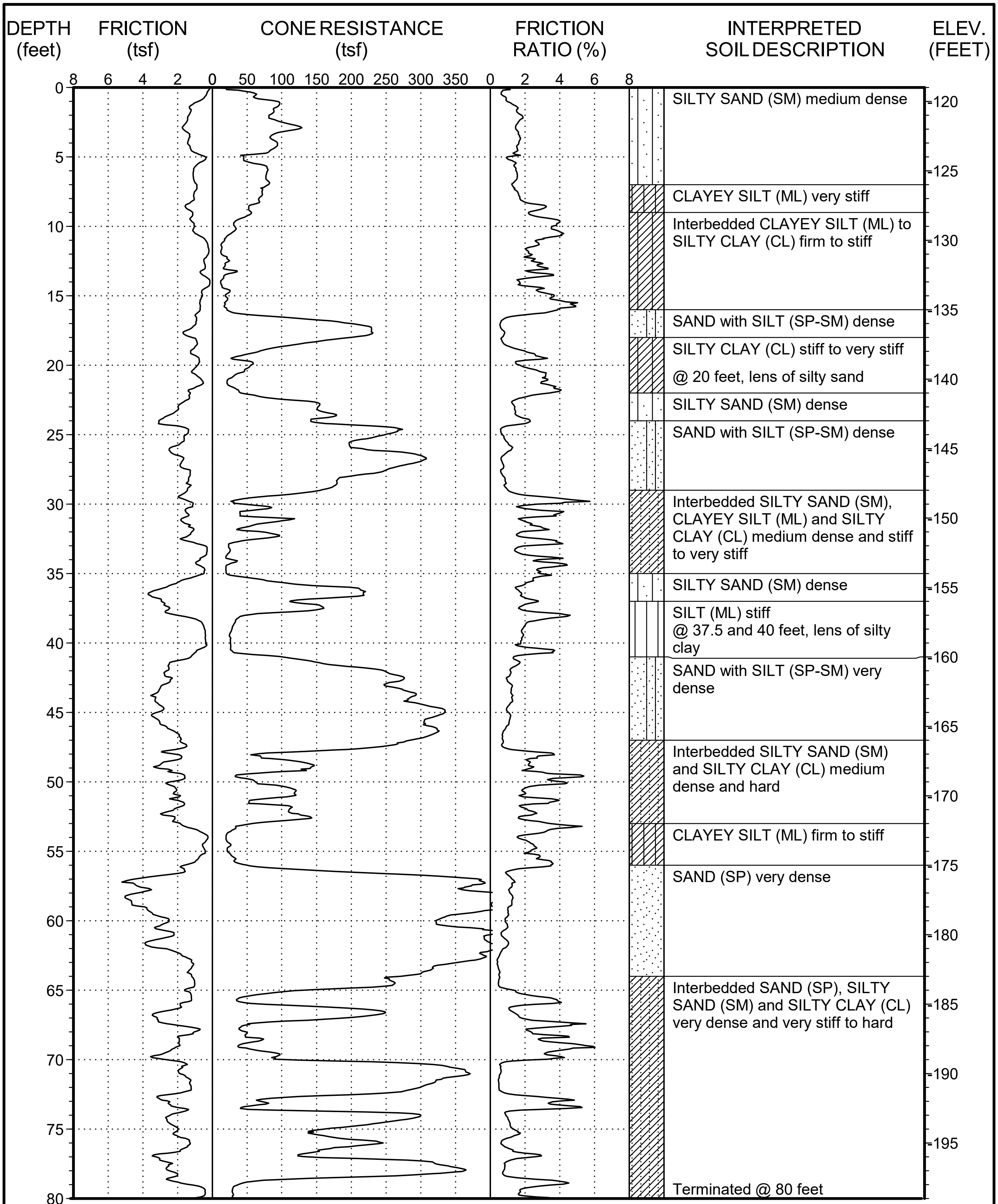
LOG OF CPT NO. C-17

FIGURE A-18



Date performed:7-20-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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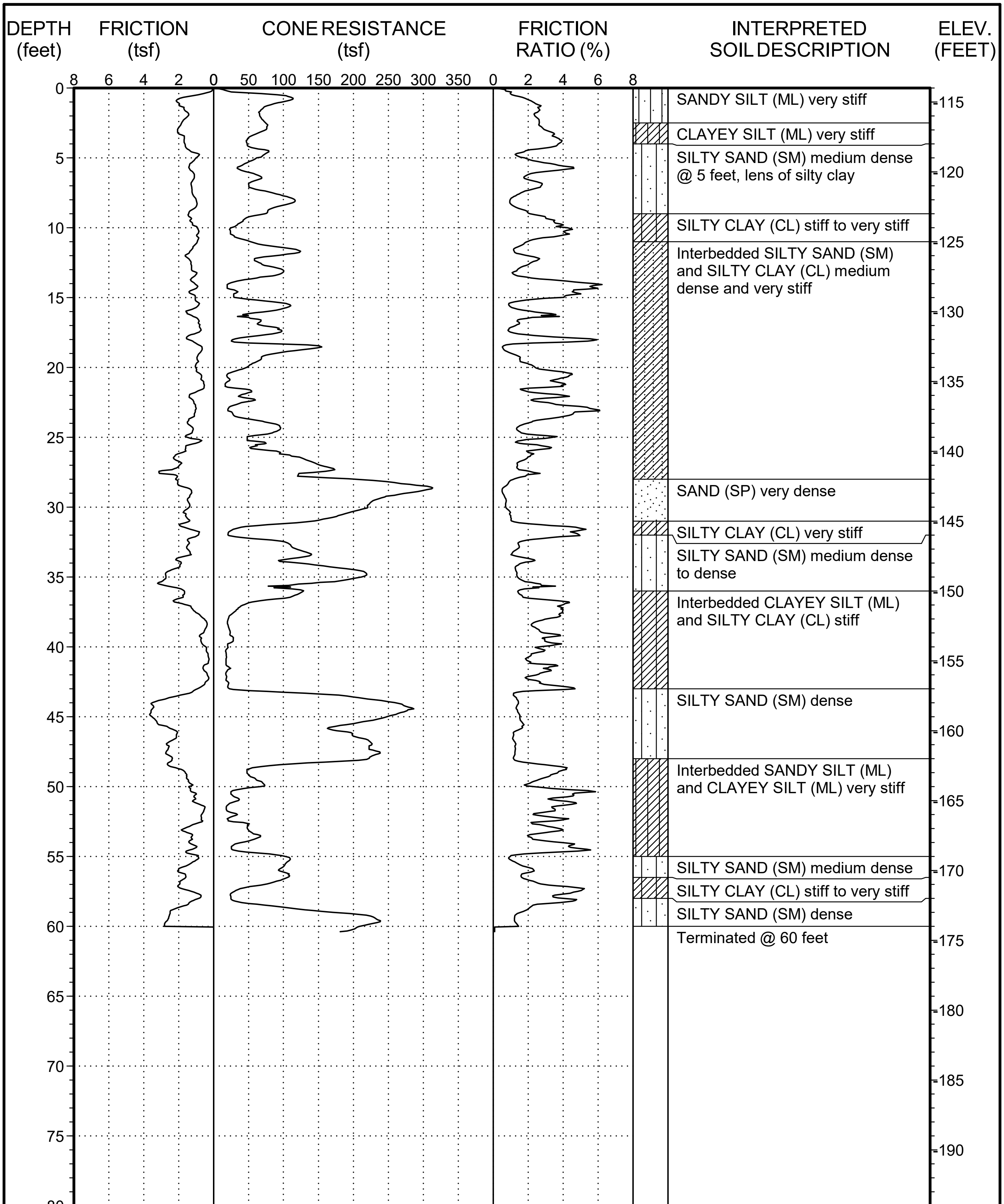
LOG OF CPT NO. C-18

FIGURE A-19



Date performed: 7-19-18

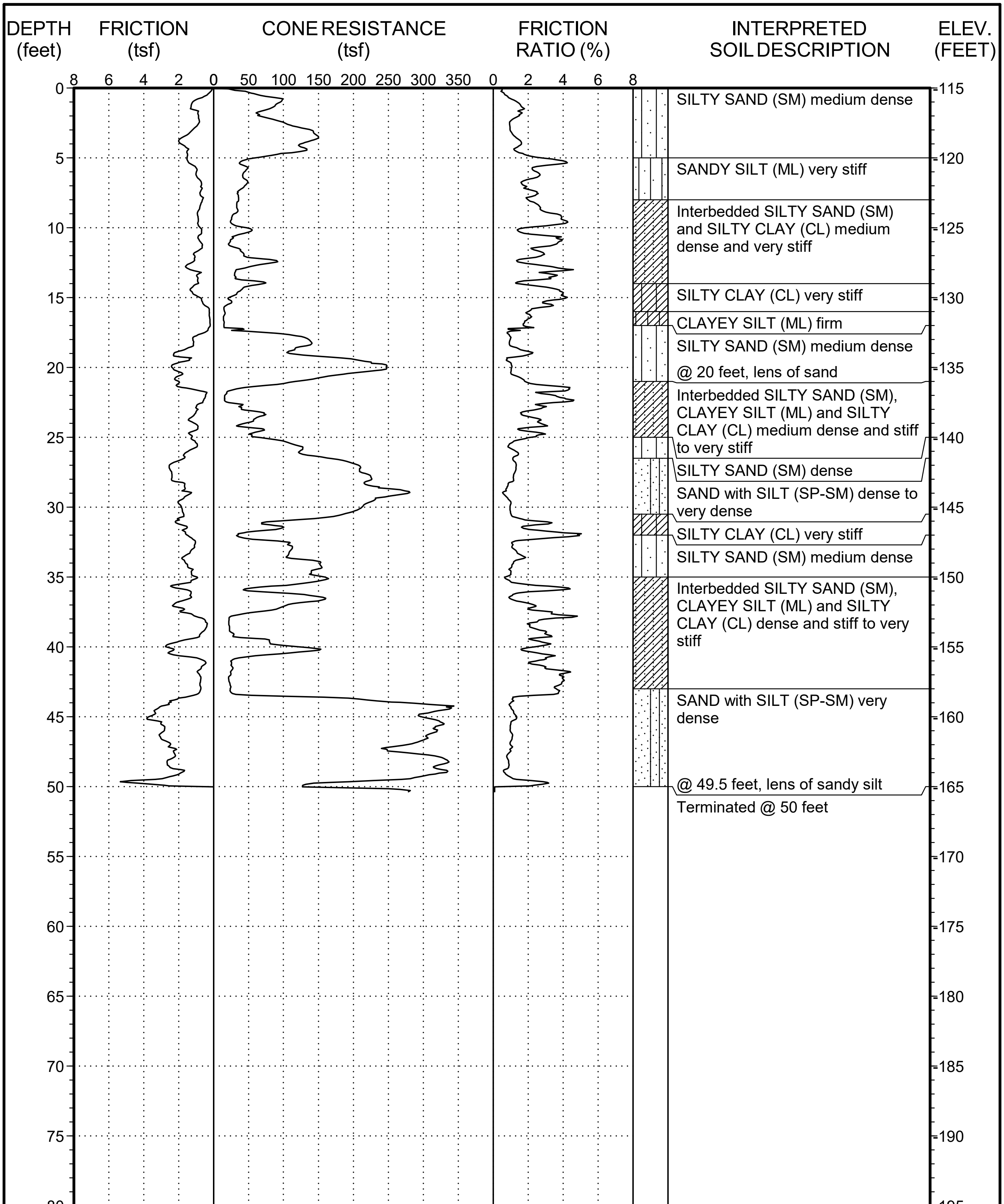
This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

PROJECT NO.: 2884.I

COACHELLA

LOG OF CPT NO. C-19

FIGURE A-20



Date performed:7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I

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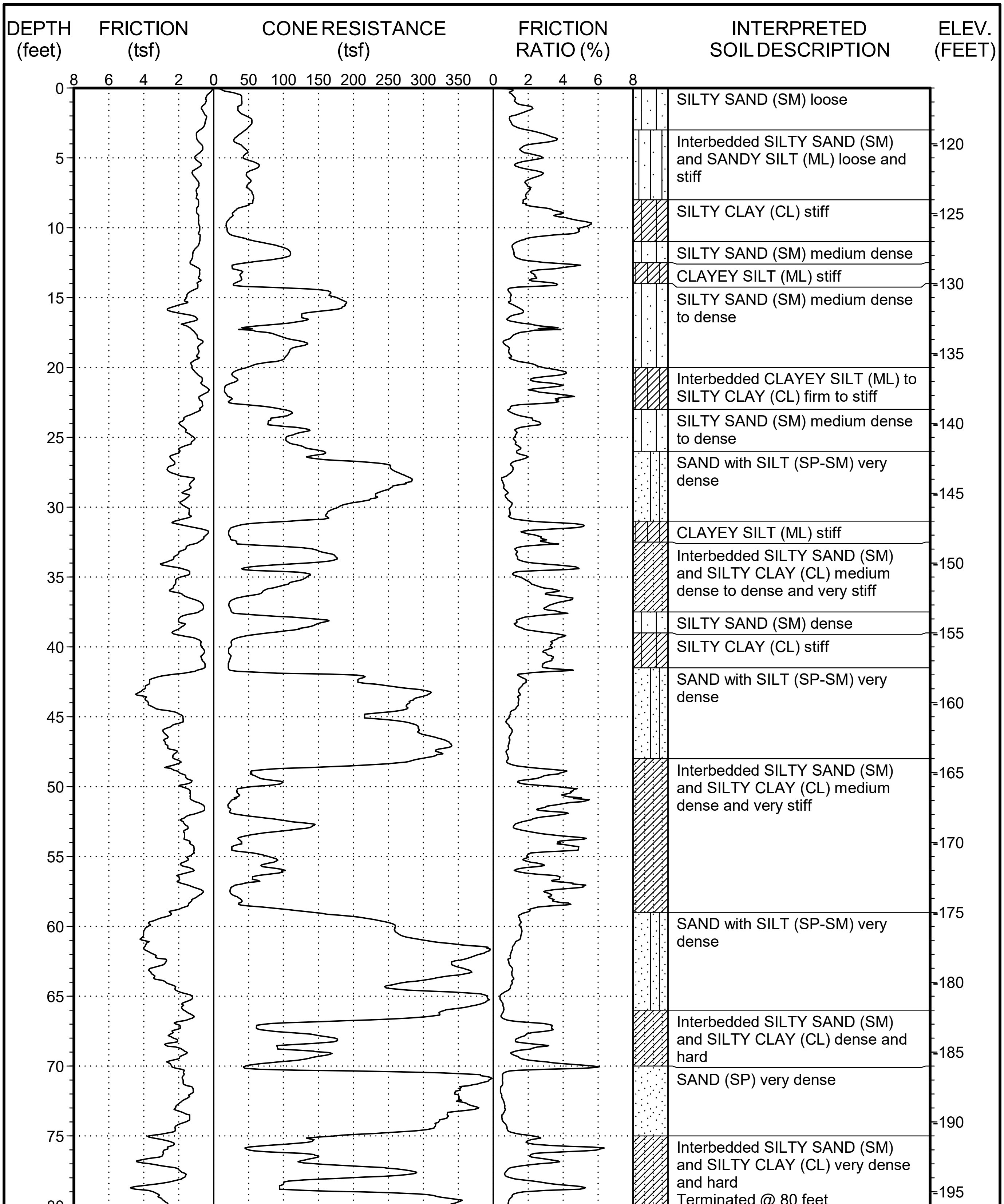
LOG OF CPT NO. C-20

FIGURE A-21



Date performed:7-20-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I

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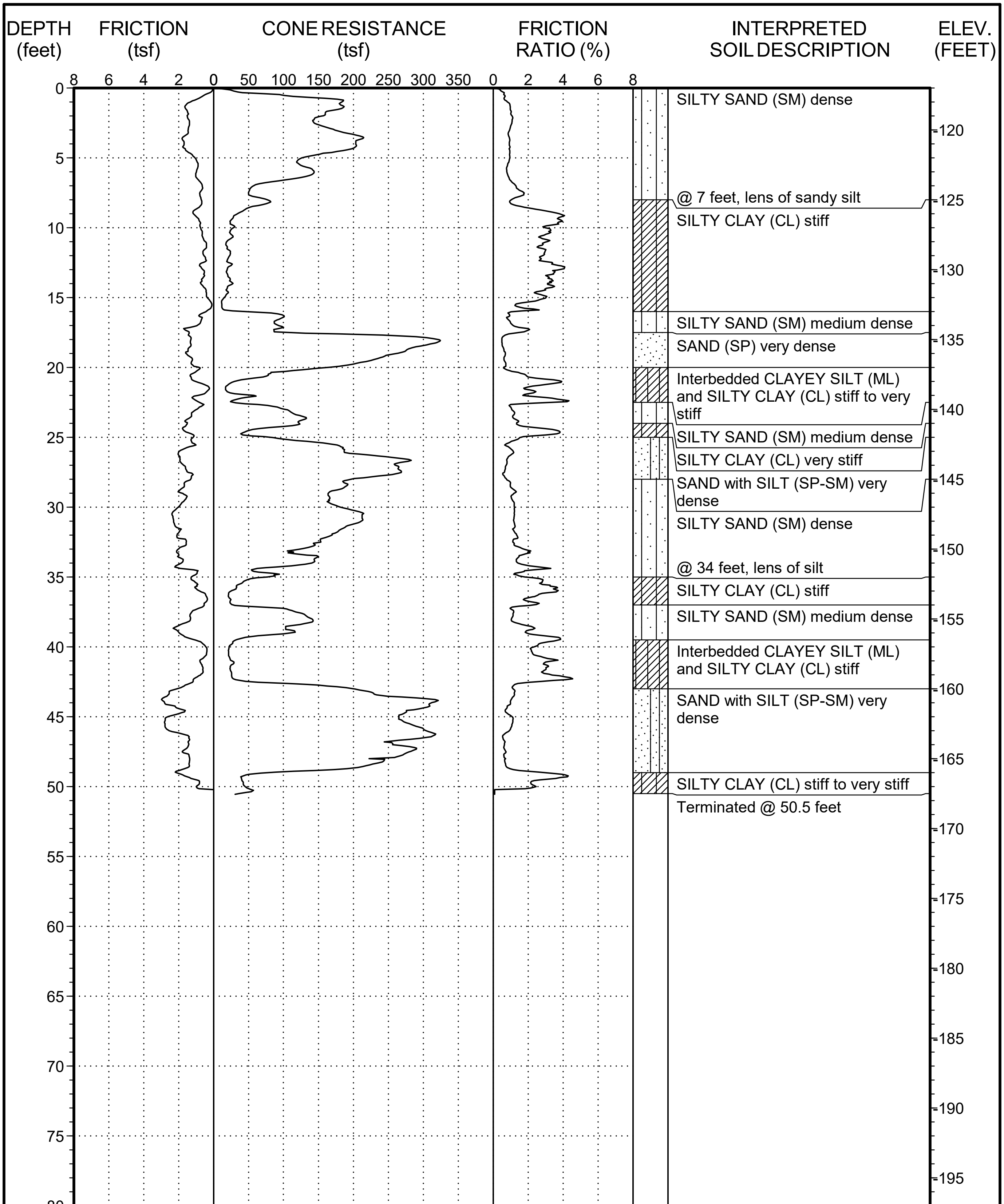
LOG OF CPT NO. C-21

FIGURE A-22



Date performed:7-24-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I
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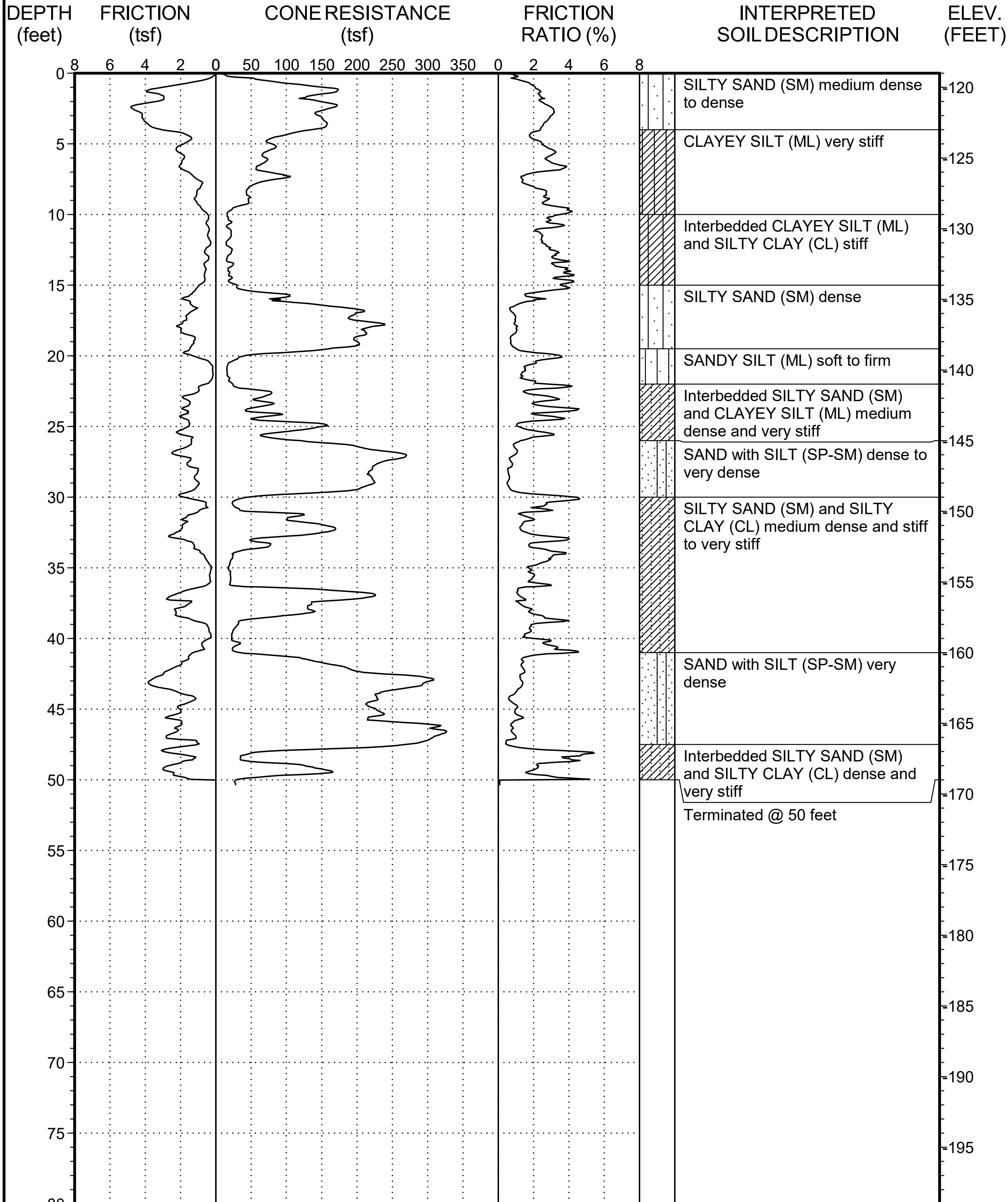
LOG OF CPT NO. C-22

FIGURE A-23



Date performed:7-23-18

This summary applies only at the location of this cone penetration test and at the time of the exploration. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The interpreted soil description is derived from the friction ratio and cone resistance and is a simplification of actual conditions encountered.

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PROJECT NO.: 2884.I

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LOG OF CPT NO. C-24

FIGURE A-24

APPENDIX B

APPENDIX B

EXPLORATORY BORINGS

The subsurface conditions at the site were investigated by drilling and sampling eleven exploratory borings. The borings were advanced to depths of 6 to 81½ feet below the existing ground surface. The locations of the explorations are shown on the Site Plan, Figure 2.

The exploratory borings were drilled using truck-mounted hollow-stem auger drill equipment. Relatively undisturbed samples were obtained using a brass-ring lined sampler (ASTM D 3550). The brass-rings have an inside diameter of 2.42 inches. The ring samples were driven into the soil by a 140-pound hammer dropping 30 inches. The number of blows needed to drive the sampler into the soil was recorded as the penetration resistance.

At selected locations, disturbed samples were obtained using a split-spoon sampler by means of the Standard Penetration Test (SPT, ASTM D 6066). The spoon sampler was driven into the soil by a 140-pound hammer dropping 30 inches, employing the “free-fall” hammer described above. After an initial seating drive of 6 inches, the number of blows needed to drive the sampler into the soil a depth of 12 inches was recorded as the penetration resistance. These values are the raw uncorrected blowcounts.

The field explorations for the investigation were performed under the continuous technical supervision of GPI's representative, who visually inspected the site, maintained detailed logs of the borings, classified the soils encountered, and obtained relatively undisturbed samples for examination and laboratory testing. The soils encountered in the borings were classified in the field and through further examination in the laboratory in accordance with the Unified Soils Classification System. Detailed logs of the borings are presented in Figures B-1 to B-11 in this appendix.

The boring locations were laid out in the field by measuring from existing site features. Ground surface elevations at the boring locations were estimated from topographic map dated July 5, 2018 by The Altum Group using a project datum and should be considered approximate. The project datum is 500 feet greater than actual MSL elevations to avoid negative elevations.

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
			B	0	Natural: **SILTY SAND (SM)** light brown, dry, loose	
2.2	94	14	D			-115
8.6	105	15	D	5	**SILT (ML)** brown, slightly moist, stiff	
17.1	94	11	D		@ 7 feet, very moist, firm	-120
15.2	99	11	D	10	**SANDY SILT (ML)** grey, very moist, firm	
					CLAY (CL) grey, moist, firm	
					Total Depth 11 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

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PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-1

FIGURE B-1

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
				B	0	Natural: **SANDY SILT (ML)** light brown, dry to slightly moist, firm	
	9.7	89	12	D		**SILT (ML)** light brown, slightly moist, firm	-120
	6.7	92	10	D	5	**SILTY SAND (SM)** light brown, slightly moist, loose	
						Total Depth 6 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

GPI

PROJECT NO.: 2884.I

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LOG OF BORING NO. B-2

FIGURE B-2

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
			B	0	Natural: **SANDY SILT (ML)** light brown, very dry	
5.4	84	14	D		**SANDY SILT (ML)** light brown, dry, stiff	-120
					SILT (ML) light brown / grey, dry to slightly moist, stiff, with gravel	
32.0	88	15	D	5	**SANDY SILT (ML)** light brown, wet, stiff	
						-125
4.0	101	7	D	10	**SILTY CLAY (CL)** light brown, dry, firm	
					CLAY (CL) light brown, dry, firm	
					Total Depth 11 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

GPI

PROJECT NO.: 2884.I

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LOG OF BORING NO. B-3

FIGURE B-3

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
					0	Natural: **SANDY SILT (ML)** light brown, dry	-115
	0.4	92	30	D		**SILTY SAND (SM)** light brown, dry, medium dense	
	2.0	95	18	D	5		
						Total Depth 6 feet	-120

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

GPI

PROJECT NO.: 2884.I

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LOG OF BORING NO. B-4

FIGURE B-4

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
				B	0	Natural: **SANDY SILT (ML)** light brown, dry	
	2.3	95	16	D		@ 2 feet, stiff	-120
	14.8	88	16	D	5	**SILT (ML)** brown, moist, stiff	
						Total Depth 6 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
Not Encountered

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-5

FIGURE B-5

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
				0	Natural: **SANDY SILT (ML)** light brown, dry	-120
2.0	85	16	D		**SILT (ML)** light brown, dry, stiff	
2.8	88	15	D	5		-125
9.5		12	S		@ 7 feet, dry to slightly moist	
23.5	93	12	D	10	**CLAYEY SILT (ML)** brown, wet, stiff	-130
33.1	86	6	D	15	**SILTY SAND (SM)** brown, wet, loose	-135
					CLAYEY SILT (ML) brown, wet, firm, trace sand	
24.7	95	14	D	20	**SANDY SILT (ML)** grey brown, wet, stiff	-140
21.2		19	S	25	**SILTY SAND (SM)** grey brown, wet, medium dense	-145
				30		-150
39.2	82	16	D		**SILT (ML)** grey, wet, stiff, trace sand	
35.9	87	8	D	35	**CLAYEY SILT (ML)** brown grey, wet, firm	-155

This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED: 7-23-18
EQUIPMENT USED: 8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft): 14

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PROJECT NO.: 2884.I
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LOG OF BORING NO. B-6

FIGURE B-6

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	35.1	85	9	D	40	**SILTY CLAY (CL)** grey brown, wet, firm, with shells	-160
	22.8		34	S	45	**SAND (SP)** grey, wet, dense, trace silt	-165
	25.3	96	28	D	50	**SANDY SILT (ML)** grey, wet, very stiff, with clay lenses	-170
	22.2	105	15	D	55	**SILT (ML)** grey and brown, wet, stiff, with porosity, trace sand	-175
	21.5		52	S	60	**SILTY SAND (SM)** grey, wet, very dense	-180
					65		-185
	19.8		60	S	70		-190
					75		-195

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-6

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)		*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	28.3		65	S	80		**SANDY SILT (ML)** grey, wet, hard	-200
							Total Depth 81.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-6

FIGURE B-6

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
				B	0	Natural: **SANDY SILT (ML)** light brown, dry	
	2.1	81	8	D		**SILT (ML)** light brown, dry, firm, trace sand	
							-120
	1.4	93	16	D	5	@ 5 feet, stiff	
	14.1	92	9	D		**SILTY SAND (SM)** light brown, very moist, loose	
							-125
	8.1		10	S	10	@ 10 feet, moist, medium dense	
							-130
	21.4	101	25	D	15	**SAND (SP)** grey, wet, medium dense, trace silt	
							-135
	20.2		11	S	20	**SAND with SILT (SP-SM)** grey, wet, medium dense	
						SAND (SP) grey, wet, medium dense, trace silt	
							-140
	28.2	95	18	D	25	**SILT (ML)** grey, wet, stiff, trace sand and shells	
							-145
	17.5		15	S	30	**SAND with SILT (SP-SM)** grey, wet, medium dense	
							-150
	26.2	96	19	D	35		
							-155

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-7

FIGURE B-7

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	33.5	85	13	D	40	**CLAY (CL)** grey with brown, wet, stiff	
							-160
	26.7		17	S	45	**SANDY SILT (ML)** grey, wet, very stiff	
							-165
	23.1	97	17	D	50		
	29.7	92				**SILT (ML)** grey, wet, stiff	
							-170
	31.7	88	11	D	55	@ 55 feet, firm	
							-175
	31.8		28	S	60	**CLAYEY SILT (ML)** grey, wet, very stiff	
					65		
							-180
							-185
	15.8		51	S	70	**SILTY SAND (SM)** grey, wet, very dense	
							-190
					75		
							-195

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

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PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-7

FIGURE B-7

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	16.2		26	S	80	@ 80 feet, medium dense	
						Total Depth 81.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-23-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
14

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-7

FIGURE B-7

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
				0	Natural: **SANDY SILT (ML)** light brown, dry	
3.6	89	14	D		**SILT (ML)** light brown grey, dry, stiff	-115
3.7	100	15	D	5	**SILTY SAND (SM)** light brown, dry to slightly moist, loose	
10.0	95	11	D		**SANDY SILT (ML)** light brown, slighty moist to moist, stiff, trace clay	-120
27.3	91	6	D	10	**CLAYEY SILT (ML)** light brown grey, wet, firm	-125
24.2		7	D	15	**SANDY SILT (ML)** grey, wet, very stiff	-130
24.4		9	S	20		-135
		29	S	25		-140
20.6		20	S	30	**SILTY SAND (SM)** grey, wet, medium dense	-145
				35		-150
17.8	101	21	D		**SILTY CLAY (CL)** grey, wet, firm	

This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-8

FIGURE B-8

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
					This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	
				40		
34.9		19	S		@ 42 feet, very stiff	-155
					CLAYEY SILT (ML) grey, wet, very stiff	
				45		
						-160
				50		
29.4	95	17	D		**SANDY SILT (ML)** grey, wet, stiff, trace clay	
						-165
				55		
						-170
				60		
28.9		19	S		**SILT (ML)** grey, wet, very stiff	
						-175
				65		
						-180
				70		
		32	S		@ 70 feet, no recovery	
						-185
				75		
						-190

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-8

FIGURE B-8

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)		*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
			26	S	80		@ 80 feet, no recovery	
							Total Depth 81.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-8

FIGURE B-8

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
				0	Natural: **SILT (ML)** light brown, very dry	-115
4.1	96	14	D		**SILT (ML)** light brown, dry, stiff, trace sand	
10.6	89	15	D	5	@ 5 feet, brown, moist	-120
14.9	98	11	D		@ 7 feet, firm, trace clay	
					SANDY SILT (ML) light brown grey, moist, firm	
29.5	92	6	D	10	**CLAY (CL)** grey, wet, firm	-125
30.1	89	7	D	15		-130
19.3		9	S	20	**SILTY SAND (SM)** light brown, grey, wet, loose	-135
25.2		29	S	25	@ 25 feet, medium dense	-140
12.7		20	S	30	**SAND (SP)** light brown, wet, medium dense	-145
28.7	93	21	D	35	**CLAYEY SILT (ML)** grey, wet, stiff	-150

This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED: 7-24-18
EQUIPMENT USED: 8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft): 19

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PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-9

FIGURE B-9

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
				40	**CLAYEY SILT (ML)** grey, very moist, stiff	-155
				45		-160
28.0	92	23	D		**SILT (ML)** grey, wet, very stiff	
				50		-165
26.9 28.8		12	S	55	@ 55 feet, wet, stiff, trace sand	
					CLAYEY SILT (ML) grey, wet, stiff	-170
18.7		32	S	60	**SILTY SAND (SM)** grey, very moist to wet, dense	-175
					Total Depth 61.5 feet	

This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
19

GPI

PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-9

FIGURE B-9

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
					This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	
				0	Natural: **SANDY SILT (ML)** light brown, dry	
3.4	91	21	D		@ 2 feet, stiff	-115
3.3	96	17	D	5		
3.0	97	12	D		**SILTY SAND (SM)** light brown, dry, loose	-120
29.9	91	12	D	10	**CLAY (CL)** grey with brown, wet, stiff	
26.6	92	8	D			-125
25.0	94	7	D	15	**CLAYEY SILT (ML)** grey, wet, firm, with shells	
						-130
28.7		9	S	20	**SANDY SILT (ML)** grey, wet, trace clay	
						-135
28.8		20	S	25	**SILT (ML)** grey, wet, very stiff	
						-140
18.7	108	26	D	30	**SILTY SAND (SM)** grey, wet, medium dense	
						-145
36.5	86	10	D	35	**SILT (ML)** light brown, wet, firm	
						-150

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
19

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PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-10

FIGURE B-10

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)		*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	33.0	88	9	D	40		@ 40 feet, with shells	
							Total Depth 41 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-24-18
EQUIPMENT USED:
8 " Hollow Stem Auger
GROUNDWATER LEVEL (ft):
19

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PROJECT NO.: 2884.I
COACHELLA

LOG OF BORING NO. B-10

FIGURE B-10

MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
				0	Natural: **SANDY SILT (ML)** light brown, very dry	
3.0	109	20	D		**SILT (ML)** light brown, dry, stiff	-120
3.3	85	21	D	5	**SILTY SAND (SM)** light brown, dry, medium dense	
1.1	95	22	D			-125
30.5	82	10	D	10	**CLAY (CL)** brown, wet, firm, trace silt @ 12 feet, stiff	
30.7	87	16	D		**SILTY CLAY (CL)** light brown, wet, stiff	-130
22.3		18	S	15	**SAND with SILT (SP-SM)** grey, wet, medium dense	
					SILTY CLAY (CL) grey, wet, very stiff	-135
				20	@ 22 feet, stiff	
27.1	96	15	D		**SANDY SILT (ML)** grey, wet, stiff	-140
28.9		19	S	25	**CLAY (CL)** grey brown, wet, very stiff, trace silt	
						-145
19.4		24	S	30	**SILTY SAND (SM)** grey, wet, medium dense	
						-150
				35		
						-155

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
20

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PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-11

FIGURE B-11

	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FOOT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
	34.3	85	8	D	40	**SANDY CLAY (CL)** grey, wet, stiff	
							-160
	26.4		21	D	45	**SAND (SP)** grey, wet, medium dense, trace silt	
							-165
	33.3						
	41.8		7	S	50		
						CLAY (CL) grey, wet, stiff	
						Total Depth 51.5 feet	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
7-25-18

EQUIPMENT USED:
8 " Hollow Stem Auger

GROUNDWATER LEVEL (ft):
20

PROJECT NO.: 2884.I

COACHELLA

LOG OF BORING NO. B-11

FIGURE B-11

APPENDIX C

APPENDIX C

LABORATORY TESTS

INTRODUCTION

Representative undisturbed soil samples and bulk samples were carefully packaged in the field and sealed to prevent moisture loss. The samples were then transported to our Cypress office for examination and testing assignments. Laboratory tests were performed on selected representative samples as an aid in classifying the soils and to evaluate the physical properties of the soils affecting foundation design and construction procedures. Detailed descriptions of the laboratory tests are presented below under the appropriate test headings. Test results are presented in the figures that follow.

MOISTURE CONTENT AND DRY DENSITY

Moisture content and dry density were determined from a number of the ring samples. The samples were first trimmed to obtain volume and wet weight and then were dried in accordance with ASTM D 2216. After drying, the weight of each sample was measured, and moisture content and dry density were calculated. Moisture content and dry density values are presented on the boring logs in Appendix B.

GRAIN SIZE DISTRIBUTION

Soil samples were dried, weighed, soaked in water until individual soil particles were separated, and then washed on the No. 200 sieve. That portion of the material retained on the No. 200 sieve was oven-dried and weighed to determine the percentage of the material passing the No. 200 sieve. A summary of the percentages passing the No. 200 sieve is presented below.

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	PERCENT PASSING No. 200 SIEVE
B-1	2	Silty Sand (SM)	40
B-3	0-4	Sandy Silt (ML)	68
B-7	20	Sand w/Silt (SP-SM)	10
B-7	35	Silty Sand (SP-SM)	13
B-7	45	Sandy Silt (ML)	54
B-8	30	Silty Sand (SM)	26
B-8	50	Sandy Silt (ML)	59
B-10	15	Clayey Silt (ML)	91
B-10	30	Silty Sand (SM)	44
B-11	15	Sand w/Silt (SP-SM)	8
B-11	30	Silty Sand (SM)	20
B-11	45	Sand (SP)	5

ATTERBERG LIMITS

Liquid and plastic limits were determined for selected samples in accordance with ASTM D4318. Results of the Atterberg Limits test are summarized on Figure C-1.

DIRECT SHEAR

Direct shear tests were performed on relatively undisturbed and remolded bulk samples in accordance with ASTM D 3080. The bulk samples were remolded to approximately 90 percent of the maximum dry density. The test specimens were placed in the shear machine, and a normal load comparable to the in-situ overburden stress was applied. The samples were inundated, allowed to consolidate, and then were sheared to failure at a strain rate of 0.001 to 0.002 inches per minute. The tests were repeated on additional test specimens under increased normal loads. Shear stress and sample deformation were monitored throughout the test. The results of the direct shear tests are presented in Figures C-2 to C-6.

CONSOLIDATION

One-dimensional consolidation tests were performed on undisturbed samples in accordance with ASTM D 2435. After trimming the ends, the samples were placed in the consolidometer and loaded to up to 0.4 ksf. Thereafter, the samples were incrementally loaded to a maximum load of up to 25.6 ksf. The samples were inundated at 1.6 ksf. Sample deformation was measured to 0.0001 inch. Rebound behavior was investigated by unloading the sample back to 0.4 ksf. Results of the consolidation tests, in the form of percent consolidation versus log pressure are presented in Figures C-7 to C-9.

COLLAPSE

Collapse tests were performed on undisturbed samples in accordance with ASTM D 5333. After trimming the ends, the sample was placed in the consolidometer and loaded to 0.4 ksf. Thereafter, the samples were incrementally loaded to 1.6 ksf at the in-situ moisture content and then saturated. Sample deformation was measured to 0.0001 inch. The amount of collapse is shown below as percent compression of the sample.

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	IN-SITU MOISTURE CONTENT (%)	TOTAL COMPRESSION (%)	
				BEFORE SATURATION	AFTER SATURATION
B-6	15	Sandy Silt (SM)	33.1	5.1	5.2
B-9	7	Sandy Silt (SM)	14.9	1.5	1.5
B-10	7	Sand w/Silt (SP-SM)	3.0	1.4	2.2

COMPACTION TEST

A maximum dry density/optimum moisture tests were performed in accordance with ASTM D 1557 on representative bulk samples of the site soils. The test results are as follows:

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	OPIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)
B-1	0–4	Silty Sand (SM)	112	13.0
B-7	0–4	Sandy Silt (ML)	111	14.0

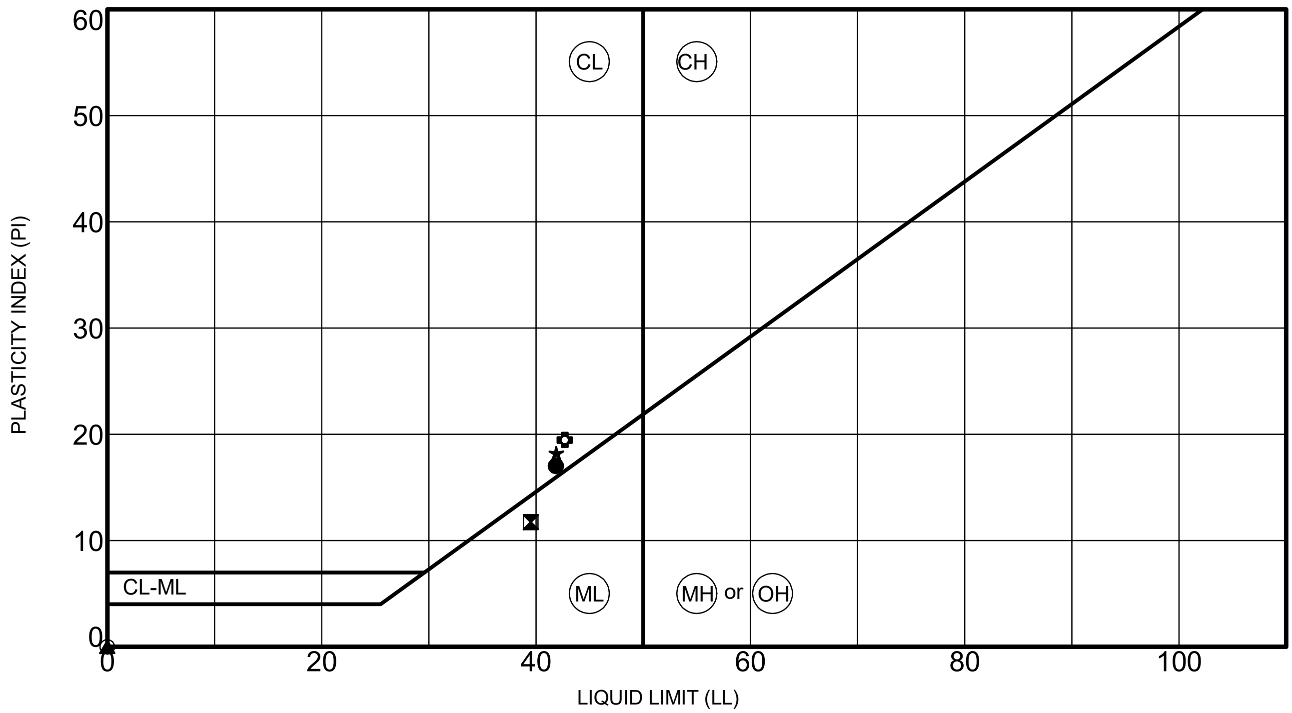
R-VALUE

Suitability of the near-surface soils for pavement was evaluated by conducting an R-value test. The test was performed in accordance with ASTM D 2844 by GeoLogic Associates (GLA) under subcontract to GPI. The result of the test is as follows:

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	R-VALUE
B-3	0 – 4	Silt w/Gravel (ML)	42

CORROSIVITY

Soil corrosivity testing was performed by HDR on soil samples provided by GPI. The test results are summarized in Table 1 of this Appendix.



	SAMPLE LOCATION		LL	PL	PI	Fines, %	Classification
●	B-10	12.0	42	25	17		CLAY (CL)
⧗	B-10	35.0	40	28	12		SILT (ML)
▲	B-7	25.0	NP	NP	NP		SILT (ML)
★	B-7	40.0	42	24	18		CLAY (CL)
⊙	B-7	50.0	NP	NP	NP		SILT (ML)
✿	B-9	15.0	43	23	19		CLAY (CL)

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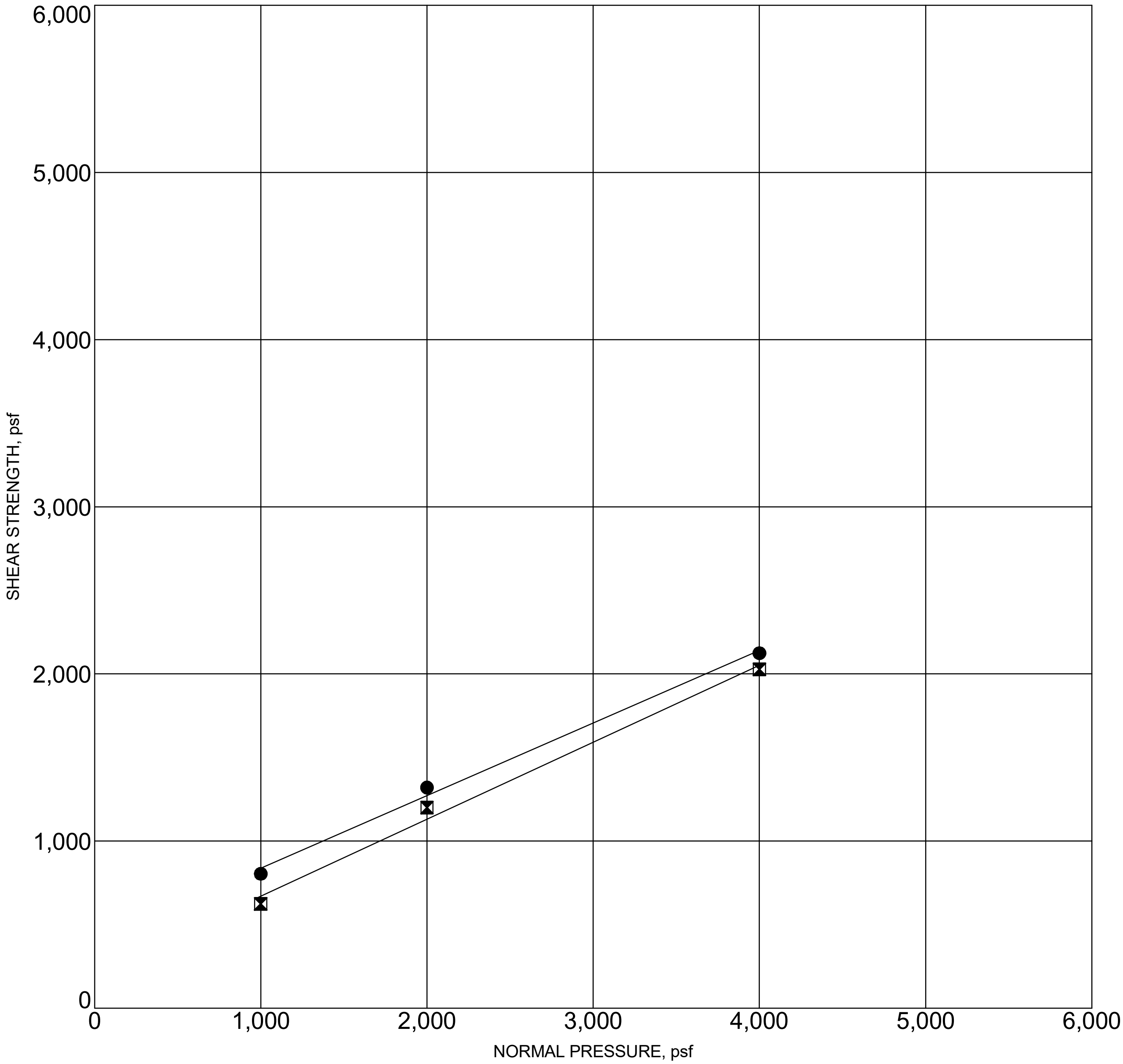
ATTERBERG LIMITS TEST RESULTS

FIGURE C-1



● **PEAK STRENGTH**
Friction Angle= 23 degrees
Cohesion= 402 psf

ULTIMATE STRENGTH
Friction Angle= 25 degrees
Cohesion= 210 psf

Sample Location		Classification	DD,pcf	MC,%
B-6	10.0	CLAYEY SILT (ML)	93	23.5

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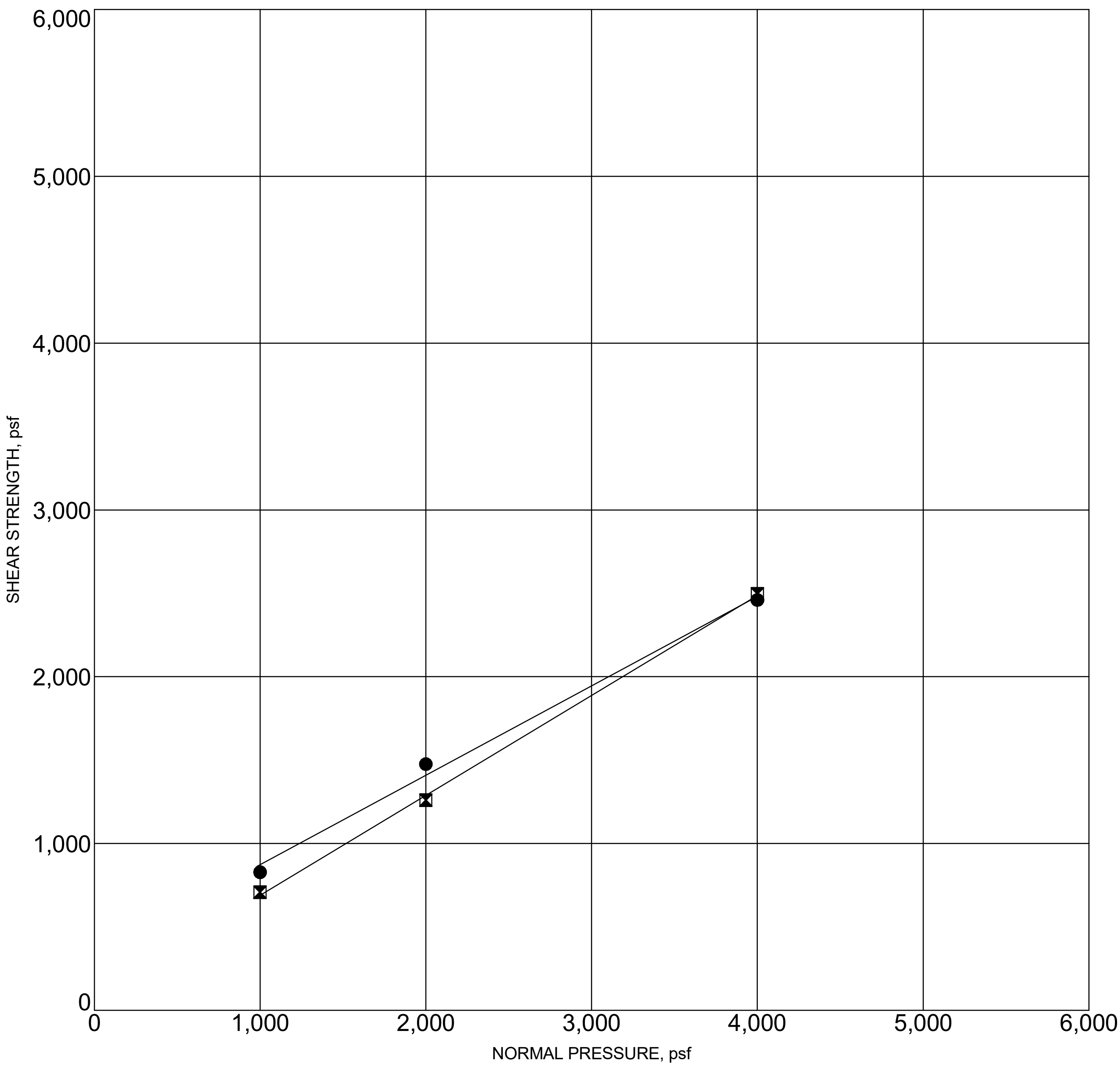
DIRECT SHEAR TEST RESULTS

FIGURE C-2



● **PEAK STRENGTH**
Friction Angle= 28 degrees
Cohesion= 336 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 31 degrees
Cohesion= 90 psf

Note: Samples remolded to 90% maximum dry density

Sample Location		Classification	DD,pcf	MC,%
B-7	0-4	SANDY SILT (ML)	100	14.0

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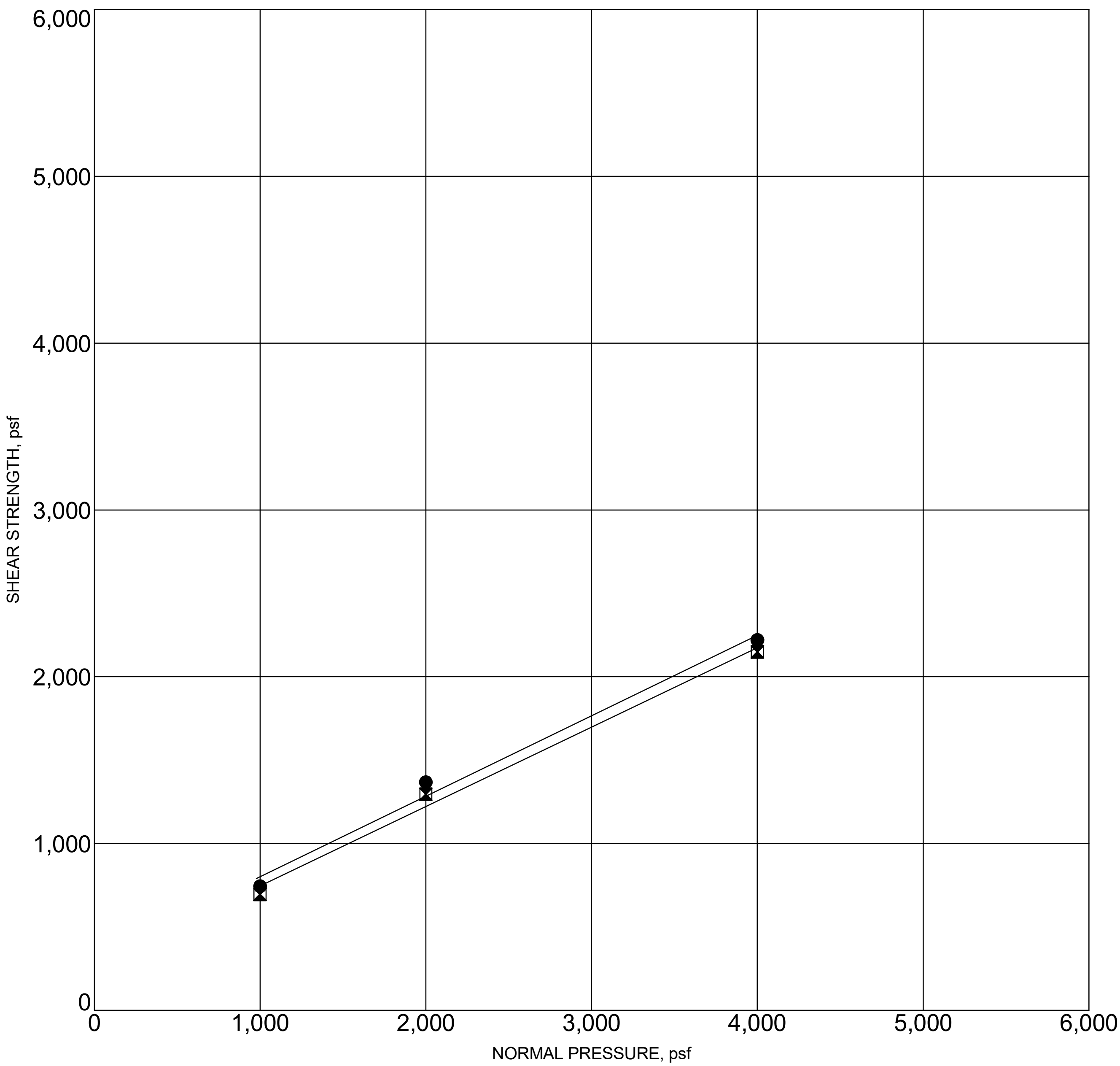
DIRECT SHEAR TEST RESULTS

FIGURE C-3



● **PEAK STRENGTH**
Friction Angle= 26 degrees
Cohesion= 318 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 25 degrees
Cohesion= 270 psf

Sample Location		Classification	DD,pcf	MC,%
B-7	7.0	SILTY SAND (SM)	92	14.1

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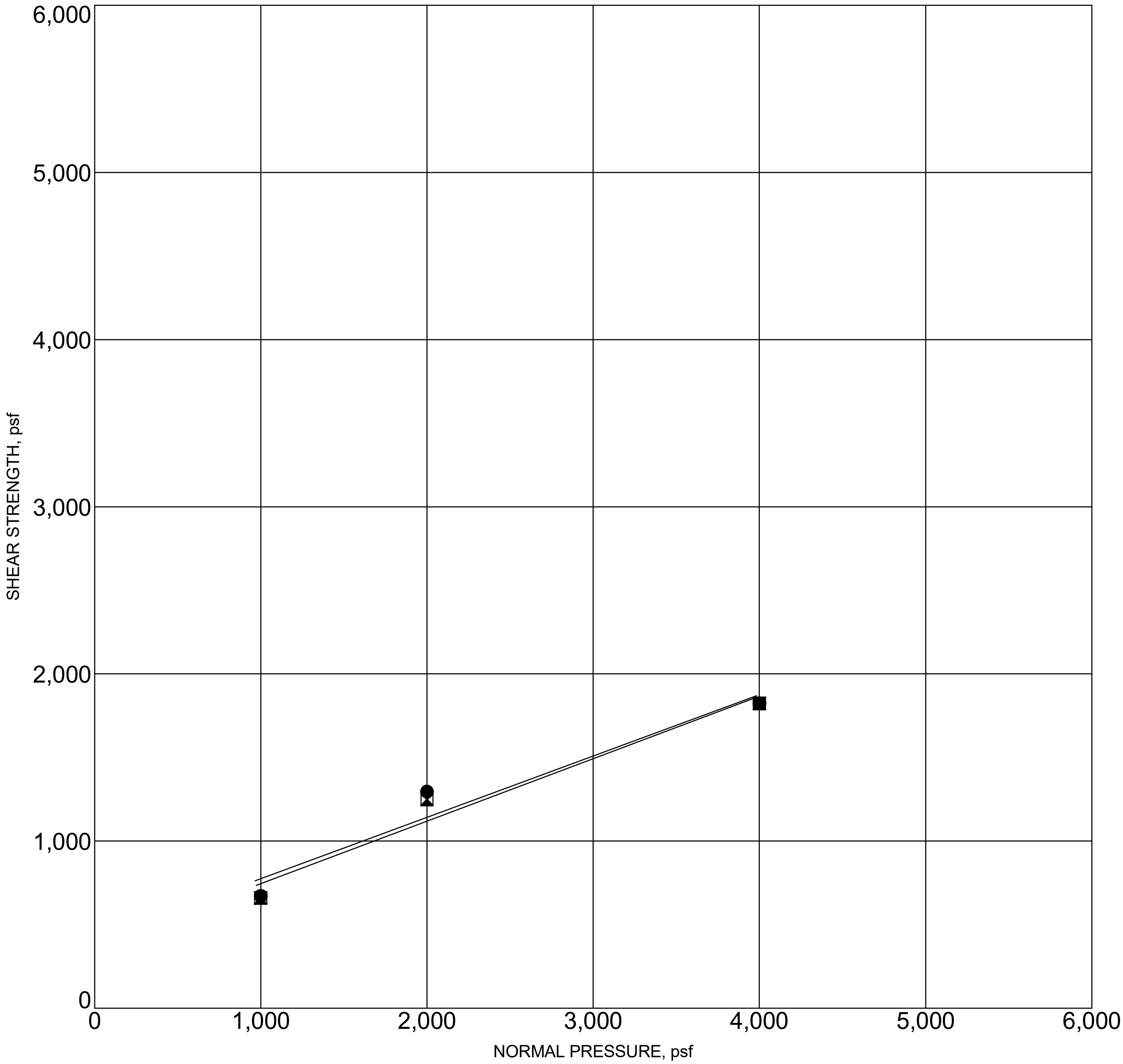
DIRECT SHEAR TEST RESULTS

FIGURE C-4



● **PEAK STRENGTH**
Friction Angle= 20 degrees
Cohesion= 408 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 20 degrees
Cohesion= 372 psf

Sample Location		Classification	DD,pcf	MC,%
B-10	5.0	SANDY SILT (ML)	96	3.3

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PROJECT NO.: 2884.I

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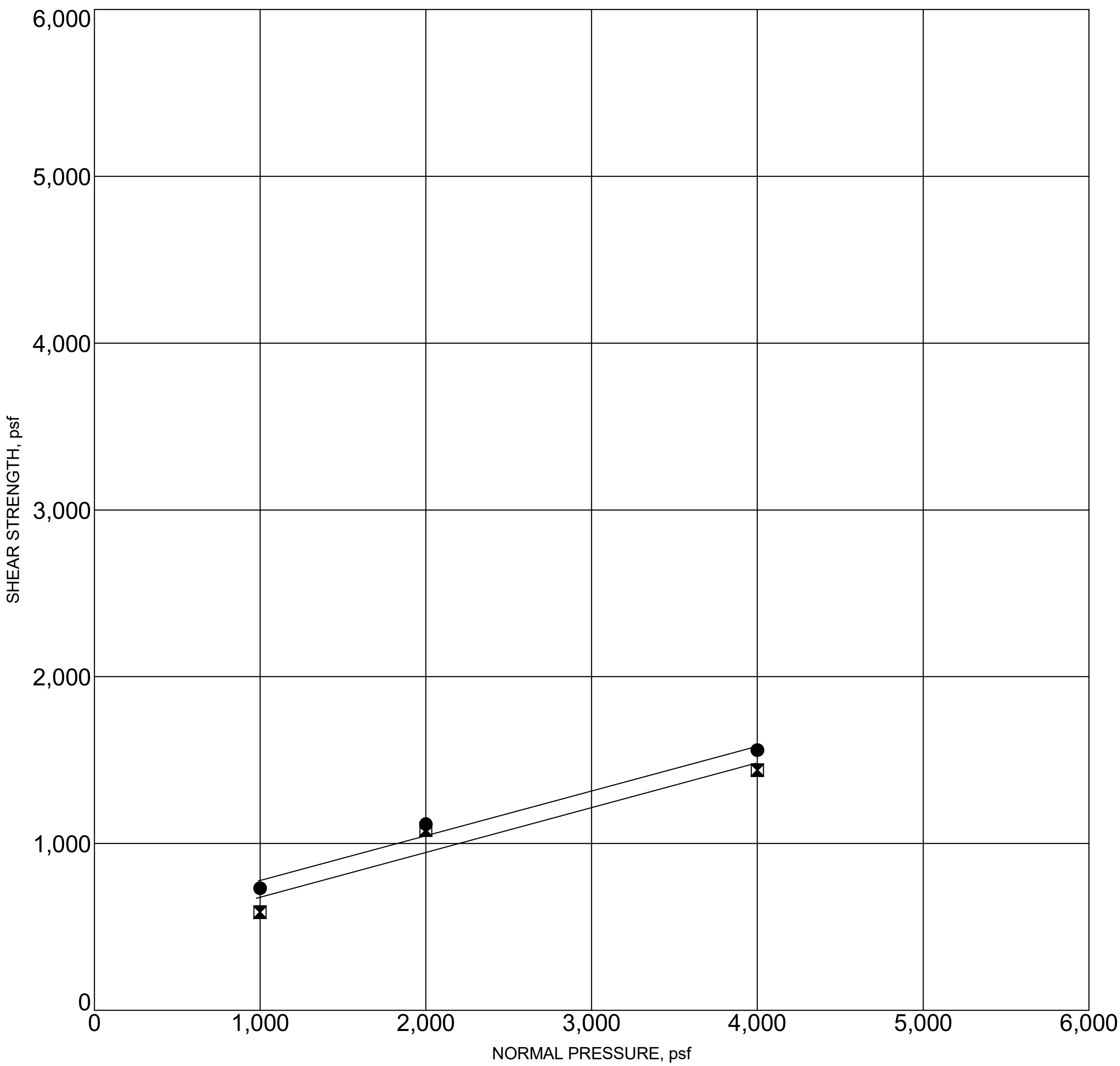
DIRECT SHEAR TEST RESULTS

FIGURE C-5



● **PEAK STRENGTH**
Friction Angle= 15 degrees
Cohesion= 510 psf

⧗ **ULTIMATE STRENGTH**
Friction Angle= 15 degrees
Cohesion= 408 psf

Sample Location		Classification	DD,pcf	MC,%
B-11	10.0	CLAY (CL)	82	30.5

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PROJECT NO.: 2884.I

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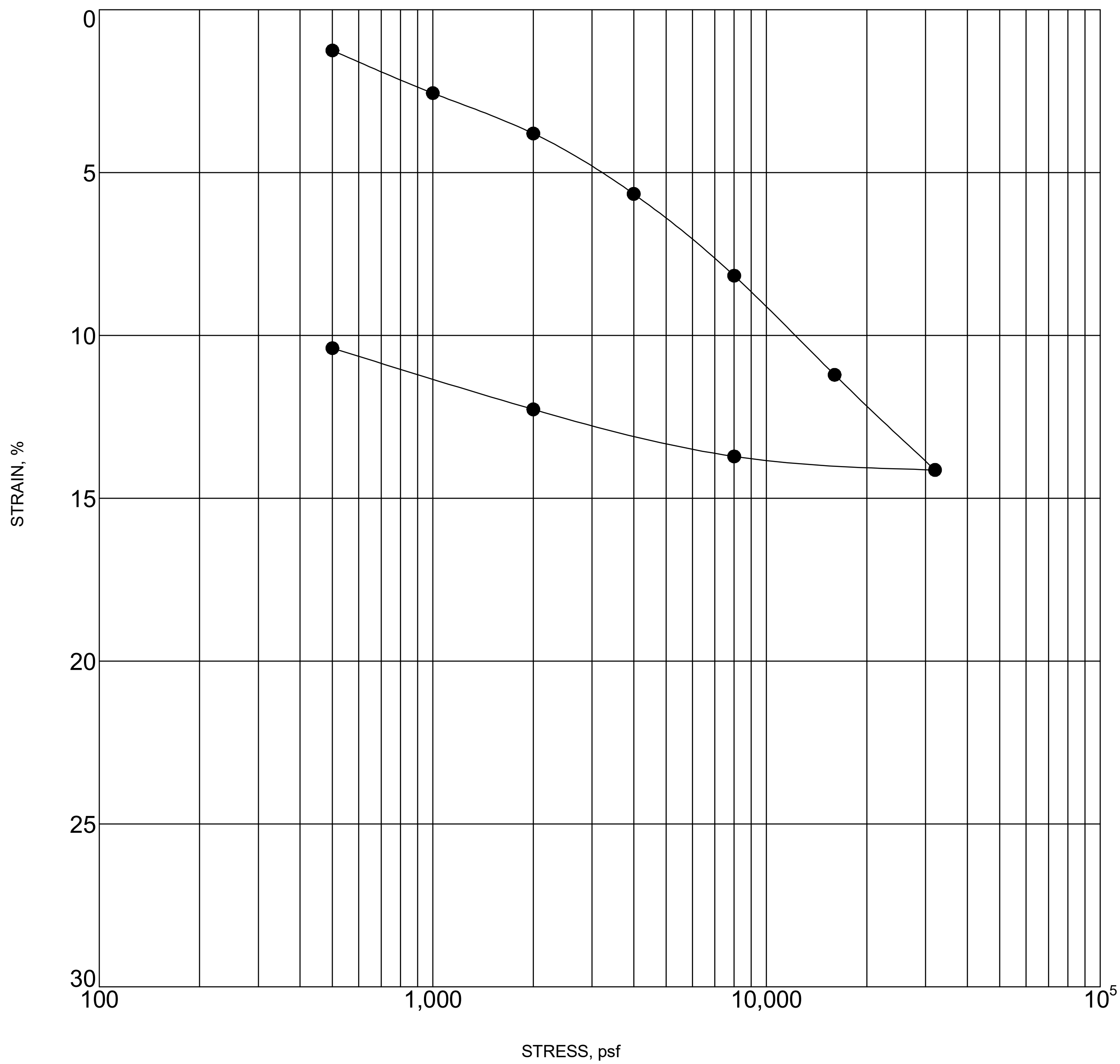
DIRECT SHEAR TEST RESULTS

FIGURE C-6



Sample inundated at 2000 psf

	Sample Location		Classification	DD,pcf	MC,%
●	B-6	32.0	SILT (ML)	82	39.2

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PROJECT NO.: 2884.I

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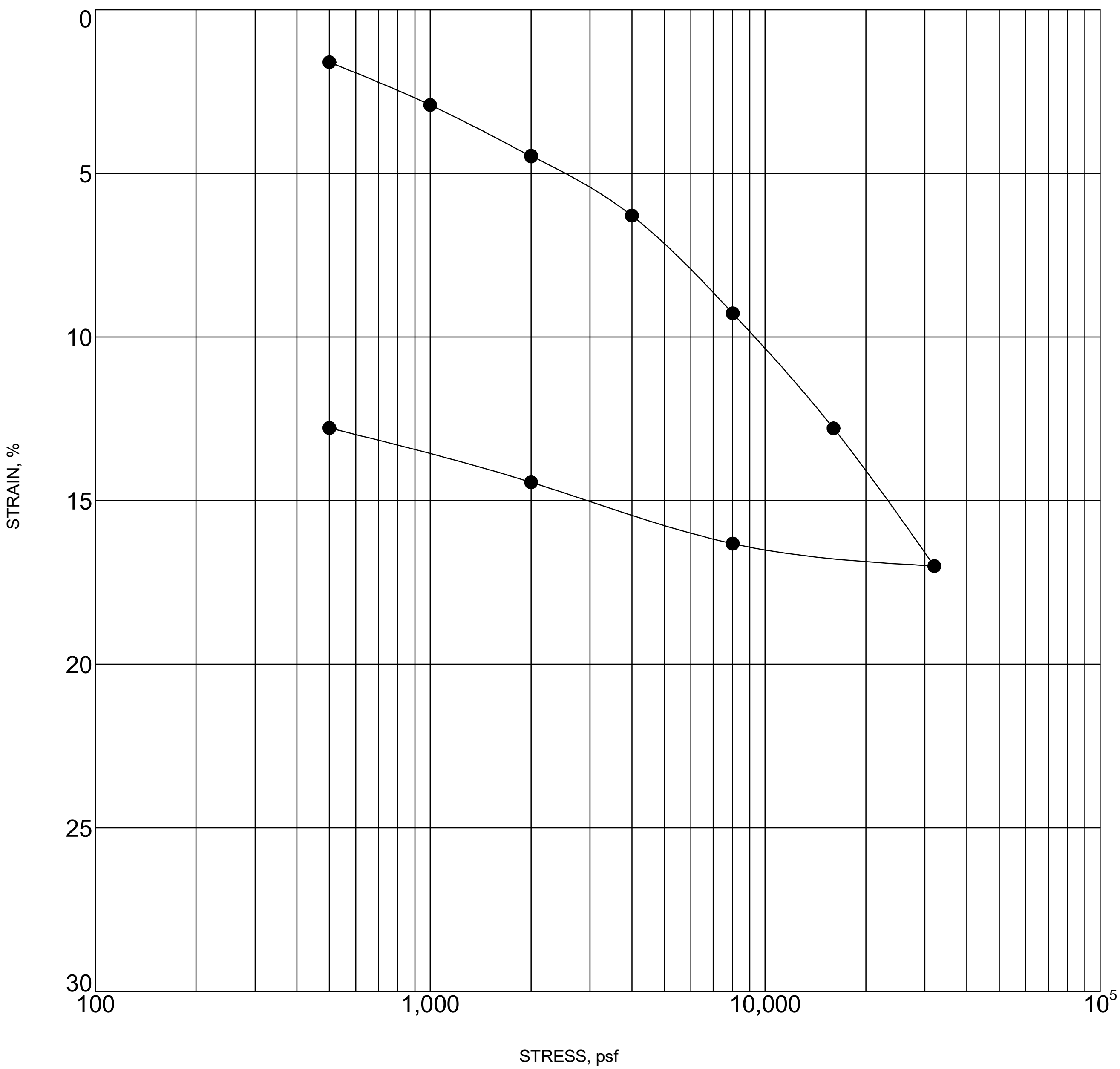
CONSOLIDATION TEST RESULTS

FIGURE C-7



Sample inundated at 2000 psf

	Sample Location		Classification	DD,pcf	MC,%
●	B-9	15.0	CLAY (CL)	89	30.1

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PROJECT NO.: 2884.I

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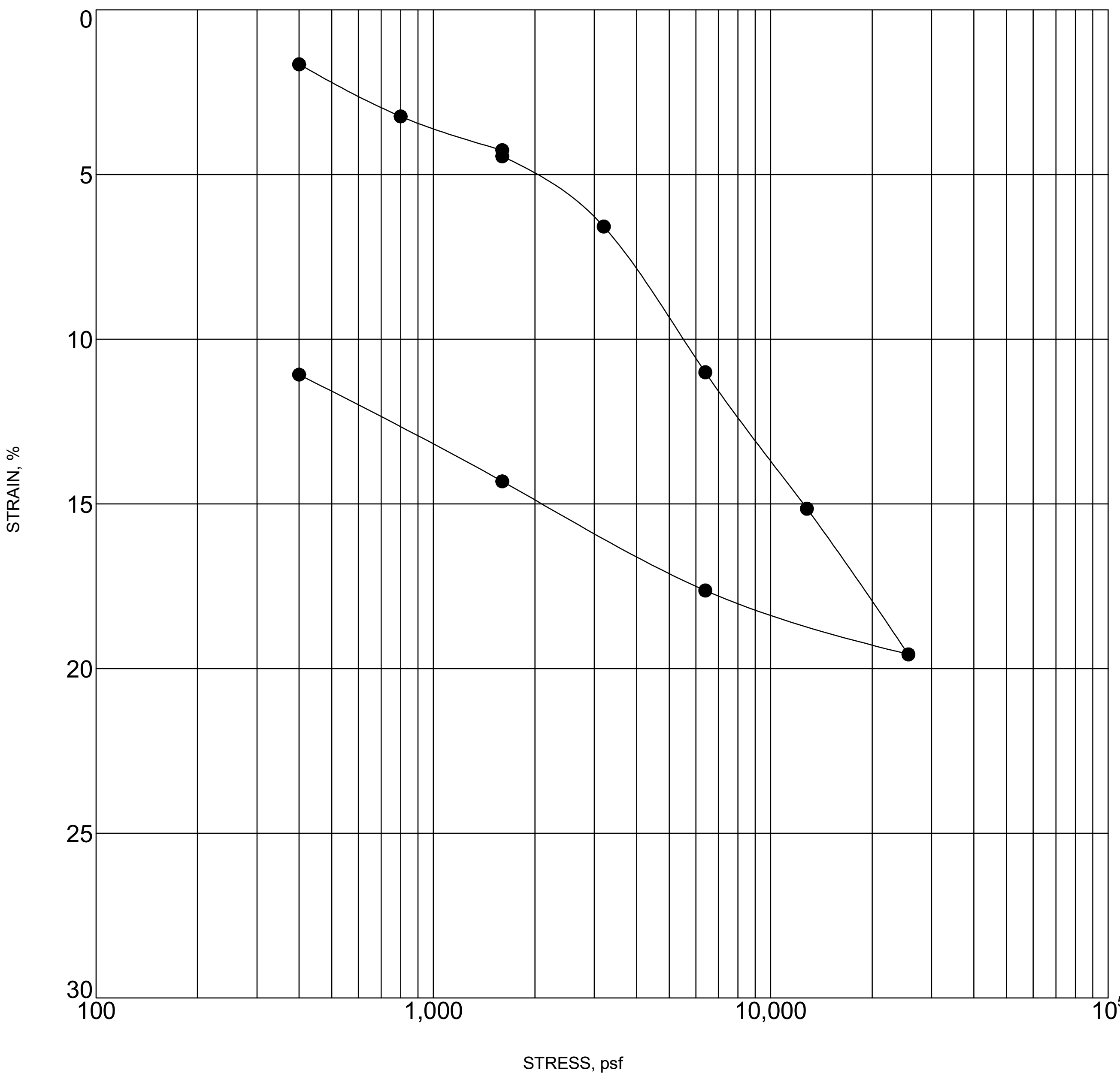
CONSOLIDATION TEST RESULTS

FIGURE C-8



Sample inundated at 1600 psf

	Sample Location		Classification	DD,pcf	MC,%
●	B-11	10.0	CLAY (CL)	82	30.5

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CONSOLIDATION TEST RESULTS

FIGURE C-9

Table 1 - Laboratory Tests on Soil Samples

Geotechnical Professionals, Inc.
Coachella Business Park
Your #2884.I, HDR Lab #18-0502LAB
9-Aug-18

Sample ID

			B-3 @ 0-4'	B-7 @ 0-4'
Resistivity		**Units**		
as-received		ohm-cm	2,480	600,000
saturated		ohm-cm	160	1,040
pH			7.7	7.7
Electrical Conductivity		mS/cm	3.04	0.27
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	1,220	100
magnesium	Mg^{2+}	mg/kg	232	16
sodium	Na^{1+}	mg/kg	2,290	128
potassium	K^{1+}	mg/kg	218	40
Anions				
carbonate	CO_3^{2-}	mg/kg	ND	ND
bicarbonate	HCO_3^{1-}	mg/kg	95	146
fluoride	F^{1-}	mg/kg	7.8	4.0
chloride	Cl^{1-}	mg/kg	2770	125
sulfate	SO_4^{2-}	mg/kg	4,080	163
phosphate	PO_4^{3-}	mg/kg	ND	ND
Other Tests				
ammonium	NH_4^{1+}	mg/kg	ND	ND
nitrate	NO_3^{1-}	mg/kg	861	174
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Resistivity per ASTM G187, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per APHA 2320-B.
Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

Appendix F

Structural BMP and/or Retention Facility Sizing Calculations and Design Details

Fueling Areas SD-30

Photo Credit: Geoff Brosseau

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- ☑ Collect and Convey

Description

Fueling areas have the potential to contribute oil and grease, solvents, car battery acid, coolant and gasoline to the stormwater conveyance system. Spills at vehicle and equipment fueling areas can be a significant source of pollution because fuels contain toxic materials and heavy metals that are not easily removed by stormwater treatment devices.

Approach

Project plans must be developed for cleaning near fuel dispensers, emergency spill cleanup, containment, and leak prevention.

Suitable Applications

Appropriate applications include commercial, industrial, and any other areas planned to have fuel dispensing equipment, including retail gasoline outlets, automotive repair shops, and major non-retail dispensing areas.

Design Considerations

Design requirements for fueling areas are governed by Building and Fire Codes and by current local agency ordinances and zoning requirements. Design requirements described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements.

Designing New Installations

Covering

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Fuel dispensing areas should provide an overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area should drain to the project's treatment control BMP(s) prior to discharging to the stormwater conveyance system. Note - If fueling large equipment or vehicles that would prohibit the use of covers or roofs, the fueling island should be designed to sufficiently accommodate the larger vehicles and equipment and to prevent stormwater run-on and runoff. Grade to direct stormwater to a dead-end sump.

Surfacing

Fuel dispensing areas should be paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete should be prohibited. Use asphalt sealant to protect asphalt paved areas surrounding the fueling area. This provision may be made to sites that have pre-existing asphalt surfaces.

The concrete fuel dispensing area should be extended a minimum of 6.5 ft from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 ft, whichever is less.

Grading/Contouring

Dispensing areas should have an appropriate slope to prevent ponding, and be separated from the rest of the site by a grade break that prevents run-on of urban runoff. (Slope is required to be 2 to 4% in some jurisdictions' stormwater management and mitigation plans.)

Fueling areas should be graded to drain toward a dead-end sump. Runoff from downspouts/roofs should be directed away from fueling areas. Do not locate storm drains in the immediate vicinity of the fueling area.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

- In the case of an emergency, provide storm drain seals, such as isolation valves, drain plugs, or drain covers, to prevent spills or contaminated stormwater from entering the stormwater conveyance system.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☑ Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Description

Several measures can be taken to prevent operations at maintenance bays and loading docks from contributing a variety of toxic compounds, oil and grease, heavy metals, nutrients, suspended solids, and other pollutants to the stormwater conveyance system.

Approach

In designs for maintenance bays and loading docks, containment is encouraged. Preventative measures include overflow containment structures and dead-end sumps. However, in the case of loading docks from grocery stores and warehouse/distribution centers, engineered infiltration systems may be considered.

Suitable Applications

Appropriate applications include commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for vehicle maintenance and repair are governed by Building and Fire Codes, and by current local agency ordinances, and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code requirements.

Designing New Installations

Designs of maintenance bays should consider the following:

- Repair/maintenance bays and vehicle parts with fluids should be indoors; or designed to preclude urban run-on and runoff.
- Repair/maintenance floor areas should be paved with Portland cement concrete (or equivalent smooth impervious surface).

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- Repair/maintenance bays should be designed to capture all wash water leaks and spills. Provide impermeable berms, drop inlets, trench catch basins, or overflow containment structures around repair bays to prevent spilled materials and wash-down waters form entering the storm drain system. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.

- Other features may be comparable and equally effective.

The following designs of loading/unloading dock areas should be considered:

- Loading dock areas should be covered, or drainage should be designed to preclude urban run-on and runoff.

- Direct connections into storm drains from depressed loading docks (truck wells) are prohibited.

- Below-grade loading docks from grocery stores and warehouse/distribution centers of fresh food items should drain through water quality inlets, or to an engineered infiltration system, or an equally effective alternative. Pre-treatment may also be required.

- Other features may be comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “ redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Additional Information

Stormwater and non-stormwater will accumulate in containment areas and sumps with impervious surfaces. Contaminated accumulated water must be disposed of in accordance with applicable laws and cannot be discharged directly to the storm drain or sanitary sewer system without the appropriate permit.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Trash Storage Areas SD-32

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.

- Make sure trash container areas are screened or walled to prevent off-site transport of trash.

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- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

Maintenance Considerations

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

COACHELLA AIRPORT BUSINESS PARK

IN THE CITY OF
COACHELLA, CA

PRELIMINARY HYDROLOGY REPORT

PREPARED FOR:
HAAGEN COMPANY, LLC
12302 EXPOSITION BOULEVARD
LOS ANGELES, CA 0064
CHRIS FAHEY
(310) 820-1200

PREPARED BY:

PREPARED BY:
TheAltumGroup
73710 FRED WARING DRIVE, SUITE 219
PALM DESERT, CA 92260
(760) 346-4750

Prepared Under the Supervision of:

James R. Bazua, PE
R.C.E. 58394
Expiration Date: December 31, 2020

REGISTERED PROFESSIONAL ENGINEER
JAMES RON BAZUA
No 58394
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA

COACHELLA AIRPORT BUSINESS PARK

PRELIMINARY HYDROLOGY REPORT

TABLE OF CONTENTS:

I PROJECT DESCRIPTION

II PROJECT SCOPE AND DESIGN METHODOLOGY

III RETENTION BASIN SIZING/ SYNTHETIC UNIT HYDROGRAPH CALCULATIONS

IV RETENTION BASIN INFILTRATION STUDY

V REFERENCE MATERIAL

VI APPENDIX

I. PROJECT DESCRIPTION

Haagen Co., LLC is proposing to develop the Coachella Airport Business Park (proposed project), a mixed-use business park development which includes warehouse/commercial uses, self-storage, small business, drive thru coffee shop and service station/mini mart-related land uses in the City of Coachella, in Riverside County, California. The project site is located at the northwest corner of the intersection of State Route 86 and Airport Boulevard and is comprised of three parcels totaling approximately 42.69 acres. The proposed project will require a change of zone from M-H (Heavy Industrial) to MS-IP (Manufacturing Service – Industrial Park Overlay) to allow the proposed uses.

The project site is bordered by a vacant, undeveloped property owned by Coachella Valley Water District (CVWD) located immediately north. To the west, the project site is bordered by the Coachella Valley Stormwater Channel, to the east, bordered by SR-86 and beyond followed by agricultural land uses, and to the south, bordered by a mobile home park. A 3.44-acre right-of-way under California Department of Transportation (Caltrans) jurisdiction that is vacant and abuts the southeastern frontage of the project site. (See Preliminary Hydrology Map – Appendix).

Although the site is adjacent to the Coachella Valley Storm Channel it is currently in the flood plain Zone AE (Base Flood Elevations Provided) based on FEMA Map Number 06065C2270H, Panel 2270 of 3805, reflected in the map revised 3/6/18. Coachella Valley Water District (CVWD) maintains the existing Storm Water Channel and has proposed future channel lining improvements that will remove the entirety of existing Coachella Airport Business Park from the flood plain. However, Coachella Airport Business Park intends to go forward with development in a manner that protects the site from off-site flows by establish elevated grades along affected portion of the project perimeter. CVWD will conduct a Flood Development Review of the project development on behalf of FEMA before Final Engineering drawings are submitted to City of Coachella for first review to confirm that the project design protects the development from off-site flows. Modeling of off-site flows affecting the site under existing and proposed conditions will be submitted to CVWD for review based on the Flood Development Review requirements listed in the CVWD Development Design Guidelines. This Preliminary Hydrology Report supports the Preliminary Grading and Drainage Plan for entitlement which shows proposed conditions protecting the site from off-site flows. However, modeling of the proposed conditions and review of the proposed conditions will not occur until after project entitlement and before submittal of final engineering documents.

II. PROJECT SCOPE AND DESIGN METHODOLOGY

This Preliminary Hydrology Report was prepared in support of the Preliminary Site Grading and Drainage Plan included as part of the Conditional Use Permit Application for the Coachella Airport Business Park. The proposed Coachella Airport Business Park Development will be required to collect and store 100% of the runoff generated during the 100 year storm event on-site per City of Coachella drainage standards. The purpose of this report is to provide a study of the storm runoff generated under the post development condition, and support the design of on-site storm retention facilities in order to satisfy the City of Coachella on-site retention requirements. An analysis supporting the design and sizing of underground storm drain conduits and drain inlets will be provided during final design phase for the development.

The project can be separated into three main subareas and storm water collection system boundaries, 1.) the majority of the site is designed to surface flow to a series of drain inlets, gutters and swales where runoff can be collected and conveyed in an underground storm drain system toward retention basins located along the westerly side of the property 2.) a smaller portion of the project located at the northerly interior of the site will drain its surface runoff toward an interim retention basin location 3.) A portion of project located on the Easterly boundary will flow to a single retention basin adjacent to the project boundary. There are several depressed loading docks (0.16 acres) serving the proposed warehouse buildings on the northerly side of the project site. These loading docks will drain separately to underground storage facilities as their depth does not allow for gravity flow into the proposed storm drain retention system. The project soils report notes that underground infiltration systems are not recommended for the site due to relatively high groundwater levels. However, recommendations for infiltration systems are given to provide for separation from infrastructure. These recommendations will be adhered to and the assumed location of underground storage systems serving the loading docks are show on the Preliminary Hydrology Map. Alternate means of providing drainage for the depressed loading dock areas, such as automatic pumping systems may be considered during Final Engineering Design phase.

It is anticipated that future improvements to the adjacent Coachella Valley Storm Water Channel proposed by CVWD will lower the hydraulic grade line within the channel sufficiently to remove Coachella Airport Business Park from the flood plain and allow gravity flow of storm runoff from project site. CVWD has confirmed that this would be allowed as long as all State Water Quality Management requirements are met. The current project design is such that gravity flow to the Coachella Valley Storm Water Channel can be achieved with minor changes to the on-site storm drain system (including removal of the interim retention basin) should the Channel be improved.

The maximum depth of any on-site retention basin will be three (3) feet and will be sized to retain the entire storm volume generated on-site during the 10 year design storm. The project site will also provide sufficient capacity to contain the runoff volume generated during the 100 year design storm in combination with the retention basin and shallow ponding on surface streets and parking areas at a depth not to exceed 1.5’ in depth. In the event of an emergency flooding condition, flows exceeding the capacity of the on-site collection system will overflow at the southeasterly end of project site toward State Highway 86 right of way and onto an adjacent undeveloped parcel of land. Flows ultimately would then proceed southerly via surface flow where make their way into the Coachella Valley Storm Water Channel. Flows then continue in the channel ultimately to its terminus at the Salton Sea.

On-site retention basins shall be designed in a manner that allows the stored volume generated from the 100 year design storm event to completely evacuate via percolation into the soil within a 72 hour period assuming the maximum percolation rate allowed by City of Coachella of 10 gallons/s.f./day (0.67in./hr). Several City of Coachella drywell infiltration chambers will be used in the design of the storm drain system in order to facilitate the conveyance of the underground storm drain system into the shallow retention basin. However, any additional infiltration provided by these drywells will not be included in calculations to reduce the size of the retention basin or aid in showing that the 100 year storm volume can be evacuated within the allotted time period.

Existing soils in the project area are predominantly consistent with Soil Type B. An Antecedent Moisture Condition of II with a Runoff Index Number of 56 as defined by RCFCD is used for the 100 year design storm.

This report includes:

1) The determination of on-site drainage areas as identified on the hydrology map for the project;

2) The determination of flood volumes for the retention basin utilizing Riverside County Flood Control District (RCFCD) Synthetic Unit Hydrograph (Short-cut Method) for the 10 year and 100 year storm event. Soil Type C values and corresponding Runoff Index (RI) Numbers are assumed.

3) A discussion regarding the project’s ability to dissipate runoff stored after a 100 year storm event within a 72 hour period.

DESIGN CRITERIA

1) On-site drainage areas:

SUBAREA A –	27.65 acres commercial (85% impervious)
	0.97 perimeter landscaping (100% pervious)
	2.1 acres retention basin areas (100% impervious)
SUBAREA B –	8.18 acres commercial (85% impervious)
	1.00 acres retention basin area (100% impervious)
SUBAREA C –	2.32 acres commercial (85% impervious)
	0.10 perimeter landscaping (100% pervious)
	0.21 acres retention basin area (100% impervious)

2) The following parameters were used in the preparation of the analyses:

• Antecedant Moisture Condition – 10 year	1	
• Antecedant Moisture Condition – 100 year	2	
• 10 year – 3 hour Precipitation	0.984”	NOAA ATLAS 14
• 10 year – 6 hour Precipitation	1.28”	NOAA ATLAS 14
• 10 year – 24 hour Precipitation	2.07”	NOAA ATLAS 14
• 100 year – 3 hour Precipitation	2.03”	NOAA ATLAS 14
• 100 year – 6 hour Precipitation	2.71”	NOAA ATLAS 14
• 100 year – 24 hour Precipitation	4.24”	NOAA ATLAS 14
• Hydrologic Soil Type “B”		RCFCD Plate C-1.36
• Runoff Index Number	56	RCFCD Plate D-5.5
• 10 year Infiltration Rate	.70	RCFCD Plate E-6.2
• 100 year Infiltration Rate	.51	RCFCD Plate E-6.2
• Slope – Intensity Duration Curve	59	RCFCD Plate D-4.6

III RETENTION BASIN SIZING/ SYNTHETIC UNIT HYDROGRAPH CALCULATIONS

The proposed on-site retention system design is intended to collect design storm runoff generated on-site. Each of the proposed retention basins are a maximum of three feet deep in accordance with City of Coachella requirements. The basins provide sufficient capacity to retain the entire storm volume generated on-site during the 10 year design storm. The runoff volume generated during the 100 year design storm will be contained on-site within the retention basins and within portions of the paved access roads and parking areas with shallow ponding at a maximum depth of 1.5'. The maximum depth of ponding at the point where emergency overflow occurs is 1.0'. For the purpose of calculating the volume of ponding that occurs on-site, maximum average ponding depth is assumed to be 0.5'.

Design storm runoff volume calculations using the RCFCD Synthetic Unit Hydrograph method are included in this section.

RETENTION VOLUME

SUBAREA	BASIN VOLUME (CU.FT.)	PONDING AREA (SQ.FT.)	PONDED VOLUME (0.5' DEEP)	TOTAL VOLUME PROVIDED (CU.FT.)
A	139,026	90,110	45,055	184,081
B	138,198	11,004	5,502	143,700
C	16,706	17,238	8,619	25,325

SUBAREA	10 YEAR VOLUME REQUIRED (CU.FT.)	100 YEAR VOLUME REQUIRED (CU.FT.)	TOTAL VOLUME PROVIDED (CU.FT.)
A	38,514	182,214	184,081
B	9,953	48,487	143,700
C	3,639	16,621	25,325

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA A - 10 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	27.87		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.87		
23	RETENTION BASIN	1.98		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	250		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	10		
37				
38	POINT RAIN			
39	3-HOUR	0.984		
40	6-HOUR	1.28		
41	24-HOUR	2.07		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		379	42516	
45		380	45027	
46		381	47609	
47		382	50263	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
BY ʼMES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA A - 10 YEAR EVENT
[3] AREA - ACRES	30.720
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	250.00
[7] La-MILES	0.047
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.6
[17] 100% OF LAG-MINUTES	2.6
[18] 200% OF LAG-MINUTES	5.2
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 10
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
0.98	30.720	1.00	0.98	1.28	30.720	1.00	1.28	2.07	30.720	1.00	2.07
		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			0.00	0.00
SUM [5]	30.72	SUM [7]	0.98	SUM [9]	30.72	SUM [11]	1.28	SUM [13]	30.72	SUM [15]	2.07
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			0.98				1.28				2.07

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.41	0.40	0.27
FLOOD VOLUME	(cu-ft)	45,515	44,163	30,125
	(acre-ft)	1.04	1.01	0.69
REQUIRED STORAGE	(cu-ft)	38,514	33,950	8,264
	(acre-ft)	0.88	0.78	0.19
PEAK FLOW	(cfs)	23.17	19.84	2.98
MAXIMUM WSEL	(ft)	379.88	379.78	379.17

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK
	CONCENTRATION POINT: 1
	BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.70	85%	0.16	27.87	0.907	0.1492
B	PAVING/HARDSCAPE	56	0.70	100%	0.07	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.70	20%	0.57	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.70	40%	0.45	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.70	50%	0.39	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.70	65%	0.29	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.70	80%	0.20	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.70	75%	0.23	0.00	0.000	0.0000
B	LANDSCAPING	56	0.70	0%	0.70	0.87	0.028	0.0198
B	RETENTION BASINS	56	0.70	0%	0.70	1.98	0.064	0.0451
B	GOLF COURSE	56	0.70	0%	0.70	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.20	90%	0.20	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	30.72	SUM	0.2142

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.107090088

C= 0.00198

Ft=C(24-(T/60))^1.55 = 0.00198 (24-(T/60))^1.55 + 0.11 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
10 YEAR - 3 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: \AMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72		
UNIT TIME-MINUTES	5		
LAG TIME - MINUTES	2.58		
UNIT TIME-PERCENT OF LAG	193.9		
TOTAL ADJUSTED STORM RAIN-INCHES	0.98		
CONSTANT LOSS RATE-in/hr	0.21		
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.154	0.21	0.14	0.02	0.47	0.00
2	10	0.17	1.3	0.154	0.21	0.14	0.02	0.47	0.00
3	15	0.25	1.1	0.130	0.21	0.12	0.01	0.40	0.00
4	20	0.33	1.5	0.177	0.21	0.16	0.02	0.54	0.00
5	25	0.42	1.5	0.177	0.21	0.16	0.02	0.54	0.00
6	30	0.50	1.8	0.213	0.21	0.19	0.02	0.65	0.00
7	35	0.58	1.5	0.177	0.21	0.16	0.02	0.54	0.00
8	40	0.67	1.8	0.213	0.21	0.19	0.02	0.65	0.00
9	45	0.75	1.8	0.213	0.21	0.19	0.02	0.65	0.00
10	50	0.83	1.5	0.177	0.21	0.16	0.02	0.54	0.00
11	55	0.92	1.6	0.189	0.21	0.17	0.02	0.58	0.00
12	60	1.00	1.8	0.213	0.21	0.19	0.02	0.65	0.00
13	65	1.08	2.2	0.260	0.21	0.23	0.05	1.40	222.39
14	70	1.17	2.2	0.260	0.21	0.23	0.05	1.40	222.39
15	75	1.25	2.2	0.260	0.21	0.23	0.05	1.40	222.39
16	80	1.33	2.0	0.236	0.21	0.21	0.02	0.68	4.75
17	85	1.42	2.6	0.307	0.21	0.28	0.09	2.85	657.68
18	90	1.50	2.7	0.319	0.21	0.29	0.10	3.21	766.51
19	95	1.58	2.4	0.283	0.21	0.26	0.07	2.13	440.04
20	100	1.67	2.7	0.319	0.21	0.29	0.10	3.21	766.51
21	105	1.75	3.3	0.390	0.21	0.35	0.18	5.39	1419.44
22	110	1.83	3.1	0.366	0.21	0.33	0.15	4.67	1201.80
23	115	1.92	2.9	0.342	0.21	0.31	0.13	3.94	984.15
24	120	2.00	3.0	0.354	0.21	0.32	0.14	4.30	1092.97
25	125	2.08	3.1	0.366	0.21	0.33	0.15	4.67	1201.80
26	130	2.17	4.2	0.496	0.21	0.45	0.28	8.66	2398.84
27	135	2.25	5.0	0.590	0.21	0.53	0.38	11.56	3269.42
28	140	2.33	3.5	0.413	0.21	0.37	0.20	6.12	1637.09
29	145	2.42	6.8	0.803	0.21	0.72	0.59	18.09	5228.23
30	150	2.50	7.3	0.862	0.21	0.78	0.65	19.90	5772.34
31	155	2.58	8.2	0.968	0.21	0.87	0.75	23.17	6751.75
32	160	2.67	5.9	0.697	0.21	0.63	0.48	14.82	4248.83
33	165	2.75	2.0	0.236	0.21	0.21	0.02	0.68	4.75
34	170	2.83	1.8	0.213	0.21	0.19	0.02	0.65	0.00
35	175	2.92	1.8	0.213	0.21	0.19	0.02	0.65	0.00
36	180	3.00	0.6	0.071	0.21	0.06	0.01	0.22	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.41
FLOOD VOLUME (acft)	1.04
FLOOD VOLUME (cuft)	45514.84
REQUIRED STORAGE (acft)	0.88
REQUIRED STORAGE (cuft)	38514.07
PEAK FLOW RATE (cfs)	23.17

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
10 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.58
UNIT TIME-PERCENT OF LAG	193.9
TOTAL ADJUSTED STORM RAIN-INCHES	1.28
CONSTANT LOSS RATE-in/hr	0.214
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.077	0.21	0.07	0.01	0.24	0.00
2	10	0.17	0.6	0.092	0.21	0.08	0.01	0.28	0.00
3	15	0.25	0.6	0.092	0.21	0.08	0.01	0.28	0.00
4	20	0.33	0.6	0.092	0.21	0.08	0.01	0.28	0.00
5	25	0.42	0.6	0.092	0.21	0.08	0.01	0.28	0.00
6	30	0.50	0.7	0.108	0.21	0.10	0.01	0.33	0.00
7	35	0.58	0.7	0.108	0.21	0.10	0.01	0.33	0.00
8	40	0.67	0.7	0.108	0.21	0.10	0.01	0.33	0.00
9	45	0.75	0.7	0.108	0.21	0.10	0.01	0.33	0.00
10	50	0.83	0.7	0.108	0.21	0.10	0.01	0.33	0.00
11	55	0.92	0.7	0.108	0.21	0.10	0.01	0.33	0.00
12	60	1.00	0.8	0.123	0.21	0.11	0.01	0.38	0.00
13	65	1.08	0.8	0.123	0.21	0.11	0.01	0.38	0.00
14	70	1.17	0.8	0.123	0.21	0.11	0.01	0.38	0.00
15	75	1.25	0.8	0.123	0.21	0.11	0.01	0.38	0.00
16	80	1.33	0.8	0.123	0.21	0.11	0.01	0.38	0.00
17	85	1.42	0.8	0.123	0.21	0.11	0.01	0.38	0.00
18	90	1.50	0.8	0.123	0.21	0.11	0.01	0.38	0.00
19	95	1.58	0.8	0.123	0.21	0.11	0.01	0.38	0.00
20	100	1.67	0.8	0.123	0.21	0.11	0.01	0.38	0.00
21	105	1.75	0.8	0.123	0.21	0.11	0.01	0.38	0.00
22	110	1.83	0.8	0.123	0.21	0.11	0.01	0.38	0.00
23	115	1.92	0.8	0.123	0.21	0.11	0.01	0.38	0.00
24	120	2.00	0.9	0.138	0.21	0.12	0.01	0.42	0.00
25	125	2.08	0.8	0.123	0.21	0.11	0.01	0.38	0.00
26	130	2.17	0.9	0.138	0.21	0.12	0.01	0.42	0.00
27	135	2.25	0.9	0.138	0.21	0.12	0.01	0.42	0.00
28	140	2.33	0.9	0.138	0.21	0.12	0.01	0.42	0.00
29	145	2.42	0.9	0.138	0.21	0.12	0.01	0.42	0.00
30	150	2.50	0.9	0.138	0.21	0.12	0.01	0.42	0.00
31	155	2.58	0.9	0.138	0.21	0.12	0.01	0.42	0.00
32	160	2.67	0.9	0.138	0.21	0.12	0.01	0.42	0.00
33	165	2.75	1.0	0.154	0.21	0.14	0.02	0.47	0.00
34	170	2.83	1.0	0.154	0.21	0.14	0.02	0.47	0.00
35	175	2.92	1.0	0.154	0.21	0.14	0.02	0.47	0.00
36	180	3.00	1.0	0.154	0.21	0.14	0.02	0.47	0.00
37	185	3.08	1.0	0.154	0.21	0.14	0.02	0.47	0.00
38	190	3.17	1.1	0.169	0.21	0.15	0.02	0.52	0.00
39	195	3.25	1.1	0.169	0.21	0.15	0.02	0.52	0.00
40	200	3.33	1.1	0.169	0.21	0.15	0.02	0.52	0.00
41	205	3.42	1.2	0.184	0.21	0.17	0.02	0.57	0.00
42	210	3.50	1.3	0.200	0.21	0.18	0.02	0.61	0.00
43	215	3.58	1.4	0.215	0.21	0.19	0.00	0.03	0.00
44	220	3.67	1.4	0.215	0.21	0.19	0.00	0.03	0.00
45	225	3.75	1.5	0.230	0.21	0.21	0.02	0.50	0.00
46	230	3.83	1.5	0.230	0.21	0.21	0.02	0.50	0.00
47	235	3.92	1.6	0.246	0.21	0.22	0.03	0.97	93.22
48	240	4.00	1.6	0.246	0.21	0.22	0.03	0.97	93.22
49	245	4.08	1.7	0.261	0.21	0.24	0.05	1.44	234.78
50	250	4.17	1.8	0.276	0.21	0.25	0.06	1.91	376.34
51	255	4.25	1.9	0.292	0.21	0.26	0.08	2.39	517.90
52	260	4.33	2.0	0.307	0.21	0.28	0.09	2.86	659.45
53	265	4.42	2.1	0.323	0.21	0.29	0.11	3.33	801.01
54	270	4.50	2.1	0.323	0.21	0.29	0.11	3.33	801.01
55	275	4.58	2.2	0.338	0.21	0.30	0.12	3.80	942.57
56	280	4.67	2.3	0.353	0.21	0.32	0.14	4.27	1084.13

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
10 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	2.58	
UNIT TIME-PERCENT OF LAG	193.9	
TOTAL ADJUSTED STORM RAIN-INCHES	1.28	
CONSTANT LOSS RATE-in/hr	0.214	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.369	0.21	0.33	0.15	4.75	1225.68
58	290	4.83	2.4	0.369	0.21	0.33	0.15	4.75	1225.68
59	295	4.92	2.5	0.384	0.21	0.35	0.17	5.22	1367.24
60	300	5.00	2.6	0.399	0.21	0.36	0.19	5.69	1508.80
61	305	5.08	3.1	0.476	0.21	0.43	0.26	8.05	2216.59
62	310	5.17	3.6	0.553	0.21	0.50	0.34	10.41	2924.38
63	315	5.25	3.9	0.599	0.21	0.54	0.38	11.82	3349.05
64	320	5.33	4.2	0.645	0.21	0.58	0.43	13.24	3773.72
65	325	5.42	4.7	0.722	0.21	0.65	0.51	15.60	4481.51
66	330	5.50	5.6	0.860	0.21	0.77	0.65	19.84	5755.53
67	335	5.58	1.9	0.292	0.21	0.26	0.08	2.39	517.90
68	340	5.67	0.9	0.138	0.21	0.12	0.01	0.42	0.00
69	345	5.75	0.6	0.092	0.21	0.08	0.01	0.28	0.00
70	350	5.83	0.5	0.077	0.21	0.07	0.01	0.24	0.00
71	355	5.92	0.3	0.046	0.21	0.04	0.00	0.14	0.00
72	360	6.00	0.2	0.031	0.21	0.03	0.00	0.09	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.40
FLOOD VOLUME (acft)	1.01
FLOOD VOLUME (cuft)	44163.05
REQUIRED STORAGE (acft)	0.78
REQUIRED STORAGE (cuft)	33949.72
PEAK FLOW RATE (cfs)	19.84

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
10 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2142
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.107
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00198
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.017	0.378	0.015	0.002	0.05	0.00
2	30	0.50	0.3	0.025	0.374	0.022	0.002	0.08	0.00
3	45	0.75	0.3	0.025	0.369	0.022	0.002	0.08	0.00
4	60	1.00	0.4	0.033	0.365	0.030	0.003	0.10	0.00
5	75	1.25	0.3	0.025	0.361	0.022	0.002	0.08	0.00
6	90	1.50	0.3	0.025	0.357	0.022	0.002	0.08	0.00
7	105	1.75	0.3	0.025	0.352	0.022	0.002	0.08	0.00
8	120	2.00	0.4	0.033	0.348	0.030	0.003	0.10	0.00
9	135	2.25	0.4	0.033	0.344	0.030	0.003	0.10	0.00
10	150	2.50	0.4	0.033	0.340	0.030	0.003	0.10	0.00
11	165	2.75	0.5	0.041	0.335	0.037	0.004	0.13	0.00
12	180	3.00	0.5	0.041	0.331	0.037	0.004	0.13	0.00
13	195	3.25	0.5	0.041	0.327	0.037	0.004	0.13	0.00
14	210	3.50	0.5	0.041	0.323	0.037	0.004	0.13	0.00
15	225	3.75	0.5	0.041	0.319	0.037	0.004	0.13	0.00
16	240	4.00	0.6	0.050	0.315	0.045	0.005	0.15	0.00
17	255	4.25	0.6	0.050	0.311	0.045	0.005	0.15	0.00
18	270	4.50	0.7	0.058	0.307	0.052	0.006	0.18	0.00
19	285	4.75	0.7	0.058	0.303	0.052	0.006	0.18	0.00
20	300	5.00	0.8	0.066	0.299	0.060	0.007	0.20	0.00
21	315	5.25	0.6	0.050	0.295	0.045	0.005	0.15	0.00
22	330	5.50	0.7	0.058	0.292	0.052	0.006	0.18	0.00
23	345	5.75	0.8	0.066	0.288	0.060	0.007	0.20	0.00
24	360	6.00	0.8	0.066	0.284	0.060	0.007	0.20	0.00
25	375	6.25	0.9	0.075	0.280	0.067	0.007	0.23	0.00
26	390	6.50	0.9	0.075	0.276	0.067	0.007	0.23	0.00
27	405	6.75	1.0	0.083	0.273	0.075	0.008	0.25	0.00
28	420	7.00	1.0	0.083	0.269	0.075	0.008	0.25	0.00
29	435	7.25	1.0	0.083	0.265	0.075	0.008	0.25	0.00
30	450	7.50	1.1	0.091	0.262	0.082	0.009	0.28	0.00
31	465	7.75	1.2	0.099	0.258	0.089	0.010	0.31	0.00
32	480	8.00	1.3	0.108	0.255	0.097	0.011	0.33	0.00
33	495	8.25	1.5	0.124	0.251	0.112	0.012	0.38	0.00
34	510	8.50	1.5	0.124	0.248	0.112	0.012	0.38	0.00
35	525	8.75	1.6	0.132	0.244	0.119	0.013	0.41	0.00
36	540	9.00	1.7	0.141	0.241	0.127	0.014	0.43	0.00
37	555	9.25	1.9	0.157	0.237	0.142	0.016	0.48	0.00
38	570	9.50	2.0	0.166	0.234	0.149	0.017	0.51	0.00
39	585	9.75	2.1	0.174	0.231	0.156	0.017	0.53	0.00
40	600	10.00	2.2	0.182	0.227	0.164	0.018	0.56	0.00
41	615	10.25	1.5	0.124	0.224	0.112	0.012	0.38	0.00
42	630	10.50	1.5	0.124	0.221	0.112	0.012	0.38	0.00
43	645	10.75	2.0	0.166	0.218	0.149	0.017	0.51	0.00
44	660	11.00	2.0	0.166	0.214	0.149	0.017	0.51	0.00
45	675	11.25	1.9	0.157	0.211	0.142	0.016	0.48	0.00
46	690	11.50	1.9	0.157	0.208	0.142	0.016	0.48	0.00
47	705	11.75	1.7	0.141	0.205	0.127	0.014	0.43	0.00
48	720	12.00	1.8	0.149	0.202	0.134	0.015	0.46	0.00
49	735	12.25	2.5	0.207	0.199	0.186	0.008	0.25	0.00
50	750	12.50	2.6	0.215	0.196	0.194	0.019	0.59	0.00
51	765	12.75	2.8	0.232	0.193	0.209	0.039	1.19	480.19
52	780	13.00	2.9	0.240	0.190	0.216	0.050	1.54	789.55
53	795	13.25	3.4	0.282	0.187	0.253	0.094	2.90	2013.62
54	810	13.50	3.4	0.282	0.184	0.253	0.097	2.98	2092.06
55	825	13.75	2.3	0.190	0.182	0.171	0.009	0.27	0.00
56	840	14.00	2.3	0.190	0.179	0.171	0.012	0.36	0.00
57	855	14.25	2.7	0.224	0.176	0.201	0.047	1.46	718.82
58	870	14.50	2.6	0.215	0.173	0.194	0.042	1.29	564.24
59	885	14.75	2.6	0.215	0.171	0.194	0.045	1.37	637.53
60	900	15.00	2.5	0.207	0.168	0.186	0.039	1.19	480.83
61	915	15.25	2.4	0.199	0.166	0.179	0.033	1.02	323.04

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
10 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2142
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.107
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00198
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.190	0.163	0.171	0.027	0.84	164.16
63	945	15.75	1.9	0.157	0.161	0.142	0.016	0.48	0.00
64	960	16.00	1.9	0.157	0.158	0.142	0.016	0.48	0.00
65	975	16.25	0.4	0.033	0.156	0.030	0.003	0.10	0.00
66	990	16.50	0.4	0.033	0.153	0.030	0.003	0.10	0.00
67	1005	16.75	0.3	0.025	0.151	0.022	0.002	0.08	0.00
68	1020	17.00	0.3	0.025	0.149	0.022	0.002	0.08	0.00
69	1035	17.25	0.5	0.041	0.146	0.037	0.004	0.13	0.00
70	1050	17.50	0.5	0.041	0.144	0.037	0.004	0.13	0.00
71	1065	17.75	0.5	0.041	0.142	0.037	0.004	0.13	0.00
72	1080	18.00	0.4	0.033	0.140	0.030	0.003	0.10	0.00
73	1095	18.25	0.4	0.033	0.138	0.030	0.003	0.10	0.00
74	1110	18.50	0.4	0.033	0.136	0.030	0.003	0.10	0.00
75	1125	18.75	0.3	0.025	0.134	0.022	0.002	0.08	0.00
76	1140	19.00	0.2	0.017	0.132	0.015	0.002	0.05	0.00
77	1155	19.25	0.3	0.025	0.130	0.022	0.002	0.08	0.00
78	1170	19.50	0.4	0.033	0.128	0.030	0.003	0.10	0.00
79	1185	19.75	0.3	0.025	0.127	0.022	0.002	0.08	0.00
80	1200	20.00	0.2	0.017	0.125	0.015	0.002	0.05	0.00
81	1215	20.25	0.3	0.025	0.123	0.022	0.002	0.08	0.00
82	1230	20.50	0.3	0.025	0.122	0.022	0.002	0.08	0.00
83	1245	20.75	0.3	0.025	0.120	0.022	0.002	0.08	0.00
84	1260	21.00	0.2	0.017	0.119	0.015	0.002	0.05	0.00
85	1275	21.25	0.3	0.025	0.117	0.022	0.002	0.08	0.00
86	1290	21.50	0.2	0.017	0.116	0.015	0.002	0.05	0.00
87	1305	21.75	0.3	0.025	0.115	0.022	0.002	0.08	0.00
88	1320	22.00	0.2	0.017	0.113	0.015	0.002	0.05	0.00
89	1335	22.25	0.3	0.025	0.112	0.022	0.002	0.08	0.00
90	1350	22.50	0.2	0.017	0.111	0.015	0.002	0.05	0.00
91	1365	22.75	0.2	0.017	0.110	0.015	0.002	0.05	0.00
92	1380	23.00	0.2	0.017	0.109	0.015	0.002	0.05	0.00
93	1395	23.25	0.2	0.017	0.109	0.015	0.002	0.05	0.00
94	1410	23.50	0.2	0.017	0.108	0.015	0.002	0.05	0.00
95	1425	23.75	0.2	0.017	0.108	0.015	0.002	0.05	0.00
96	1440	24.00	0.2	0.017	0.107	0.015	0.002	0.05	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	0.27
FLOOD VOLUME (acft)	0.69
FLOOD VOLUME (cuft)	30124.72
REQUIRED STORAGE (acft)	0.19
REQUIRED STORAGE (cuft)	8264.06
PEAK FLOW (cfs)	2.98

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
379	0	0		42516	0	0	0.00
380	1	1	2511	45027	43772	43772	1.00
381	1	2	2582	47609	46318	90090	2.07
382	1	3	2654	50263	48936	139026	3.19

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
10 YEAR - 3 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
1	5	0.47	141	141	198	-	379.00	-	0.00
2	10	0.47	141	141	198	-	379.00	-	0.00
3	15	0.40	120	120	198	-	379.00	-	0.00
4	20	0.54	163	163	198	-	379.00	-	0.00
5	25	0.54	163	163	198	-	379.00	-	0.00
6	30	0.65	196	196	198	-	379.00	-	0.00
7	35	0.54	163	163	198	-	379.00	-	0.00
8	40	0.65	196	196	198	-	379.00	-	0.00
9	45	0.65	196	196	198	-	379.00	-	0.00
10	50	0.54	163	163	198	-	379.00	-	0.00
11	55	0.58	174	174	198	-	379.00	-	0.00
12	60	0.65	196	196	198	-	379.00	-	0.00
13	65	1.40	420	420	198	222	379.01	222	0.01
14	70	1.40	420	643	198	445	379.01	445	0.01
15	75	1.40	420	865	198	667	379.02	667	0.02
16	80	0.68	203	870	198	672	379.02	672	0.02
17	85	2.85	856	1,527	198	1,330	379.03	1,330	0.03
18	90	3.21	964	2,294	198	2,096	379.05	2,096	0.05
19	95	2.13	638	2,734	198	2,536	379.06	2,536	0.06
20	100	3.21	964	3,500	198	3,303	379.08	3,303	0.08
21	105	5.39	1,617	4,920	198	4,722	379.11	4,722	0.11
22	110	4.67	1,400	6,122	198	5,924	379.14	5,924	0.14
23	115	3.94	1,182	7,106	198	6,908	379.16	6,908	0.16
24	120	4.30	1,291	8,199	198	8,001	379.18	8,001	0.18
25	125	4.67	1,400	9,401	198	9,203	379.21	9,203	0.21
26	130	8.66	2,597	11,799	198	11,602	379.27	11,602	0.27
27	135	11.56	3,467	15,069	198	14,871	379.34	14,871	0.34
28	140	6.12	1,835	16,706	198	16,508	379.38	16,508	0.38
29	145	18.09	5,426	21,934	198	21,736	379.50	21,736	0.50
30	150	19.90	5,970	27,707	198	27,509	379.63	27,509	0.63
31	155	23.17	6,950	34,458	198	34,260	379.78	34,260	0.79
32	160	14.82	4,447	38,707	198	38,509	379.88	38,509	0.88
33	165	0.68	203	38,712	198	38,514	379.88	38,514	0.88
34	170	0.65	196	38,710	198	38,512	379.88	38,512	0.88
35	175	0.65	196	38,708	198	38,510	379.88	38,510	0.88
36	180	0.22	65	38,575	198	38,378	379.88	38,378	0.88

1
TKC JOB # C1443
10 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.24	71	71	198	-	379.00	-	0.00
2	10	0.28	85	85	198	-	379.00	-	0.00
3	15	0.28	85	85	198	-	379.00	-	0.00
4	20	0.28	85	85	198	-	379.00	-	0.00
5	25	0.28	85	85	198	-	379.00	-	0.00
6	30	0.33	99	99	198	-	379.00	-	0.00
7	35	0.33	99	99	198	-	379.00	-	0.00
8	40	0.33	99	99	198	-	379.00	-	0.00
9	45	0.33	99	99	198	-	379.00	-	0.00
10	50	0.33	99	99	198	-	379.00	-	0.00
11	55	0.33	99	99	198	-	379.00	-	0.00
12	60	0.38	113	113	198	-	379.00	-	0.00
13	65	0.38	113	113	198	-	379.00	-	0.00
14	70	0.38	113	113	198	-	379.00	-	0.00
15	75	0.38	113	113	198	-	379.00	-	0.00
16	80	0.38	113	113	198	-	379.00	-	0.00
17	85	0.38	113	113	198	-	379.00	-	0.00
18	90	0.38	113	113	198	-	379.00	-	0.00
19	95	0.38	113	113	198	-	379.00	-	0.00
20	100	0.38	113	113	198	-	379.00	-	0.00
21	105	0.38	113	113	198	-	379.00	-	0.00
22	110	0.38	113	113	198	-	379.00	-	0.00
23	115	0.38	113	113	198	-	379.00	-	0.00
24	120	0.42	127	127	198	-	379.00	-	0.00
25	125	0.38	113	113	198	-	379.00	-	0.00
26	130	0.42	127	127	198	-	379.00	-	0.00
27	135	0.42	127	127	198	-	379.00	-	0.00
28	140	0.42	127	127	198	-	379.00	-	0.00
29	145	0.42	127	127	198	-	379.00	-	0.00
30	150	0.42	127	127	198	-	379.00	-	0.00
31	155	0.42	127	127	198	-	379.00	-	0.00
32	160	0.42	127	127	198	-	379.00	-	0.00
33	165	0.47	142	142	198	-	379.00	-	0.00
34	170	0.47	142	142	198	-	379.00	-	0.00
35	175	0.47	142	142	198	-	379.00	-	0.00
36	180	0.47	142	142	198	-	379.00	-	0.00
37	185	0.47	142	142	198	-	379.00	-	0.00
38	190	0.52	156	156	198	-	379.00	-	0.00
39	195	0.52	156	156	198	-	379.00	-	0.00
40	200	0.52	156	156	198	-	379.00	-	0.00
41	205	0.57	170	170	198	-	379.00	-	0.00
42	210	0.61	184	184	198	-	379.00	-	0.00
43	215	0.03	8	8	198	-	379.00	-	0.00
44	220	0.03	8	8	198	-	379.00	-	0.00
45	225	0.50	149	149	198	-	379.00	-	0.00
46	230	0.50	149	149	198	-	379.00	-	0.00
47	235	0.97	291	291	198	93	379.00	93	0.00
48	240	0.97	291	384	198	186	379.00	186	0.00
49	245	1.44	433	619	198	421	379.01	421	0.01
50	250	1.91	574	995	198	798	379.02	798	0.02
51	255	2.39	716	1,513	198	1,315	379.03	1,315	0.03
52	260	2.86	857	2,173	198	1,975	379.05	1,975	0.05
53	265	3.33	999	2,974	198	2,776	379.06	2,776	0.06
54	270	3.33	999	3,775	198	3,577	379.08	3,577	0.08
55	275	3.80	1,140	4,717	198	4,520	379.10	4,520	0.10

1
TKC JOB # C1443
10 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
56	280	4.27	1,282	5,801	198	5,604	379.13	5,604	0.13
57	285	4.75	1,424	7,027	198	6,829	379.16	6,829	0.16
58	290	4.75	1,424	8,253	198	8,055	379.18	8,055	0.18
59	295	5.22	1,565	9,620	198	9,422	379.22	9,422	0.22
60	300	5.69	1,707	11,129	198	10,931	379.25	10,931	0.25
61	305	8.05	2,414	13,345	198	13,148	379.30	13,148	0.30
62	310	10.41	3,122	16,270	198	16,072	379.37	16,072	0.37
63	315	11.82	3,547	19,619	198	19,421	379.44	19,421	0.45
64	320	13.24	3,972	23,393	198	23,195	379.53	23,195	0.53
65	325	15.60	4,679	27,874	198	27,676	379.63	27,676	0.64
66	330	19.84	5,953	33,630	198	33,432	379.76	33,432	0.77
67	335	2.39	716	34,148	198	33,950	379.78	33,950	0.78
68	340	0.42	127	34,077	198	33,879	379.77	33,879	0.78
69	345	0.28	85	33,964	198	33,766	379.77	33,766	0.78
70	350	0.24	71	33,837	198	33,639	379.77	33,639	0.77
71	355	0.14	42	33,682	198	33,484	379.76	33,484	0.77
72	360	0.09	28	33,512	198	33,315	379.76	33,315	0.76

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TKC JOB # C1443
10 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	15	0.05	46	46	593	-	379.00	-	0.00
2	30	0.08	69	69	593	-	379.00	-	0.00
3	45	0.08	69	69	593	-	379.00	-	0.00
4	60	0.10	92	92	593	-	379.00	-	0.00
5	75	0.08	69	69	593	-	379.00	-	0.00
6	90	0.08	69	69	593	-	379.00	-	0.00
7	105	0.08	69	69	593	-	379.00	-	0.00
8	120	0.10	92	92	593	-	379.00	-	0.00
9	135	0.10	92	92	593	-	379.00	-	0.00
10	150	0.10	92	92	593	-	379.00	-	0.00
11	165	0.13	114	114	593	-	379.00	-	0.00
12	180	0.13	114	114	593	-	379.00	-	0.00
13	195	0.13	114	114	593	-	379.00	-	0.00
14	210	0.13	114	114	593	-	379.00	-	0.00
15	225	0.13	114	114	593	-	379.00	-	0.00
16	240	0.15	137	137	593	-	379.00	-	0.00
17	255	0.15	137	137	593	-	379.00	-	0.00
18	270	0.18	160	160	593	-	379.00	-	0.00
19	285	0.18	160	160	593	-	379.00	-	0.00
20	300	0.20	183	183	593	-	379.00	-	0.00
21	315	0.15	137	137	593	-	379.00	-	0.00
22	330	0.18	160	160	593	-	379.00	-	0.00
23	345	0.20	183	183	593	-	379.00	-	0.00
24	360	0.20	183	183	593	-	379.00	-	0.00
25	375	0.23	206	206	593	-	379.00	-	0.00
26	390	0.23	206	206	593	-	379.00	-	0.00
27	405	0.25	229	229	593	-	379.00	-	0.00
28	420	0.25	229	229	593	-	379.00	-	0.00
29	435	0.25	229	229	593	-	379.00	-	0.00
30	450	0.28	252	252	593	-	379.00	-	0.00
31	465	0.31	275	275	593	-	379.00	-	0.00
32	480	0.33	298	298	593	-	379.00	-	0.00
33	495	0.38	343	343	593	-	379.00	-	0.00
34	510	0.38	343	343	593	-	379.00	-	0.00
35	525	0.41	366	366	593	-	379.00	-	0.00
36	540	0.43	389	389	593	-	379.00	-	0.00
37	555	0.48	435	435	593	-	379.00	-	0.00
38	570	0.51	458	458	593	-	379.00	-	0.00
39	585	0.53	481	481	593	-	379.00	-	0.00
40	600	0.56	504	504	593	-	379.00	-	0.00
41	615	0.38	343	343	593	-	379.00	-	0.00
42	630	0.38	343	343	593	-	379.00	-	0.00
43	645	0.51	458	458	593	-	379.00	-	0.00
44	660	0.51	458	458	593	-	379.00	-	0.00
45	675	0.48	435	435	593	-	379.00	-	0.00
46	690	0.48	435	435	593	-	379.00	-	0.00
47	705	0.43	389	389	593	-	379.00	-	0.00
48	720	0.46	412	412	593	-	379.00	-	0.00
49	735	0.25	223	223	593	-	379.00	-	0.00
50	750	0.59	534	534	593	-	379.00	-	0.00
51	765	1.19	1,074	1,074	593	480	379.01	480	0.01
52	780	1.54	1,383	1,863	593	1,270	379.03	1,270	0.03
53	795	2.90	2,607	3,877	593	3,283	379.08	3,283	0.08
54	810	2.98	2,686	5,969	593	5,375	379.12	5,375	0.12
55	825	0.27	245	5,620	593	5,027	379.11	5,027	0.12
56	840	0.36	321	5,348	593	4,754	379.11	4,754	0.11
57	855	1.46	1,312	6,067	593	5,473	379.13	5,473	0.13
58	870	1.29	1,158	6,631	593	6,038	379.14	6,038	0.14

1
TKC JOB # C1443
10 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
59	885	1.37	1,231	7,269	593	6,675	379.15	6,675	0.15
60	900	1.19	1,074	7,749	593	7,156	379.16	7,156	0.16
61	915	1.02	916	8,072	593	7,479	379.17	7,479	0.17
62	930	0.84	758	8,237	593	7,643	379.17	7,643	0.18
63	945	0.48	435	8,078	593	7,485	379.17	7,485	0.17
64	960	0.48	435	7,920	593	7,326	379.17	7,326	0.17
65	975	0.10	92	7,418	593	6,824	379.16	6,824	0.16
66	990	0.10	92	6,916	593	6,322	379.14	6,322	0.15
67	1005	0.08	69	6,391	593	5,798	379.13	5,798	0.13
68	1020	0.08	69	5,866	593	5,273	379.12	5,273	0.12
69	1035	0.13	114	5,387	593	4,794	379.11	4,794	0.11
70	1050	0.13	114	4,908	593	4,315	379.10	4,315	0.10
71	1065	0.13	114	4,429	593	3,836	379.09	3,836	0.09
72	1080	0.10	92	3,927	593	3,334	379.08	3,334	0.08
73	1095	0.10	92	3,426	593	2,832	379.06	2,832	0.07
74	1110	0.10	92	2,924	593	2,330	379.05	2,330	0.05
75	1125	0.08	69	2,399	593	1,805	379.04	1,805	0.04
76	1140	0.05	46	1,851	593	1,258	379.03	1,258	0.03
77	1155	0.08	69	1,326	593	733	379.02	733	0.02
78	1170	0.10	92	825	593	231	379.01	231	0.01
79	1185	0.08	69	300	593	-	379.00	-	0.00
80	1200	0.05	46	46	593	-	379.00	-	0.00
81	1215	0.08	69	69	593	-	379.00	-	0.00
82	1230	0.08	69	69	593	-	379.00	-	0.00
83	1245	0.08	69	69	593	-	379.00	-	0.00
84	1260	0.05	46	46	593	-	379.00	-	0.00
85	1275	0.08	69	69	593	-	379.00	-	0.00
86	1290	0.05	46	46	593	-	379.00	-	0.00
87	1305	0.08	69	69	593	-	379.00	-	0.00
88	1320	0.05	46	46	593	-	379.00	-	0.00
89	1335	0.08	69	69	593	-	379.00	-	0.00
90	1350	0.05	46	46	593	-	379.00	-	0.00
91	1365	0.05	46	46	593	-	379.00	-	0.00
92	1380	0.05	46	46	593	-	379.00	-	0.00
93	1395	0.05	46	46	593	-	379.00	-	0.00
94	1410	0.05	46	46	593	-	379.00	-	0.00
95	1425	0.05	46	46	593	-	379.00	-	0.00
96	1440	0.05	46	46	593	-	379.00	-	0.00

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA BUSINESS PARK - INTERIM BASIN		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA B - 10 YEAR STORM EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	8.18		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING			
23	RETENTION BASIN	1		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	285		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	0.984		
40	6-HOUR	1.28		
41	24-HOUR	2.07		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		382	42380	
45		383	44806	
46		384	47288	
47		385	49827	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
BY ·MES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA B - 10 YEAR STORM EVENT
[3] AREA - ACRES	9.180
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	285.00
[7] La-MILES	0.054
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.05
[16] LAG TIME-MINUTES	2.7
[17] 100% OF LAG-MINUTES	2.7
[18] 200% OF LAG-MINUTES	5.4
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
0.98	9.180	1.00	0.98	1.28	9.180	1.00	1.28	2.07	9.180	1.00	2.07
		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			0.00	0.00
SUM [5]	9.18	SUM [7]	0.98	SUM [9]	9.18	SUM [11]	1.28	SUM [13]	9.18	SUM [15]	2.07
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			0.98				1.28				2.07

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.44	0.44	0.33
FLOOD VOLUME	(cu-ft) (acre-ft)	14,675 0.34	14,503 0.33	10,856 0.25
REQUIRED STORAGE	(cu-ft) (acre-ft)	9,953 0.23	8,496 0.20	677 0.02
PEAK FLOW	(cfs)	7.10	6.11	1.05
MAXIMUM WSEL	(ft)	382.23	382.19	382.02

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA BUSINESS PARK - INTERIM BASIN CONCENTRATION POINT: 1 BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.70	90%	0.13	8.18	0.891	0.1185
B	PAVING/HARDSCAPE	56	0.70	100%	0.07	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.70	20%	0.57	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.70	40%	0.45	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.70	50%	0.39	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.70	65%	0.29	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.70	80%	0.20	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.70	75%	0.23	0.00	0.000	0.0000
B	LANDSCAPING	56	0.70	0%	0.70	0.00	0.000	0.0000
B	RETENTION BASINS	32	0.70	0%	0.70	1.00	0.109	0.0763
B	GOLF COURSE	56	0.70	0%	0.70	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.20	90%	0.04	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	9.18	SUM	0.1948

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm=	0.097382353
C=	0.00180

Ft=C(24-(T/60))^1.55 = 0.00180 (24-(T/60))^1.55 + 0.10 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
100 YEAR - 3 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: AMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	2.71	
UNIT TIME-PERCENT OF LAG	184.5	
TOTAL ADJUSTED STORM RAIN-INCHES	0.98	
CONSTANT LOSS RATE-in/hr	0.19	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.154	0.19	0.14	0.02	0.14	0.00
2	10	0.17	1.3	0.154	0.19	0.14	0.02	0.14	0.00
3	15	0.25	1.1	0.130	0.19	0.12	0.01	0.12	0.00
4	20	0.33	1.5	0.177	0.19	0.16	0.02	0.16	0.00
5	25	0.42	1.5	0.177	0.19	0.16	0.02	0.16	0.00
6	30	0.50	1.8	0.213	0.19	0.19	0.02	0.16	0.00
7	35	0.58	1.5	0.177	0.19	0.16	0.02	0.16	0.00
8	40	0.67	1.8	0.213	0.19	0.19	0.02	0.16	0.00
9	45	0.75	1.8	0.213	0.19	0.19	0.02	0.16	0.00
10	50	0.83	1.5	0.177	0.19	0.16	0.02	0.16	0.00
11	55	0.92	1.6	0.189	0.19	0.17	0.02	0.17	0.00
12	60	1.00	1.8	0.213	0.19	0.19	0.02	0.16	0.00
13	65	1.08	2.2	0.260	0.19	0.23	0.07	0.60	0.00
14	70	1.17	2.2	0.260	0.19	0.23	0.07	0.60	0.00
15	75	1.25	2.2	0.260	0.19	0.23	0.07	0.60	0.00
16	80	1.33	2.0	0.236	0.19	0.21	0.04	0.38	0.00
17	85	1.42	2.6	0.307	0.19	0.28	0.11	1.03	111.93
18	90	1.50	2.7	0.319	0.19	0.29	0.12	1.14	144.45
19	95	1.58	2.4	0.283	0.19	0.26	0.09	0.81	46.89
20	100	1.67	2.7	0.319	0.19	0.29	0.12	1.14	144.45
21	105	1.75	3.3	0.390	0.19	0.35	0.19	1.79	339.57
22	110	1.83	3.1	0.366	0.19	0.33	0.17	1.57	274.53
23	115	1.92	2.9	0.342	0.19	0.31	0.15	1.36	209.49
24	120	2.00	3.0	0.354	0.19	0.32	0.16	1.46	242.01
25	125	2.08	3.1	0.366	0.19	0.33	0.17	1.57	274.53
26	130	2.17	4.2	0.496	0.19	0.45	0.30	2.76	632.24
27	135	2.25	5.0	0.590	0.19	0.53	0.40	3.63	892.39
28	140	2.33	3.5	0.413	0.19	0.37	0.22	2.01	404.61
29	145	2.42	6.8	0.803	0.19	0.72	0.61	5.58	1477.74
30	150	2.50	7.3	0.862	0.19	0.78	0.67	6.13	1640.34
31	155	2.58	8.2	0.968	0.19	0.87	0.77	7.10	1933.01
32	160	2.67	5.9	0.697	0.19	0.63	0.50	4.61	1185.07
33	165	2.75	2.0	0.236	0.19	0.21	0.04	0.38	0.00
34	170	2.83	1.8	0.213	0.19	0.19	0.02	0.16	0.00
35	175	2.92	1.8	0.213	0.19	0.19	0.02	0.16	0.00
36	180	3.00	0.6	0.071	0.19	0.06	0.01	0.07	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.44
FLOOD VOLUME (acft)	0.34
FLOOD VOLUME (cuft)	14675.45
REQUIRED STORAGE (acft)	0.23
REQUIRED STORAGE (cuft)	9953.26
PEAK FLOW RATE (cfs)	7.10

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	2.71	
UNIT TIME-PERCENT OF LAG	184.5	
TOTAL ADJUSTED STORM RAIN-INCHES	1.28	
CONSTANT LOSS RATE-in/hr	0.195	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.077	0.19	0.07	0.01	0.07	0.00
2	10	0.17	0.6	0.092	0.19	0.08	0.01	0.08	0.00
3	15	0.25	0.6	0.092	0.19	0.08	0.01	0.08	0.00
4	20	0.33	0.6	0.092	0.19	0.08	0.01	0.08	0.00
5	25	0.42	0.6	0.092	0.19	0.08	0.01	0.08	0.00
6	30	0.50	0.7	0.108	0.19	0.10	0.01	0.10	0.00
7	35	0.58	0.7	0.108	0.19	0.10	0.01	0.10	0.00
8	40	0.67	0.7	0.108	0.19	0.10	0.01	0.10	0.00
9	45	0.75	0.7	0.108	0.19	0.10	0.01	0.10	0.00
10	50	0.83	0.7	0.108	0.19	0.10	0.01	0.10	0.00
11	55	0.92	0.7	0.108	0.19	0.10	0.01	0.10	0.00
12	60	1.00	0.8	0.123	0.19	0.11	0.01	0.11	0.00
13	65	1.08	0.8	0.123	0.19	0.11	0.01	0.11	0.00
14	70	1.17	0.8	0.123	0.19	0.11	0.01	0.11	0.00
15	75	1.25	0.8	0.123	0.19	0.11	0.01	0.11	0.00
16	80	1.33	0.8	0.123	0.19	0.11	0.01	0.11	0.00
17	85	1.42	0.8	0.123	0.19	0.11	0.01	0.11	0.00
18	90	1.50	0.8	0.123	0.19	0.11	0.01	0.11	0.00
19	95	1.58	0.8	0.123	0.19	0.11	0.01	0.11	0.00
20	100	1.67	0.8	0.123	0.19	0.11	0.01	0.11	0.00
21	105	1.75	0.8	0.123	0.19	0.11	0.01	0.11	0.00
22	110	1.83	0.8	0.123	0.19	0.11	0.01	0.11	0.00
23	115	1.92	0.8	0.123	0.19	0.11	0.01	0.11	0.00
24	120	2.00	0.9	0.138	0.19	0.12	0.01	0.13	0.00
25	125	2.08	0.8	0.123	0.19	0.11	0.01	0.11	0.00
26	130	2.17	0.9	0.138	0.19	0.12	0.01	0.13	0.00
27	135	2.25	0.9	0.138	0.19	0.12	0.01	0.13	0.00
28	140	2.33	0.9	0.138	0.19	0.12	0.01	0.13	0.00
29	145	2.42	0.9	0.138	0.19	0.12	0.01	0.13	0.00
30	150	2.50	0.9	0.138	0.19	0.12	0.01	0.13	0.00
31	155	2.58	0.9	0.138	0.19	0.12	0.01	0.13	0.00
32	160	2.67	0.9	0.138	0.19	0.12	0.01	0.13	0.00
33	165	2.75	1.0	0.154	0.19	0.14	0.02	0.14	0.00
34	170	2.83	1.0	0.154	0.19	0.14	0.02	0.14	0.00
35	175	2.92	1.0	0.154	0.19	0.14	0.02	0.14	0.00
36	180	3.00	1.0	0.154	0.19	0.14	0.02	0.14	0.00
37	185	3.08	1.0	0.154	0.19	0.14	0.02	0.14	0.00
38	190	3.17	1.1	0.169	0.19	0.15	0.02	0.16	0.00
39	195	3.25	1.1	0.169	0.19	0.15	0.02	0.16	0.00
40	200	3.33	1.1	0.169	0.19	0.15	0.02	0.16	0.00
41	205	3.42	1.2	0.184	0.19	0.17	0.02	0.17	0.00
42	210	3.50	1.3	0.200	0.19	0.18	0.00	0.05	0.00
43	215	3.58	1.4	0.215	0.19	0.19	0.02	0.19	0.00
44	220	3.67	1.4	0.215	0.19	0.19	0.02	0.19	0.00
45	225	3.75	1.5	0.230	0.19	0.21	0.04	0.33	0.00
46	230	3.83	1.5	0.230	0.19	0.21	0.04	0.33	0.00
47	235	3.92	1.6	0.246	0.19	0.22	0.05	0.47	0.00
48	240	4.00	1.6	0.246	0.19	0.22	0.05	0.47	0.00
49	245	4.08	1.7	0.261	0.19	0.24	0.07	0.61	0.00
50	250	4.17	1.8	0.276	0.19	0.25	0.08	0.75	27.86
51	255	4.25	1.9	0.292	0.19	0.26	0.10	0.89	70.16
52	260	4.33	2.0	0.307	0.19	0.28	0.11	1.03	112.46
53	265	4.42	2.1	0.323	0.19	0.29	0.13	1.17	154.76
54	270	4.50	2.1	0.323	0.19	0.29	0.13	1.17	154.76
55	275	4.58	2.2	0.338	0.19	0.30	0.14	1.31	197.06
56	280	4.67	2.3	0.353	0.19	0.32	0.16	1.46	239.37

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.71
UNIT TIME-PERCENT OF LAG	184.5
TOTAL ADJUSTED STORM RAIN-INCHES	1.28
CONSTANT LOSS RATE-in/hr	0.195
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.369	0.19	0.33	0.17	1.60	281.67
58	290	4.83	2.4	0.369	0.19	0.33	0.17	1.60	281.67
59	295	4.92	2.5	0.384	0.19	0.35	0.19	1.74	323.97
60	300	5.00	2.6	0.399	0.19	0.36	0.20	1.88	366.27
61	305	5.08	3.1	0.476	0.19	0.43	0.28	2.58	577.78
62	310	5.17	3.6	0.553	0.19	0.50	0.36	3.29	789.29
63	315	5.25	3.9	0.599	0.19	0.54	0.40	3.71	916.19
64	320	5.33	4.2	0.645	0.19	0.58	0.45	4.13	1043.09
65	325	5.42	4.7	0.722	0.19	0.65	0.53	4.84	1254.60
66	330	5.50	5.6	0.860	0.19	0.77	0.67	6.11	1635.31
67	335	5.58	1.9	0.292	0.19	0.26	0.10	0.89	70.16
68	340	5.67	0.9	0.138	0.19	0.12	0.01	0.13	0.00
69	345	5.75	0.6	0.092	0.19	0.08	0.01	0.08	0.00
70	350	5.83	0.5	0.077	0.19	0.07	0.01	0.07	0.00
71	355	5.92	0.3	0.046	0.19	0.04	0.00	0.04	0.00
72	360	6.00	0.2	0.031	0.19	0.03	0.00	0.03	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.44
FLOOD VOLUME (acft)	0.33
FLOOD VOLUME (cuft)	14503.26
REQUIRED STORAGE (acft)	0.20
REQUIRED STORAGE (cuft)	8496.44
PEAK FLOW RATE (cfs)	6.11

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 24 HOUR STORM EVENT

PROJECT: COACHELLA BUSINESS PARK - INTERIM BA
CONCENTRATION POINT: 1

BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1948
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.097
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00180
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.017	0.344	0.015	0.002	0.02	0.00
2	30	0.50	0.3	0.025	0.340	0.022	0.002	0.02	0.00
3	45	0.75	0.3	0.025	0.336	0.022	0.002	0.02	0.00
4	60	1.00	0.4	0.033	0.332	0.030	0.003	0.03	0.00
5	75	1.25	0.3	0.025	0.328	0.022	0.002	0.02	0.00
6	90	1.50	0.3	0.025	0.324	0.022	0.002	0.02	0.00
7	105	1.75	0.3	0.025	0.320	0.022	0.002	0.02	0.00
8	120	2.00	0.4	0.033	0.316	0.030	0.003	0.03	0.00
9	135	2.25	0.4	0.033	0.313	0.030	0.003	0.03	0.00
10	150	2.50	0.4	0.033	0.309	0.030	0.003	0.03	0.00
11	165	2.75	0.5	0.041	0.305	0.037	0.004	0.04	0.00
12	180	3.00	0.5	0.041	0.301	0.037	0.004	0.04	0.00
13	195	3.25	0.5	0.041	0.298	0.037	0.004	0.04	0.00
14	210	3.50	0.5	0.041	0.294	0.037	0.004	0.04	0.00
15	225	3.75	0.5	0.041	0.290	0.037	0.004	0.04	0.00
16	240	4.00	0.6	0.050	0.287	0.045	0.005	0.05	0.00
17	255	4.25	0.6	0.050	0.283	0.045	0.005	0.05	0.00
18	270	4.50	0.7	0.058	0.279	0.052	0.006	0.05	0.00
19	285	4.75	0.7	0.058	0.276	0.052	0.006	0.05	0.00
20	300	5.00	0.8	0.066	0.272	0.060	0.007	0.06	0.00
21	315	5.25	0.6	0.050	0.269	0.045	0.005	0.05	0.00
22	330	5.50	0.7	0.058	0.265	0.052	0.006	0.05	0.00
23	345	5.75	0.8	0.066	0.262	0.060	0.007	0.06	0.00
24	360	6.00	0.8	0.066	0.258	0.060	0.007	0.06	0.00
25	375	6.25	0.9	0.075	0.255	0.067	0.007	0.07	0.00
26	390	6.50	0.9	0.075	0.251	0.067	0.007	0.07	0.00
27	405	6.75	1.0	0.083	0.248	0.075	0.008	0.08	0.00
28	420	7.00	1.0	0.083	0.245	0.075	0.008	0.08	0.00
29	435	7.25	1.0	0.083	0.241	0.075	0.008	0.08	0.00
30	450	7.50	1.1	0.091	0.238	0.082	0.009	0.08	0.00
31	465	7.75	1.2	0.099	0.235	0.089	0.010	0.09	0.00
32	480	8.00	1.3	0.108	0.232	0.097	0.011	0.10	0.00
33	495	8.25	1.5	0.124	0.228	0.112	0.012	0.11	0.00
34	510	8.50	1.5	0.124	0.225	0.112	0.012	0.11	0.00
35	525	8.75	1.6	0.132	0.222	0.119	0.013	0.12	0.00
36	540	9.00	1.7	0.141	0.219	0.127	0.014	0.13	0.00
37	555	9.25	1.9	0.157	0.216	0.142	0.016	0.14	0.00
38	570	9.50	2.0	0.166	0.213	0.149	0.017	0.15	0.00
39	585	9.75	2.1	0.174	0.210	0.156	0.017	0.16	0.00
40	600	10.00	2.2	0.182	0.207	0.164	0.018	0.17	0.00
41	615	10.25	1.5	0.124	0.204	0.112	0.012	0.11	0.00
42	630	10.50	1.5	0.124	0.201	0.112	0.012	0.11	0.00
43	645	10.75	2.0	0.166	0.198	0.149	0.017	0.15	0.00
44	660	11.00	2.0	0.166	0.195	0.149	0.017	0.15	0.00
45	675	11.25	1.9	0.157	0.192	0.142	0.016	0.14	0.00
46	690	11.50	1.9	0.157	0.189	0.142	0.016	0.14	0.00
47	705	11.75	1.7	0.141	0.186	0.127	0.014	0.13	0.00
48	720	12.00	1.8	0.149	0.184	0.134	0.015	0.14	0.00
49	735	12.25	2.5	0.207	0.181	0.186	0.026	0.24	0.00
50	750	12.50	2.6	0.215	0.178	0.194	0.037	0.34	0.00
51	765	12.75	2.8	0.232	0.176	0.209	0.056	0.52	0.00
52	780	13.00	2.9	0.240	0.173	0.216	0.067	0.62	0.00
53	795	13.25	3.4	0.282	0.170	0.253	0.111	1.02	327.73
54	810	13.50	3.4	0.282	0.168	0.253	0.114	1.05	349.05
55	825	13.75	2.3	0.190	0.165	0.171	0.025	0.23	0.00
56	840	14.00	2.3	0.190	0.163	0.171	0.028	0.26	0.00
57	855	14.25	2.7	0.224	0.160	0.201	0.063	0.58	0.00
58	870	14.50	2.6	0.215	0.158	0.194	0.058	0.53	0.00
59	885	14.75	2.6	0.215	0.155	0.194	0.060	0.55	0.00
60	900	15.00	2.5	0.207	0.153	0.186	0.054	0.50	0.00
61	915	15.25	2.4	0.199	0.151	0.179	0.048	0.44	0.00

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 100 YEAR - 24 HOUR STORM EVENT	PROJECT: CONCENTRATION POINT: BY: JAMES BAZUA	COACHELLA BUSINESS PARK - INTERIM BA: 1 DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1948
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.097
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00180
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.190	0.148	0.171	0.042	0.39	0.00
63	945	15.75	1.9	0.157	0.146	0.142	0.011	0.10	0.00
64	960	16.00	1.9	0.157	0.144	0.142	0.014	0.12	0.00
65	975	16.25	0.4	0.033	0.142	0.030	0.003	0.03	0.00
66	990	16.50	0.4	0.033	0.139	0.030	0.003	0.03	0.00
67	1005	16.75	0.3	0.025	0.137	0.022	0.002	0.02	0.00
68	1020	17.00	0.3	0.025	0.135	0.022	0.002	0.02	0.00
69	1035	17.25	0.5	0.041	0.133	0.037	0.004	0.04	0.00
70	1050	17.50	0.5	0.041	0.131	0.037	0.004	0.04	0.00
71	1065	17.75	0.5	0.041	0.129	0.037	0.004	0.04	0.00
72	1080	18.00	0.4	0.033	0.127	0.030	0.003	0.03	0.00
73	1095	18.25	0.4	0.033	0.125	0.030	0.003	0.03	0.00
74	1110	18.50	0.4	0.033	0.124	0.030	0.003	0.03	0.00
75	1125	18.75	0.3	0.025	0.122	0.022	0.002	0.02	0.00
76	1140	19.00	0.2	0.017	0.120	0.015	0.002	0.02	0.00
77	1155	19.25	0.3	0.025	0.118	0.022	0.002	0.02	0.00
78	1170	19.50	0.4	0.033	0.117	0.030	0.003	0.03	0.00
79	1185	19.75	0.3	0.025	0.115	0.022	0.002	0.02	0.00
80	1200	20.00	0.2	0.017	0.114	0.015	0.002	0.02	0.00
81	1215	20.25	0.3	0.025	0.112	0.022	0.002	0.02	0.00
82	1230	20.50	0.3	0.025	0.111	0.022	0.002	0.02	0.00
83	1245	20.75	0.3	0.025	0.109	0.022	0.002	0.02	0.00
84	1260	21.00	0.2	0.017	0.108	0.015	0.002	0.02	0.00
85	1275	21.25	0.3	0.025	0.107	0.022	0.002	0.02	0.00
86	1290	21.50	0.2	0.017	0.105	0.015	0.002	0.02	0.00
87	1305	21.75	0.3	0.025	0.104	0.022	0.002	0.02	0.00
88	1320	22.00	0.2	0.017	0.103	0.015	0.002	0.02	0.00
89	1335	22.25	0.3	0.025	0.102	0.022	0.002	0.02	0.00
90	1350	22.50	0.2	0.017	0.101	0.015	0.002	0.02	0.00
91	1365	22.75	0.2	0.017	0.100	0.015	0.002	0.02	0.00
92	1380	23.00	0.2	0.017	0.100	0.015	0.002	0.02	0.00
93	1395	23.25	0.2	0.017	0.099	0.015	0.002	0.02	0.00
94	1410	23.50	0.2	0.017	0.098	0.015	0.002	0.02	0.00
95	1425	23.75	0.2	0.017	0.098	0.015	0.002	0.02	0.00
96	1440	24.00	0.2	0.017	0.097	0.015	0.002	0.02	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.33
FLOOD VOLUME (acft)	0.25
FLOOD VOLUME (cuft)	10855.73
REQUIRED STORAGE (acft)	0.02
REQUIRED STORAGE (cuft)	676.79
PEAK FLOW (cfs)	1.05

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH INCR (ft)	DEPTH TOTAL (ft)	AREA INCR (sf)	AREA TOTAL (sf)	VOLUME INCR (cuft)	VOLUME TOTAL (cuft)	VOLUME TOTAL (acre-ft)
382	0	0		42380	0	0	0.00
383	1	1	2426	44806	43593	43593	1.00
384	1	2	2482	47288	46047	89640	2.06
385	1	3	2539	49827	48558	138198	3.17

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	5	0.14	42	42	197	-	382.00	-	0.00
2	10	0.14	42	42	197	-	382.00	-	0.00
3	15	0.12	36	36	197	-	382.00	-	0.00
4	20	0.16	49	49	197	-	382.00	-	0.00
5	25	0.16	49	49	197	-	382.00	-	0.00
6	30	0.16	49	49	197	-	382.00	-	0.00
7	35	0.16	49	49	197	-	382.00	-	0.00
8	40	0.16	49	49	197	-	382.00	-	0.00
9	45	0.16	49	49	197	-	382.00	-	0.00
10	50	0.16	49	49	197	-	382.00	-	0.00
11	55	0.17	52	52	197	-	382.00	-	0.00
12	60	0.16	49	49	197	-	382.00	-	0.00
13	65	0.60	179	179	197	-	382.00	-	0.00
14	70	0.60	179	179	197	-	382.00	-	0.00
15	75	0.60	179	179	197	-	382.00	-	0.00
16	80	0.38	114	114	197	-	382.00	-	0.00
17	85	1.03	309	309	197	112	382.00	112	0.00
18	90	1.14	342	454	197	256	382.01	256	0.01
19	95	0.81	244	500	197	303	382.01	303	0.01
20	100	1.14	342	645	197	448	382.01	448	0.01
21	105	1.79	537	984	197	787	382.02	787	0.02
22	110	1.57	472	1,259	197	1,062	382.02	1,062	0.02
23	115	1.36	407	1,469	197	1,271	382.03	1,271	0.03
24	120	1.46	439	1,711	197	1,513	382.03	1,513	0.03
25	125	1.57	472	1,985	197	1,788	382.04	1,788	0.04
26	130	2.76	829	2,617	197	2,420	382.06	2,420	0.06
27	135	3.63	1,090	3,510	197	3,312	382.08	3,312	0.08
28	140	2.01	602	3,914	197	3,717	382.09	3,717	0.09
29	145	5.58	1,675	5,392	197	5,195	382.12	5,195	0.12
30	150	6.13	1,838	7,032	197	6,835	382.16	6,835	0.16
31	155	7.10	2,130	8,965	197	8,768	382.20	8,768	0.20
32	160	4.61	1,382	10,150	197	9,953	382.23	9,953	0.23
33	165	0.38	114	10,067	197	9,870	382.23	9,870	0.23
34	170	0.16	49	9,919	197	9,722	382.22	9,722	0.22
35	175	0.16	49	9,771	197	9,574	382.22	9,574	0.22
36	180	0.07	20	9,593	197	9,396	382.22	9,396	0.22

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
1	5	0.07	21	21	197	-	382.00	-	0.00
2	10	0.08	25	25	197	-	382.00	-	0.00
3	15	0.08	25	25	197	-	382.00	-	0.00
4	20	0.08	25	25	197	-	382.00	-	0.00
5	25	0.08	25	25	197	-	382.00	-	0.00
6	30	0.10	30	30	197	-	382.00	-	0.00
7	35	0.10	30	30	197	-	382.00	-	0.00
8	40	0.10	30	30	197	-	382.00	-	0.00
9	45	0.10	30	30	197	-	382.00	-	0.00
10	50	0.10	30	30	197	-	382.00	-	0.00
11	55	0.10	30	30	197	-	382.00	-	0.00
12	60	0.11	34	34	197	-	382.00	-	0.00
13	65	0.11	34	34	197	-	382.00	-	0.00
14	70	0.11	34	34	197	-	382.00	-	0.00
15	75	0.11	34	34	197	-	382.00	-	0.00
16	80	0.11	34	34	197	-	382.00	-	0.00
17	85	0.11	34	34	197	-	382.00	-	0.00
18	90	0.11	34	34	197	-	382.00	-	0.00
19	95	0.11	34	34	197	-	382.00	-	0.00
20	100	0.11	34	34	197	-	382.00	-	0.00
21	105	0.11	34	34	197	-	382.00	-	0.00
22	110	0.11	34	34	197	-	382.00	-	0.00
23	115	0.11	34	34	197	-	382.00	-	0.00
24	120	0.13	38	38	197	-	382.00	-	0.00
25	125	0.11	34	34	197	-	382.00	-	0.00
26	130	0.13	38	38	197	-	382.00	-	0.00
27	135	0.13	38	38	197	-	382.00	-	0.00
28	140	0.13	38	38	197	-	382.00	-	0.00
29	145	0.13	38	38	197	-	382.00	-	0.00
30	150	0.13	38	38	197	-	382.00	-	0.00
31	155	0.13	38	38	197	-	382.00	-	0.00
32	160	0.13	38	38	197	-	382.00	-	0.00
33	165	0.14	42	42	197	-	382.00	-	0.00
34	170	0.14	42	42	197	-	382.00	-	0.00
35	175	0.14	42	42	197	-	382.00	-	0.00
36	180	0.14	42	42	197	-	382.00	-	0.00
37	185	0.14	42	42	197	-	382.00	-	0.00
38	190	0.16	47	47	197	-	382.00	-	0.00
39	195	0.16	47	47	197	-	382.00	-	0.00
40	200	0.16	47	47	197	-	382.00	-	0.00
41	205	0.17	51	51	197	-	382.00	-	0.00
42	210	0.05	14	14	197	-	382.00	-	0.00
43	215	0.19	56	56	197	-	382.00	-	0.00
44	220	0.19	56	56	197	-	382.00	-	0.00
45	225	0.33	98	98	197	-	382.00	-	0.00
46	230	0.33	98	98	197	-	382.00	-	0.00
47	235	0.47	140	140	197	-	382.00	-	0.00
48	240	0.47	140	140	197	-	382.00	-	0.00
49	245	0.61	183	183	197	-	382.00	-	0.00
50	250	0.75	225	225	197	28	382.00	28	0.00
51	255	0.89	267	295	197	98	382.00	98	0.00
52	260	1.03	310	408	197	210	382.00	210	0.00
53	265	1.17	352	562	197	365	382.01	365	0.01
54	270	1.17	352	717	197	520	382.01	520	0.01
55	275	1.31	394	914	197	717	382.02	717	0.02

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
56	280	1.46	437	1,154	197	956	382.02	956	0.02
57	285	1.60	479	1,435	197	1,238	382.03	1,238	0.03
58	290	1.60	479	1,717	197	1,520	382.03	1,520	0.03
59	295	1.74	521	2,041	197	1,844	382.04	1,844	0.04
60	300	1.88	563	2,407	197	2,210	382.05	2,210	0.05
61	305	2.58	775	2,985	197	2,788	382.06	2,788	0.06
62	310	3.29	986	3,774	197	3,577	382.08	3,577	0.08
63	315	3.71	1,113	4,690	197	4,493	382.10	4,493	0.10
64	320	4.13	1,240	5,734	197	5,536	382.13	5,536	0.13
65	325	4.84	1,452	6,988	197	6,791	382.16	6,791	0.16
66	330	6.11	1,832	8,623	197	8,426	382.19	8,426	0.19
67	335	0.89	267	8,694	197	8,496	382.19	8,496	0.20
68	340	0.13	38	8,535	197	8,337	382.19	8,337	0.19
69	345	0.08	25	8,363	197	8,166	382.19	8,166	0.19
70	350	0.07	21	8,187	197	7,989	382.18	7,989	0.18
71	355	0.04	13	8,002	197	7,805	382.18	7,805	0.18
72	360	0.03	8	7,813	197	7,616	382.17	7,616	0.17

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	15	0.02	14	14	592	-	382.00	-	0.00
2	30	0.02	21	21	592	-	382.00	-	0.00
3	45	0.02	21	21	592	-	382.00	-	0.00
4	60	0.03	27	27	592	-	382.00	-	0.00
5	75	0.02	21	21	592	-	382.00	-	0.00
6	90	0.02	21	21	592	-	382.00	-	0.00
7	105	0.02	21	21	592	-	382.00	-	0.00
8	120	0.03	27	27	592	-	382.00	-	0.00
9	135	0.03	27	27	592	-	382.00	-	0.00
10	150	0.03	27	27	592	-	382.00	-	0.00
11	165	0.04	34	34	592	-	382.00	-	0.00
12	180	0.04	34	34	592	-	382.00	-	0.00
13	195	0.04	34	34	592	-	382.00	-	0.00
14	210	0.04	34	34	592	-	382.00	-	0.00
15	225	0.04	34	34	592	-	382.00	-	0.00
16	240	0.05	41	41	592	-	382.00	-	0.00
17	255	0.05	41	41	592	-	382.00	-	0.00
18	270	0.05	48	48	592	-	382.00	-	0.00
19	285	0.05	48	48	592	-	382.00	-	0.00
20	300	0.06	55	55	592	-	382.00	-	0.00
21	315	0.05	41	41	592	-	382.00	-	0.00
22	330	0.05	48	48	592	-	382.00	-	0.00
23	345	0.06	55	55	592	-	382.00	-	0.00
24	360	0.06	55	55	592	-	382.00	-	0.00
25	375	0.07	62	62	592	-	382.00	-	0.00
26	390	0.07	62	62	592	-	382.00	-	0.00
27	405	0.08	68	68	592	-	382.00	-	0.00
28	420	0.08	68	68	592	-	382.00	-	0.00
29	435	0.08	68	68	592	-	382.00	-	0.00
30	450	0.08	75	75	592	-	382.00	-	0.00
31	465	0.09	82	82	592	-	382.00	-	0.00
32	480	0.10	89	89	592	-	382.00	-	0.00
33	495	0.11	103	103	592	-	382.00	-	0.00
34	510	0.11	103	103	592	-	382.00	-	0.00
35	525	0.12	109	109	592	-	382.00	-	0.00
36	540	0.13	116	116	592	-	382.00	-	0.00
37	555	0.14	130	130	592	-	382.00	-	0.00
38	570	0.15	137	137	592	-	382.00	-	0.00
39	585	0.16	144	144	592	-	382.00	-	0.00
40	600	0.17	151	151	592	-	382.00	-	0.00
41	615	0.11	103	103	592	-	382.00	-	0.00
42	630	0.11	103	103	592	-	382.00	-	0.00
43	645	0.15	137	137	592	-	382.00	-	0.00
44	660	0.15	137	137	592	-	382.00	-	0.00
45	675	0.14	130	130	592	-	382.00	-	0.00
46	690	0.14	130	130	592	-	382.00	-	0.00
47	705	0.13	116	116	592	-	382.00	-	0.00
48	720	0.14	123	123	592	-	382.00	-	0.00
49	735	0.24	216	216	592	-	382.00	-	0.00
50	750	0.34	306	306	592	-	382.00	-	0.00
51	765	0.52	465	465	592	-	382.00	-	0.00
52	780	0.62	556	556	592	-	382.00	-	0.00
53	795	1.02	919	919	592	328	382.01	328	0.01
54	810	1.05	941	1,268	592	677	382.02	677	0.02
55	825	0.23	209	886	592	294	382.01	294	0.01
56	840	0.26	230	524	592	-	382.00	-	0.00
57	855	0.58	524	524	592	-	382.00	-	0.00
58	870	0.53	476	476	592	-	382.00	-	0.00

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	BASIN (acre-ft)
59	885	0.55	496	496	592	-	382.00	-	0.00
60	900	0.50	447	447	592	-	382.00	-	0.00
61	915	0.44	398	398	592	-	382.00	-	0.00
62	930	0.39	349	349	592	-	382.00	-	0.00
63	945	0.10	94	94	592	-	382.00	-	0.00
64	960	0.12	112	112	592	-	382.00	-	0.00
65	975	0.03	27	27	592	-	382.00	-	0.00
66	990	0.03	27	27	592	-	382.00	-	0.00
67	1005	0.02	21	21	592	-	382.00	-	0.00
68	1020	0.02	21	21	592	-	382.00	-	0.00
69	1035	0.04	34	34	592	-	382.00	-	0.00
70	1050	0.04	34	34	592	-	382.00	-	0.00
71	1065	0.04	34	34	592	-	382.00	-	0.00
72	1080	0.03	27	27	592	-	382.00	-	0.00
73	1095	0.03	27	27	592	-	382.00	-	0.00
74	1110	0.03	27	27	592	-	382.00	-	0.00
75	1125	0.02	21	21	592	-	382.00	-	0.00
76	1140	0.02	14	14	592	-	382.00	-	0.00
77	1155	0.02	21	21	592	-	382.00	-	0.00
78	1170	0.03	27	27	592	-	382.00	-	0.00
79	1185	0.02	21	21	592	-	382.00	-	0.00
80	1200	0.02	14	14	592	-	382.00	-	0.00
81	1215	0.02	21	21	592	-	382.00	-	0.00
82	1230	0.02	21	21	592	-	382.00	-	0.00
83	1245	0.02	21	21	592	-	382.00	-	0.00
84	1260	0.02	14	14	592	-	382.00	-	0.00
85	1275	0.02	21	21	592	-	382.00	-	0.00
86	1290	0.02	14	14	592	-	382.00	-	0.00
87	1305	0.02	21	21	592	-	382.00	-	0.00
88	1320	0.02	14	14	592	-	382.00	-	0.00
89	1335	0.02	21	21	592	-	382.00	-	0.00
90	1350	0.02	14	14	592	-	382.00	-	0.00
91	1365	0.02	14	14	592	-	382.00	-	0.00
92	1380	0.02	14	14	592	-	382.00	-	0.00
93	1395	0.02	14	14	592	-	382.00	-	0.00
94	1410	0.02	14	14	592	-	382.00	-	0.00
95	1425	0.02	14	14	592	-	382.00	-	0.00
96	1440	0.02	14	14	592	-	382.00	-	0.00

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA C - 10 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	2.32		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.1		
23	RETENTION BASIN	0.21		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	400		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	30		
30				
31	ELEVATION OF HEADWATER	386		
32	ELEVATION OF CONCENTRATION POINT	384		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	0.984		
40	6-HOUR	1.28		
41	24-HOUR	2.07		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		381	2664	
45		382	4561	
46		383	6529	
47		384	8568	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
BY MES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA C - 10 YEAR EVENT
[3] AREA - ACRES	2.630
[4] L-FEET	400
[5] L-MILES	0.076
[6] La-FEET	30.00
[7] La-MILES	0.006
[8] ELEVATION OF HEADWATER	386
[9] ELEVATION OF CONCENTRATION POINT	384
[10] H-FEET	2
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.000
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.01
[16] LAG TIME-MINUTES	0.8
[17] 100% OF LAG-MINUTES	0.8
[18] 200% OF LAG-MINUTES	1.6
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.04

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
0.98	2.630	1.00	0.98	1.28	2.630	1.00	1.28	2.07	2.630	1.00	2.07
		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			0.00	0.00
SUM [5]	2.63	SUM [7]	0.98	SUM [9]	2.63	SUM [11]	1.28	SUM [13]	2.63	SUM [15]	2.07
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			0.98				1.28				2.07

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.43	0.43	0.31
FLOOD VOLUME	(cu-ft)	4,096	4,066	2,949
	(acre-ft)	0.09	0.09	0.07
REQUIRED STORAGE	(cu-ft)	3,639	3,271	1,225
	(acre-ft)	0.08	0.08	0.03
PEAK FLOW	(cfs)	2.02	1.74	0.29
MAXIMUM WSEL	(ft)	382.00	381.91	381.33

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK
	CONCENTRATION POINT: 1
	BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.70	90%	0.13	2.32	0.882	0.1173
B	PAVING/HARDSCAPE	56	0.70	100%	0.07	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.70	20%	0.57	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.70	40%	0.45	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.70	50%	0.39	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.70	65%	0.29	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.70	80%	0.20	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.70	75%	0.23	0.00	0.000	0.0000
B	LANDSCAPING	56	0.70	0%	0.70	0.10	0.038	0.0266
B	RETENTION BASINS	56	0.70	0%	0.70	0.21	0.080	0.0559
B	GOLF COURSE	56	0.70	0%	0.70	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.20	90%	0.04	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	2.63	SUM	0.1998

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.09991635

C= 0.00185

Ft=C(24-(T/60))^1.55 = 0.00185 (24-(T/60))^1.55 + 0.10 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
100 YEAR - 3 HOUR STORM EVENT

PROJECT: COACHELLA AIRPORT BUSINESS PARK
CONCENTRATION POINT: 1

BY: \AMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	0.81
UNIT TIME-PERCENT OF LAG	614.9
TOTAL ADJUSTED STORM RAIN-INCHES	0.98
CONSTANT LOSS RATE-in/hr	0.20
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.154	0.20	0.14	0.02	0.04	0.00
2	10	0.17	1.3	0.154	0.20	0.14	0.02	0.04	0.00
3	15	0.25	1.1	0.130	0.20	0.12	0.01	0.03	0.00
4	20	0.33	1.5	0.177	0.20	0.16	0.02	0.05	1.58
5	25	0.42	1.5	0.177	0.20	0.16	0.02	0.05	1.58
6	30	0.50	1.8	0.213	0.20	0.19	0.01	0.03	0.00
7	35	0.58	1.5	0.177	0.20	0.16	0.02	0.05	1.58
8	40	0.67	1.8	0.213	0.20	0.19	0.01	0.03	0.00
9	45	0.75	1.8	0.213	0.20	0.19	0.01	0.03	0.00
10	50	0.83	1.5	0.177	0.20	0.16	0.02	0.05	1.58
11	55	0.92	1.6	0.189	0.20	0.17	0.02	0.05	2.51
12	60	1.00	1.8	0.213	0.20	0.19	0.01	0.03	0.00
13	65	1.08	2.2	0.260	0.20	0.23	0.06	0.16	34.90
14	70	1.17	2.2	0.260	0.20	0.23	0.06	0.16	34.90
15	75	1.25	2.2	0.260	0.20	0.23	0.06	0.16	34.90
16	80	1.33	2.0	0.236	0.20	0.21	0.04	0.10	16.27
17	85	1.42	2.6	0.307	0.20	0.28	0.11	0.28	72.17
18	90	1.50	2.7	0.319	0.20	0.29	0.12	0.31	81.48
19	95	1.58	2.4	0.283	0.20	0.26	0.08	0.22	53.53
20	100	1.67	2.7	0.319	0.20	0.29	0.12	0.31	81.48
21	105	1.75	3.3	0.390	0.20	0.35	0.19	0.50	137.38
22	110	1.83	3.1	0.366	0.20	0.33	0.17	0.44	118.75
23	115	1.92	2.9	0.342	0.20	0.31	0.14	0.38	100.12
24	120	2.00	3.0	0.354	0.20	0.32	0.15	0.41	109.43
25	125	2.08	3.1	0.366	0.20	0.33	0.17	0.44	118.75
26	130	2.17	4.2	0.496	0.20	0.45	0.30	0.78	221.23
27	135	2.25	5.0	0.590	0.20	0.53	0.39	1.03	295.76
28	140	2.33	3.5	0.413	0.20	0.37	0.21	0.56	156.01
29	145	2.42	6.8	0.803	0.20	0.72	0.60	1.59	463.46
30	150	2.50	7.3	0.862	0.20	0.78	0.66	1.74	510.04
31	155	2.58	8.2	0.968	0.20	0.87	0.77	2.02	593.89
32	160	2.67	5.9	0.697	0.20	0.63	0.50	1.31	379.61
33	165	2.75	2.0	0.236	0.20	0.21	0.04	0.10	16.27
34	170	2.83	1.8	0.213	0.20	0.19	0.01	0.03	0.00
35	175	2.92	1.8	0.213	0.20	0.19	0.01	0.03	0.00
36	180	3.00	0.6	0.071	0.20	0.06	0.01	0.02	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.43
FLOOD VOLUME (acft)	0.09
FLOOD VOLUME (cuft)	4095.54
REQUIRED STORAGE (acft)	0.08
REQUIRED STORAGE (cuft)	3639.17
PEAK FLOW RATE (cfs)	2.02

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63			
UNIT TIME-MINUTES	5			
LAG TIME - MINUTES	0.81			
UNIT TIME-PERCENT OF LAG	614.9			
TOTAL ADJUSTED STORM RAIN-INCHES	1.28			
CONSTANT LOSS RATE-in/hr	0.200			
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.04	cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.077	0.20	0.07	0.01	0.02	0.00
2	10	0.17	0.6	0.092	0.20	0.08	0.01	0.02	0.00
3	15	0.25	0.6	0.092	0.20	0.08	0.01	0.02	0.00
4	20	0.33	0.6	0.092	0.20	0.08	0.01	0.02	0.00
5	25	0.42	0.6	0.092	0.20	0.08	0.01	0.02	0.00
6	30	0.50	0.7	0.108	0.20	0.10	0.01	0.03	0.00
7	35	0.58	0.7	0.108	0.20	0.10	0.01	0.03	0.00
8	40	0.67	0.7	0.108	0.20	0.10	0.01	0.03	0.00
9	45	0.75	0.7	0.108	0.20	0.10	0.01	0.03	0.00
10	50	0.83	0.7	0.108	0.20	0.10	0.01	0.03	0.00
11	55	0.92	0.7	0.108	0.20	0.10	0.01	0.03	0.00
12	60	1.00	0.8	0.123	0.20	0.11	0.01	0.03	0.00
13	65	1.08	0.8	0.123	0.20	0.11	0.01	0.03	0.00
14	70	1.17	0.8	0.123	0.20	0.11	0.01	0.03	0.00
15	75	1.25	0.8	0.123	0.20	0.11	0.01	0.03	0.00
16	80	1.33	0.8	0.123	0.20	0.11	0.01	0.03	0.00
17	85	1.42	0.8	0.123	0.20	0.11	0.01	0.03	0.00
18	90	1.50	0.8	0.123	0.20	0.11	0.01	0.03	0.00
19	95	1.58	0.8	0.123	0.20	0.11	0.01	0.03	0.00
20	100	1.67	0.8	0.123	0.20	0.11	0.01	0.03	0.00
21	105	1.75	0.8	0.123	0.20	0.11	0.01	0.03	0.00
22	110	1.83	0.8	0.123	0.20	0.11	0.01	0.03	0.00
23	115	1.92	0.8	0.123	0.20	0.11	0.01	0.03	0.00
24	120	2.00	0.9	0.138	0.20	0.12	0.01	0.04	0.00
25	125	2.08	0.8	0.123	0.20	0.11	0.01	0.03	0.00
26	130	2.17	0.9	0.138	0.20	0.12	0.01	0.04	0.00
27	135	2.25	0.9	0.138	0.20	0.12	0.01	0.04	0.00
28	140	2.33	0.9	0.138	0.20	0.12	0.01	0.04	0.00
29	145	2.42	0.9	0.138	0.20	0.12	0.01	0.04	0.00
30	150	2.50	0.9	0.138	0.20	0.12	0.01	0.04	0.00
31	155	2.58	0.9	0.138	0.20	0.12	0.01	0.04	0.00
32	160	2.67	0.9	0.138	0.20	0.12	0.01	0.04	0.00
33	165	2.75	1.0	0.154	0.20	0.14	0.02	0.04	0.00
34	170	2.83	1.0	0.154	0.20	0.14	0.02	0.04	0.00
35	175	2.92	1.0	0.154	0.20	0.14	0.02	0.04	0.00
36	180	3.00	1.0	0.154	0.20	0.14	0.02	0.04	0.00
37	185	3.08	1.0	0.154	0.20	0.14	0.02	0.04	0.00
38	190	3.17	1.1	0.169	0.20	0.15	0.02	0.04	0.94
39	195	3.25	1.1	0.169	0.20	0.15	0.02	0.04	0.94
40	200	3.33	1.1	0.169	0.20	0.15	0.02	0.04	0.94
41	205	3.42	1.2	0.184	0.20	0.17	0.02	0.05	2.15
42	210	3.50	1.3	0.200	0.20	0.18	0.02	0.05	3.36
43	215	3.58	1.4	0.215	0.20	0.19	0.02	0.04	0.00
44	220	3.67	1.4	0.215	0.20	0.19	0.02	0.04	0.00
45	225	3.75	1.5	0.230	0.20	0.21	0.03	0.08	11.72
46	230	3.83	1.5	0.230	0.20	0.21	0.03	0.08	11.72
47	235	3.92	1.6	0.246	0.20	0.22	0.05	0.12	23.84
48	240	4.00	1.6	0.246	0.20	0.22	0.05	0.12	23.84
49	245	4.08	1.7	0.261	0.20	0.24	0.06	0.16	35.96
50	250	4.17	1.8	0.276	0.20	0.25	0.08	0.20	48.08
51	255	4.25	1.9	0.292	0.20	0.26	0.09	0.24	60.20
52	260	4.33	2.0	0.307	0.20	0.28	0.11	0.28	72.32
53	265	4.42	2.1	0.323	0.20	0.29	0.12	0.32	84.44
54	270	4.50	2.1	0.323	0.20	0.29	0.12	0.32	84.44
55	275	4.58	2.2	0.338	0.20	0.30	0.14	0.36	96.56
56	280	4.67	2.3	0.353	0.20	0.32	0.15	0.40	108.67

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	0.81	
UNIT TIME-PERCENT OF LAG	614.9	
TOTAL ADJUSTED STORM RAIN-INCHES	1.28	
CONSTANT LOSS RATE-in/hr	0.200	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.369	0.20	0.33	0.17	0.44	120.79
58	290	4.83	2.4	0.369	0.20	0.33	0.17	0.44	120.79
59	295	4.92	2.5	0.384	0.20	0.35	0.18	0.48	132.91
60	300	5.00	2.6	0.399	0.20	0.36	0.20	0.52	145.03
61	305	5.08	3.1	0.476	0.20	0.43	0.28	0.73	205.63
62	310	5.17	3.6	0.553	0.20	0.50	0.35	0.93	266.22
63	315	5.25	3.9	0.599	0.20	0.54	0.40	1.05	302.58
64	320	5.33	4.2	0.645	0.20	0.58	0.45	1.17	338.94
65	325	5.42	4.7	0.722	0.20	0.65	0.52	1.37	399.53
66	330	5.50	5.6	0.860	0.20	0.77	0.66	1.74	508.60
67	335	5.58	1.9	0.292	0.20	0.26	0.09	0.24	60.20
68	340	5.67	0.9	0.138	0.20	0.12	0.01	0.04	0.00
69	345	5.75	0.6	0.092	0.20	0.08	0.01	0.02	0.00
70	350	5.83	0.5	0.077	0.20	0.07	0.01	0.02	0.00
71	355	5.92	0.3	0.046	0.20	0.04	0.00	0.01	0.00
72	360	6.00	0.2	0.031	0.20	0.03	0.00	0.01	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.43
FLOOD VOLUME (acft)	0.09
FLOOD VOLUME (cuft)	4066.25
REQUIRED STORAGE (acft)	0.08
REQUIRED STORAGE (cuft)	3271.34
PEAK FLOW RATE (cfs)	1.74

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD		PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT		CONCENTRATION POINT:	1
		BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1998
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.100
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00185
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.017	0.353	0.015	0.002	0.00	0.00
2	30	0.50	0.3	0.025	0.349	0.022	0.002	0.01	0.00
3	45	0.75	0.3	0.025	0.345	0.022	0.002	0.01	0.00
4	60	1.00	0.4	0.033	0.341	0.030	0.003	0.01	0.00
5	75	1.25	0.3	0.025	0.337	0.022	0.002	0.01	0.00
6	90	1.50	0.3	0.025	0.333	0.022	0.002	0.01	0.00
7	105	1.75	0.3	0.025	0.329	0.022	0.002	0.01	0.00
8	120	2.00	0.4	0.033	0.325	0.030	0.003	0.01	0.00
9	135	2.25	0.4	0.033	0.321	0.030	0.003	0.01	0.00
10	150	2.50	0.4	0.033	0.317	0.030	0.003	0.01	0.00
11	165	2.75	0.5	0.041	0.313	0.037	0.004	0.01	0.00
12	180	3.00	0.5	0.041	0.309	0.037	0.004	0.01	0.00
13	195	3.25	0.5	0.041	0.305	0.037	0.004	0.01	0.00
14	210	3.50	0.5	0.041	0.302	0.037	0.004	0.01	0.00
15	225	3.75	0.5	0.041	0.298	0.037	0.004	0.01	0.00
16	240	4.00	0.6	0.050	0.294	0.045	0.005	0.01	0.00
17	255	4.25	0.6	0.050	0.290	0.045	0.005	0.01	0.00
18	270	4.50	0.7	0.058	0.287	0.052	0.006	0.02	0.00
19	285	4.75	0.7	0.058	0.283	0.052	0.006	0.02	0.00
20	300	5.00	0.8	0.066	0.279	0.060	0.007	0.02	0.00
21	315	5.25	0.6	0.050	0.276	0.045	0.005	0.01	0.00
22	330	5.50	0.7	0.058	0.272	0.052	0.006	0.02	0.00
23	345	5.75	0.8	0.066	0.268	0.060	0.007	0.02	0.00
24	360	6.00	0.8	0.066	0.265	0.060	0.007	0.02	0.00
25	375	6.25	0.9	0.075	0.261	0.067	0.007	0.02	0.00
26	390	6.50	0.9	0.075	0.258	0.067	0.007	0.02	0.00
27	405	6.75	1.0	0.083	0.254	0.075	0.008	0.02	0.00
28	420	7.00	1.0	0.083	0.251	0.075	0.008	0.02	0.00
29	435	7.25	1.0	0.083	0.248	0.075	0.008	0.02	0.00
30	450	7.50	1.1	0.091	0.244	0.082	0.009	0.02	0.00
31	465	7.75	1.2	0.099	0.241	0.089	0.010	0.03	0.00
32	480	8.00	1.3	0.108	0.238	0.097	0.011	0.03	0.00
33	495	8.25	1.5	0.124	0.234	0.112	0.012	0.03	0.00
34	510	8.50	1.5	0.124	0.231	0.112	0.012	0.03	0.00
35	525	8.75	1.6	0.132	0.228	0.119	0.013	0.03	0.00
36	540	9.00	1.7	0.141	0.225	0.127	0.014	0.04	0.00
37	555	9.25	1.9	0.157	0.221	0.142	0.016	0.04	0.05
38	570	9.50	2.0	0.166	0.218	0.149	0.017	0.04	2.01
39	585	9.75	2.1	0.174	0.215	0.156	0.017	0.05	3.97
40	600	10.00	2.2	0.182	0.212	0.164	0.018	0.05	5.93
41	615	10.25	1.5	0.124	0.209	0.112	0.012	0.03	0.00
42	630	10.50	1.5	0.124	0.206	0.112	0.012	0.03	0.00
43	645	10.75	2.0	0.166	0.203	0.149	0.017	0.04	2.01
44	660	11.00	2.0	0.166	0.200	0.149	0.017	0.04	2.01
45	675	11.25	1.9	0.157	0.197	0.142	0.016	0.04	0.05
46	690	11.50	1.9	0.157	0.194	0.142	0.016	0.04	0.05
47	705	11.75	1.7	0.141	0.191	0.127	0.014	0.04	0.00
48	720	12.00	1.8	0.149	0.188	0.134	0.015	0.04	0.00
49	735	12.25	2.5	0.207	0.186	0.186	0.021	0.06	13.46
50	750	12.50	2.6	0.215	0.183	0.194	0.032	0.09	39.64
51	765	12.75	2.8	0.232	0.180	0.209	0.052	0.14	85.34
52	780	13.00	2.9	0.240	0.177	0.216	0.063	0.17	111.36
53	795	13.25	3.4	0.282	0.175	0.253	0.107	0.28	215.70
54	810	13.50	3.4	0.282	0.172	0.253	0.109	0.29	221.96
55	825	13.75	2.3	0.190	0.169	0.171	0.021	0.06	12.56
56	840	14.00	2.3	0.190	0.167	0.171	0.024	0.06	18.67
57	855	14.25	2.7	0.224	0.164	0.201	0.059	0.16	103.08
58	870	14.50	2.6	0.215	0.162	0.194	0.053	0.14	89.42
59	885	14.75	2.6	0.215	0.159	0.194	0.056	0.15	95.28
60	900	15.00	2.5	0.207	0.157	0.186	0.050	0.13	81.45
61	915	15.25	2.4	0.199	0.154	0.179	0.044	0.12	67.53

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 100 YEAR - 24 HOUR STORM EVENT	PROJECT: CONCENTRATION POINT: BY: JAMES BAZUA	COACHELLA AIRPORT BUSINESS PARK 1 DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1998
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.100
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	2.07	C	0.00185
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.190	0.152	0.171	0.038	0.10	53.53
63	945	15.75	1.9	0.157	0.150	0.142	0.008	0.02	0.00
64	960	16.00	1.9	0.157	0.148	0.142	0.010	0.03	0.00
65	975	16.25	0.4	0.033	0.145	0.030	0.003	0.01	0.00
66	990	16.50	0.4	0.033	0.143	0.030	0.003	0.01	0.00
67	1005	16.75	0.3	0.025	0.141	0.022	0.002	0.01	0.00
68	1020	17.00	0.3	0.025	0.139	0.022	0.002	0.01	0.00
69	1035	17.25	0.5	0.041	0.137	0.037	0.004	0.01	0.00
70	1050	17.50	0.5	0.041	0.135	0.037	0.004	0.01	0.00
71	1065	17.75	0.5	0.041	0.133	0.037	0.004	0.01	0.00
72	1080	18.00	0.4	0.033	0.131	0.030	0.003	0.01	0.00
73	1095	18.25	0.4	0.033	0.129	0.030	0.003	0.01	0.00
74	1110	18.50	0.4	0.033	0.127	0.030	0.003	0.01	0.00
75	1125	18.75	0.3	0.025	0.125	0.022	0.002	0.01	0.00
76	1140	19.00	0.2	0.017	0.123	0.015	0.002	0.00	0.00
77	1155	19.25	0.3	0.025	0.121	0.022	0.002	0.01	0.00
78	1170	19.50	0.4	0.033	0.120	0.030	0.003	0.01	0.00
79	1185	19.75	0.3	0.025	0.118	0.022	0.002	0.01	0.00
80	1200	20.00	0.2	0.017	0.117	0.015	0.002	0.00	0.00
81	1215	20.25	0.3	0.025	0.115	0.022	0.002	0.01	0.00
82	1230	20.50	0.3	0.025	0.114	0.022	0.002	0.01	0.00
83	1245	20.75	0.3	0.025	0.112	0.022	0.002	0.01	0.00
84	1260	21.00	0.2	0.017	0.111	0.015	0.002	0.00	0.00
85	1275	21.25	0.3	0.025	0.109	0.022	0.002	0.01	0.00
86	1290	21.50	0.2	0.017	0.108	0.015	0.002	0.00	0.00
87	1305	21.75	0.3	0.025	0.107	0.022	0.002	0.01	0.00
88	1320	22.00	0.2	0.017	0.106	0.015	0.002	0.00	0.00
89	1335	22.25	0.3	0.025	0.105	0.022	0.002	0.01	0.00
90	1350	22.50	0.2	0.017	0.104	0.015	0.002	0.00	0.00
91	1365	22.75	0.2	0.017	0.103	0.015	0.002	0.00	0.00
92	1380	23.00	0.2	0.017	0.102	0.015	0.002	0.00	0.00
93	1395	23.25	0.2	0.017	0.101	0.015	0.002	0.00	0.00
94	1410	23.50	0.2	0.017	0.101	0.015	0.002	0.00	0.00
95	1425	23.75	0.2	0.017	0.100	0.015	0.002	0.00	0.00
96	1440	24.00	0.2	0.017	0.100	0.015	0.002	0.00	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	0.31
FLOOD VOLUME (acft)	0.07
FLOOD VOLUME (cuft)	2949.37
REQUIRED STORAGE (acft)	0.03
REQUIRED STORAGE (cuft)	1225.07
PEAK FLOW (cfs)	0.29

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
381	0	0		2664	0	0	0.00
382	1	1	1897	4561	3613	3613	0.08
383	1	2	1968	6529	5545	9158	0.21
384	1	3	2039	8568	7549	16706	0.38

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.04 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.04 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.04	12	12	12	-	381.00	-	0.00
2	10	0.04	12	12	12	-	381.00	-	0.00
3	15	0.03	10	10	12	-	381.00	-	0.00
4	20	0.05	14	14	12	2	381.00	2	0.00
5	25	0.05	14	16	12	3	381.00	3	0.00
6	30	0.03	10	13	12	1	381.00	1	0.00
7	35	0.05	14	15	12	2	381.00	2	0.00
8	40	0.03	10	12	12	0	381.00	0	0.00
9	45	0.03	10	10	12	-	381.00	-	0.00
10	50	0.05	14	14	12	2	381.00	2	0.00
11	55	0.05	15	16	12	4	381.00	4	0.00
12	60	0.03	10	14	12	2	381.00	2	0.00
13	65	0.16	47	49	12	37	381.01	37	0.00
14	70	0.16	47	84	12	72	381.02	72	0.00
15	75	0.16	47	119	12	106	381.03	106	0.00
16	80	0.10	29	135	12	123	381.03	123	0.00
17	85	0.28	85	207	12	195	381.05	195	0.00
18	90	0.31	94	289	12	276	381.08	276	0.01
19	95	0.22	66	342	12	330	381.09	330	0.01
20	100	0.31	94	424	12	411	381.11	411	0.01
21	105	0.50	150	561	12	549	381.15	549	0.01
22	110	0.44	131	680	12	667	381.18	667	0.02
23	115	0.38	113	780	12	768	381.21	768	0.02
24	120	0.41	122	889	12	877	381.24	877	0.02
25	125	0.44	131	1,008	12	996	381.28	996	0.02
26	130	0.78	234	1,229	12	1,217	381.34	1,217	0.03
27	135	1.03	308	1,525	12	1,513	381.42	1,513	0.03
28	140	0.56	168	1,681	12	1,669	381.46	1,669	0.04
29	145	1.59	476	2,145	12	2,132	381.59	2,132	0.05
30	150	1.74	522	2,655	12	2,642	381.73	2,642	0.06
31	155	2.02	606	3,249	12	3,236	381.90	3,236	0.07
32	160	1.31	392	3,628	12	3,616	382.00	3,616	0.08
33	165	0.10	29	3,644	12	3,632	382.00	3,632	0.08
34	170	0.03	10	3,642	12	3,630	382.00	3,630	0.08
35	175	0.03	10	3,640	12	3,627	382.00	3,627	0.08
36	180	0.02	6	3,633	12	3,621	382.00	3,621	0.08

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.02	6	6	12	-	381.00	-	0.00
2	10	0.02	7	7	12	-	381.00	-	0.00
3	15	0.02	7	7	12	-	381.00	-	0.00
4	20	0.02	7	7	12	-	381.00	-	0.00
5	25	0.02	7	7	12	-	381.00	-	0.00
6	30	0.03	8	8	12	-	381.00	-	0.00
7	35	0.03	8	8	12	-	381.00	-	0.00
8	40	0.03	8	8	12	-	381.00	-	0.00
9	45	0.03	8	8	12	-	381.00	-	0.00
10	50	0.03	8	8	12	-	381.00	-	0.00
11	55	0.03	8	8	12	-	381.00	-	0.00
12	60	0.03	10	10	12	-	381.00	-	0.00
13	65	0.03	10	10	12	-	381.00	-	0.00
14	70	0.03	10	10	12	-	381.00	-	0.00
15	75	0.03	10	10	12	-	381.00	-	0.00
16	80	0.03	10	10	12	-	381.00	-	0.00
17	85	0.03	10	10	12	-	381.00	-	0.00
18	90	0.03	10	10	12	-	381.00	-	0.00
19	95	0.03	10	10	12	-	381.00	-	0.00
20	100	0.03	10	10	12	-	381.00	-	0.00
21	105	0.03	10	10	12	-	381.00	-	0.00
22	110	0.03	10	10	12	-	381.00	-	0.00
23	115	0.03	10	10	12	-	381.00	-	0.00
24	120	0.04	11	11	12	-	381.00	-	0.00
25	125	0.03	10	10	12	-	381.00	-	0.00
26	130	0.04	11	11	12	-	381.00	-	0.00
27	135	0.04	11	11	12	-	381.00	-	0.00
28	140	0.04	11	11	12	-	381.00	-	0.00
29	145	0.04	11	11	12	-	381.00	-	0.00
30	150	0.04	11	11	12	-	381.00	-	0.00
31	155	0.04	11	11	12	-	381.00	-	0.00
32	160	0.04	11	11	12	-	381.00	-	0.00
33	165	0.04	12	12	12	-	381.00	-	0.00
34	170	0.04	12	12	12	-	381.00	-	0.00
35	175	0.04	12	12	12	-	381.00	-	0.00
36	180	0.04	12	12	12	-	381.00	-	0.00
37	185	0.04	12	12	12	-	381.00	-	0.00
38	190	0.04	13	13	12	1	381.00	1	0.00
39	195	0.04	13	14	12	2	381.00	2	0.00
40	200	0.04	13	15	12	3	381.00	3	0.00
41	205	0.05	15	17	12	5	381.00	5	0.00
42	210	0.05	16	21	12	8	381.00	8	0.00
43	215	0.04	12	20	12	8	381.00	8	0.00
44	220	0.04	12	20	12	8	381.00	8	0.00
45	225	0.08	24	32	12	19	381.01	19	0.00
46	230	0.08	24	43	12	31	381.01	31	0.00
47	235	0.12	36	67	12	55	381.02	55	0.00
48	240	0.12	36	91	12	79	381.02	79	0.00
49	245	0.16	48	127	12	115	381.03	115	0.00
50	250	0.20	60	175	12	163	381.05	163	0.00
51	255	0.24	73	235	12	223	381.06	223	0.01
52	260	0.28	85	308	12	295	381.08	295	0.01
53	265	0.32	97	392	12	380	381.11	380	0.01
54	270	0.32	97	476	12	464	381.13	464	0.01
55	275	0.36	109	573	12	561	381.16	561	0.01

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
56	280	0.40	121	682	12	669	381.19	669	0.02
57	285	0.44	133	803	12	790	381.22	790	0.02
58	290	0.44	133	923	12	911	381.25	911	0.02
59	295	0.48	145	1,056	12	1,044	381.29	1,044	0.02
60	300	0.52	157	1,201	12	1,189	381.33	1,189	0.03
61	305	0.73	218	1,407	12	1,394	381.39	1,394	0.03
62	310	0.93	279	1,673	12	1,661	381.46	1,661	0.04
63	315	1.05	315	1,976	12	1,963	381.54	1,963	0.05
64	320	1.17	351	2,315	12	2,302	381.64	2,302	0.05
65	325	1.37	412	2,714	12	2,702	381.75	2,702	0.06
66	330	1.74	521	3,223	12	3,210	381.89	3,210	0.07
67	335	0.24	73	3,283	12	3,271	381.91	3,271	0.08
68	340	0.04	11	3,281	12	3,269	381.90	3,269	0.08
69	345	0.02	7	3,276	12	3,264	381.90	3,264	0.07
70	350	0.02	6	3,270	12	3,258	381.90	3,258	0.07
71	355	0.01	4	3,261	12	3,249	381.90	3,249	0.07
72	360	0.01	2	3,251	12	3,239	381.90	3,239	0.07

1

TKC JOB # C1443

100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW IN	VOLUME IN	TOTAL IN BASIN	PERC OUT	TOTAL IN BASIN	BASIN DEPTH	BALANCE IN BASIN	
UNIT PERIOD	(min)	(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
1	15	0.00	4	4	37	-	381.00	-	0.00
2	30	0.01	6	6	37	-	381.00	-	0.00
3	45	0.01	6	6	37	-	381.00	-	0.00
4	60	0.01	8	8	37	-	381.00	-	0.00
5	75	0.01	6	6	37	-	381.00	-	0.00
6	90	0.01	6	6	37	-	381.00	-	0.00
7	105	0.01	6	6	37	-	381.00	-	0.00
8	120	0.01	8	8	37	-	381.00	-	0.00
9	135	0.01	8	8	37	-	381.00	-	0.00
10	150	0.01	8	8	37	-	381.00	-	0.00
11	165	0.01	10	10	37	-	381.00	-	0.00
12	180	0.01	10	10	37	-	381.00	-	0.00
13	195	0.01	10	10	37	-	381.00	-	0.00
14	210	0.01	10	10	37	-	381.00	-	0.00
15	225	0.01	10	10	37	-	381.00	-	0.00
16	240	0.01	12	12	37	-	381.00	-	0.00
17	255	0.01	12	12	37	-	381.00	-	0.00
18	270	0.02	14	14	37	-	381.00	-	0.00
19	285	0.02	14	14	37	-	381.00	-	0.00
20	300	0.02	16	16	37	-	381.00	-	0.00
21	315	0.01	12	12	37	-	381.00	-	0.00
22	330	0.02	14	14	37	-	381.00	-	0.00
23	345	0.02	16	16	37	-	381.00	-	0.00
24	360	0.02	16	16	37	-	381.00	-	0.00
25	375	0.02	18	18	37	-	381.00	-	0.00
26	390	0.02	18	18	37	-	381.00	-	0.00
27	405	0.02	20	20	37	-	381.00	-	0.00
28	420	0.02	20	20	37	-	381.00	-	0.00
29	435	0.02	20	20	37	-	381.00	-	0.00
30	450	0.02	22	22	37	-	381.00	-	0.00
31	465	0.03	24	24	37	-	381.00	-	0.00
32	480	0.03	25	25	37	-	381.00	-	0.00
33	495	0.03	29	29	37	-	381.00	-	0.00
34	510	0.03	29	29	37	-	381.00	-	0.00
35	525	0.03	31	31	37	-	381.00	-	0.00
36	540	0.04	33	33	37	-	381.00	-	0.00
37	555	0.04	37	37	37	0	381.00	0	0.00
38	570	0.04	39	39	37	2	381.00	2	0.00
39	585	0.05	41	43	37	6	381.00	6	0.00
40	600	0.05	43	49	37	12	381.00	12	0.00
41	615	0.03	29	41	37	4	381.00	4	0.00
42	630	0.03	29	34	37	-	381.00	-	0.00
43	645	0.04	39	39	37	2	381.00	2	0.00
44	660	0.04	39	41	37	4	381.00	4	0.00
45	675	0.04	37	41	37	4	381.00	4	0.00
46	690	0.04	37	41	37	4	381.00	4	0.00
47	705	0.04	33	37	37	0	381.00	0	0.00
48	720	0.04	35	36	37	-	381.00	-	0.00
49	735	0.06	51	51	37	13	381.00	13	0.00
50	750	0.09	77	90	37	53	381.01	53	0.00
51	765	0.14	123	176	37	138	381.04	138	0.00
52	780	0.17	149	287	37	250	381.07	250	0.01
53	795	0.28	253	503	37	465	381.13	465	0.01
54	810	0.29	259	725	37	687	381.19	687	0.02
55	825	0.06	50	737	37	700	381.19	700	0.02
56	840	0.06	56	756	37	719	381.20	719	0.02
57	855	0.16	140	859	37	822	381.23	822	0.02
58	870	0.14	127	948	37	911	381.25	911	0.02

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
59	885	0.15	132	1,044	37	1,006	381.28	1,006	0.02
60	900	0.13	119	1,125	37	1,088	381.30	1,088	0.02
61	915	0.12	105	1,193	37	1,155	381.32	1,155	0.03
62	930	0.10	91	1,246	37	1,209	381.33	1,209	0.03
63	945	0.02	18	1,227	37	1,190	381.33	1,190	0.03
64	960	0.03	23	1,213	37	1,176	381.33	1,176	0.03
65	975	0.01	8	1,184	37	1,146	381.32	1,146	0.03
66	990	0.01	8	1,154	37	1,117	381.31	1,117	0.03
67	1005	0.01	6	1,123	37	1,086	381.30	1,086	0.02
68	1020	0.01	6	1,092	37	1,054	381.29	1,054	0.02
69	1035	0.01	10	1,064	37	1,027	381.28	1,027	0.02
70	1050	0.01	10	1,037	37	1,000	381.28	1,000	0.02
71	1065	0.01	10	1,009	37	972	381.27	972	0.02
72	1080	0.01	8	980	37	943	381.26	943	0.02
73	1095	0.01	8	951	37	914	381.25	914	0.02
74	1110	0.01	8	921	37	884	381.24	884	0.02
75	1125	0.01	6	890	37	853	381.24	853	0.02
76	1140	0.00	4	857	37	820	381.23	820	0.02
77	1155	0.01	6	825	37	788	381.22	788	0.02
78	1170	0.01	8	796	37	759	381.21	759	0.02
79	1185	0.01	6	765	37	728	381.20	728	0.02
80	1200	0.00	4	732	37	694	381.19	694	0.02
81	1215	0.01	6	700	37	663	381.18	663	0.02
82	1230	0.01	6	669	37	632	381.17	632	0.01
83	1245	0.01	6	638	37	600	381.17	600	0.01
84	1260	0.00	4	604	37	567	381.16	567	0.01
85	1275	0.01	6	573	37	536	381.15	536	0.01
86	1290	0.00	4	540	37	503	381.14	503	0.01
87	1305	0.01	6	509	37	471	381.13	471	0.01
88	1320	0.00	4	475	37	438	381.12	438	0.01
89	1335	0.01	6	444	37	407	381.11	407	0.01
90	1350	0.00	4	411	37	373	381.10	373	0.01
91	1365	0.00	4	377	37	340	381.09	340	0.01
92	1380	0.00	4	344	37	307	381.08	307	0.01
93	1395	0.00	4	311	37	274	381.08	274	0.01
94	1410	0.00	4	278	37	240	381.07	240	0.01
95	1425	0.00	4	244	37	207	381.06	207	0.00
96	1440	0.00	4	211	37	174	381.05	174	0.00

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA A - 100 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	27.65		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.97		
23	RETENTION BASIN	2.1		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	250		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	2.03		
40	6-HOUR	2.71		
41	24-HOUR	4.24		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		379	42516	
45		380	45027	
46		381	47609	
47		382	50263	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
BY MES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA A - 100 YEAR EVENT
[3] AREA - ACRES	30.720
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	250.00
[7] La-MILES	0.047
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.6
[17] 100% OF LAG-MINUTES	2.6
[18] 200% OF LAG-MINUTES	5.2
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
2.03	30.720	1.00	2.03	2.71	30.720	1.00	2.71	4.24	30.720	1.00	4.24
		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			0.00	0.00
SUM [5]	30.72	SUM [7]	2.03	SUM [9]	30.72	SUM [11]	2.71	SUM [13]	30.72	SUM [15]	4.24
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			2.03				2.71				4.24

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.56	1.77	1.89
FLOOD VOLUME	(cu-ft)	173,489	197,518	211,182
	(acre-ft)	3.98	4.53	4.85
REQUIRED STORAGE	(cu-ft)	164,996	182,214	176,577
	(acre-ft)	3.79	4.18	4.05
PEAK FLOW	(cfs)	56.48	51.07	13.51
MAXIMUM WSEL	(ft)	381.80	381.99	381.95

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.51	85%	0.12	27.65	0.900	0.1079
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.51	20%	0.42	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.51	40%	0.33	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.51	50%	0.28	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.51	65%	0.21	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.51	80%	0.14	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.51	75%	0.17	0.00	0.000	0.0000
B	LANDSCAPING	56	0.51	0%	0.51	0.97	0.032	0.0161
B	RETENTION BASINS	56	0.51	0%	0.51	2.10	0.068	0.0349
B	GOLF COURSE	56	0.51	0%	0.51	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.08	90%	0.02	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	30.72	SUM	0.1588

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.0794198

C= 0.00147

Ft=C(24-(T/60))^1.55 = 0.00147 (24-(T/60))^1.55 + 0.08 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 3 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: \AMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	2.58	
UNIT TIME-PERCENT OF LAG	193.9	
TOTAL ADJUSTED STORM RAIN-INCHES	2.03	
CONSTANT LOSS RATE-in/hr	0.16	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.317	0.16	0.29	0.16	4.85	1256.84
2	10	0.17	1.3	0.317	0.16	0.29	0.16	4.85	1256.84
3	15	0.25	1.1	0.268	0.16	0.24	0.11	3.35	807.84
4	20	0.33	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
5	25	0.42	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
6	30	0.50	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
7	35	0.58	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
8	40	0.67	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
9	45	0.75	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
10	50	0.83	1.5	0.365	0.16	0.33	0.21	6.35	1705.84
11	55	0.92	1.6	0.390	0.16	0.35	0.23	7.09	1930.34
12	60	1.00	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
13	65	1.08	2.2	0.536	0.16	0.48	0.38	11.58	3277.36
14	70	1.17	2.2	0.536	0.16	0.48	0.38	11.58	3277.36
15	75	1.25	2.2	0.536	0.16	0.48	0.38	11.58	3277.36
16	80	1.33	2.0	0.487	0.16	0.44	0.33	10.09	2828.35
17	85	1.42	2.6	0.633	0.16	0.57	0.47	14.58	4175.36
18	90	1.50	2.7	0.658	0.16	0.59	0.50	15.33	4399.86
19	95	1.58	2.4	0.585	0.16	0.53	0.43	13.08	3726.36
20	100	1.67	2.7	0.658	0.16	0.59	0.50	15.33	4399.86
21	105	1.75	3.3	0.804	0.16	0.72	0.65	19.82	5746.87
22	110	1.83	3.1	0.755	0.16	0.68	0.60	18.32	5297.87
23	115	1.92	2.9	0.706	0.16	0.64	0.55	16.82	4848.87
24	120	2.00	3.0	0.731	0.16	0.66	0.57	17.57	5073.37
25	125	2.08	3.1	0.755	0.16	0.68	0.60	18.32	5297.87
26	130	2.17	4.2	1.023	0.16	0.92	0.86	26.55	7767.39
27	135	2.25	5.0	1.218	0.16	1.10	1.06	32.54	9563.40
28	140	2.33	3.5	0.853	0.16	0.77	0.69	21.31	6195.88
29	145	2.42	6.8	1.656	0.16	1.49	1.50	46.01	13604.44
30	150	2.50	7.3	1.778	0.16	1.60	1.62	49.75	14726.95
31	155	2.58	8.2	1.998	0.16	1.80	1.84	56.48	16747.46
32	160	2.67	5.9	1.437	0.16	1.29	1.28	39.27	11583.92
33	165	2.75	2.0	0.487	0.16	0.44	0.33	10.09	2828.35
34	170	2.83	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
35	175	2.92	1.8	0.438	0.16	0.39	0.28	8.59	2379.35
36	180	3.00	0.6	0.146	0.16	0.13	0.01	0.45	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.56
FLOOD VOLUME (acft)	3.98
FLOOD VOLUME (cuft)	173488.61
REQUIRED STORAGE (acft)	3.79
REQUIRED STORAGE (cuft)	164995.84
PEAK FLOW RATE (cfs)	56.48

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	2.58	
UNIT TIME-PERCENT OF LAG	193.9	
TOTAL ADJUSTED STORM RAIN-INCHES	2.71	
CONSTANT LOSS RATE-in/hr	0.159	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.163	0.16	0.15	0.00	0.12	0.00
2	10	0.17	0.6	0.195	0.16	0.18	0.04	1.11	136.54
3	15	0.25	0.6	0.195	0.16	0.18	0.04	1.11	136.54
4	20	0.33	0.6	0.195	0.16	0.18	0.04	1.11	136.54
5	25	0.42	0.6	0.195	0.16	0.18	0.04	1.11	136.54
6	30	0.50	0.7	0.228	0.16	0.20	0.07	2.11	436.25
7	35	0.58	0.7	0.228	0.16	0.20	0.07	2.11	436.25
8	40	0.67	0.7	0.228	0.16	0.20	0.07	2.11	436.25
9	45	0.75	0.7	0.228	0.16	0.20	0.07	2.11	436.25
10	50	0.83	0.7	0.228	0.16	0.20	0.07	2.11	436.25
11	55	0.92	0.7	0.228	0.16	0.20	0.07	2.11	436.25
12	60	1.00	0.8	0.260	0.16	0.23	0.10	3.11	735.95
13	65	1.08	0.8	0.260	0.16	0.23	0.10	3.11	735.95
14	70	1.17	0.8	0.260	0.16	0.23	0.10	3.11	735.95
15	75	1.25	0.8	0.260	0.16	0.23	0.10	3.11	735.95
16	80	1.33	0.8	0.260	0.16	0.23	0.10	3.11	735.95
17	85	1.42	0.8	0.260	0.16	0.23	0.10	3.11	735.95
18	90	1.50	0.8	0.260	0.16	0.23	0.10	3.11	735.95
19	95	1.58	0.8	0.260	0.16	0.23	0.10	3.11	735.95
20	100	1.67	0.8	0.260	0.16	0.23	0.10	3.11	735.95
21	105	1.75	0.8	0.260	0.16	0.23	0.10	3.11	735.95
22	110	1.83	0.8	0.260	0.16	0.23	0.10	3.11	735.95
23	115	1.92	0.8	0.260	0.16	0.23	0.10	3.11	735.95
24	120	2.00	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
25	125	2.08	0.8	0.260	0.16	0.23	0.10	3.11	735.95
26	130	2.17	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
27	135	2.25	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
28	140	2.33	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
29	145	2.42	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
30	150	2.50	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
31	155	2.58	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
32	160	2.67	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
33	165	2.75	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
34	170	2.83	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
35	175	2.92	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
36	180	3.00	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
37	185	3.08	1.0	0.325	0.16	0.29	0.17	5.11	1335.36
38	190	3.17	1.1	0.358	0.16	0.32	0.20	6.11	1635.06
39	195	3.25	1.1	0.358	0.16	0.32	0.20	6.11	1635.06
40	200	3.33	1.1	0.358	0.16	0.32	0.20	6.11	1635.06
41	205	3.42	1.2	0.390	0.16	0.35	0.23	7.11	1934.77
42	210	3.50	1.3	0.423	0.16	0.38	0.26	8.11	2234.47
43	215	3.58	1.4	0.455	0.16	0.41	0.30	9.11	2534.18
44	220	3.67	1.4	0.455	0.16	0.41	0.30	9.11	2534.18
45	225	3.75	1.5	0.488	0.16	0.44	0.33	10.11	2833.88
46	230	3.83	1.5	0.488	0.16	0.44	0.33	10.11	2833.88
47	235	3.92	1.6	0.520	0.16	0.47	0.36	11.10	3133.59
48	240	4.00	1.6	0.520	0.16	0.47	0.36	11.10	3133.59
49	245	4.08	1.7	0.553	0.16	0.50	0.39	12.10	3433.29
50	250	4.17	1.8	0.585	0.16	0.53	0.43	13.10	3732.99
51	255	4.25	1.9	0.618	0.16	0.56	0.46	14.10	4032.70
52	260	4.33	2.0	0.650	0.16	0.59	0.49	15.10	4332.40
53	265	4.42	2.1	0.683	0.16	0.61	0.52	16.10	4632.11
54	270	4.50	2.1	0.683	0.16	0.61	0.52	16.10	4632.11
55	275	4.58	2.2	0.715	0.16	0.64	0.56	17.10	4931.81
56	280	4.67	2.3	0.748	0.16	0.67	0.59	18.10	5231.52

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.72			
UNIT TIME-MINUTES	5			
LAG TIME - MINUTES	2.58			
UNIT TIME-PERCENT OF LAG	193.9			
TOTAL ADJUSTED STORM RAIN-INCHES	2.71			
CONSTANT LOSS RATE-in/hr	0.159			
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.66	cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.780	0.16	0.70	0.62	19.10	5531.22
58	290	4.83	2.4	0.780	0.16	0.70	0.62	19.10	5531.22
59	295	4.92	2.5	0.813	0.16	0.73	0.65	20.10	5830.92
60	300	5.00	2.6	0.846	0.16	0.76	0.69	21.09	6130.63
61	305	5.08	3.1	1.008	0.16	0.91	0.85	26.09	7629.15
62	310	5.17	3.6	1.171	0.16	1.05	1.01	31.08	9127.67
63	315	5.25	3.9	1.268	0.16	1.14	1.11	34.08	10026.79
64	320	5.33	4.2	1.366	0.16	1.23	1.21	37.08	10925.90
65	325	5.42	4.7	1.528	0.16	1.38	1.37	42.07	12424.42
66	330	5.50	5.6	1.821	0.16	1.64	1.66	51.07	15121.76
67	335	5.58	1.9	0.618	0.16	0.56	0.46	14.10	4032.70
68	340	5.67	0.9	0.293	0.16	0.26	0.13	4.11	1035.66
69	345	5.75	0.6	0.195	0.16	0.18	0.04	1.11	136.54
70	350	5.83	0.5	0.163	0.16	0.15	0.00	0.12	0.00
71	355	5.92	0.3	0.098	0.16	0.09	0.01	0.30	0.00
72	360	6.00	0.2	0.065	0.16	0.06	0.01	0.20	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.77
FLOOD VOLUME (acft)	4.53
FLOOD VOLUME (cuft)	197518.19
REQUIRED STORAGE (acft)	4.18
REQUIRED STORAGE (cuft)	182214.29
PEAK FLOW RATE (cfs)	51.07

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1588
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.079
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00147
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.034	0.280	0.031	0.003	0.10	0.00
2	30	0.50	0.3	0.051	0.277	0.046	0.005	0.16	0.00
3	45	0.75	0.3	0.051	0.274	0.046	0.005	0.16	0.00
4	60	1.00	0.4	0.068	0.271	0.061	0.007	0.21	0.00
5	75	1.25	0.3	0.051	0.268	0.046	0.005	0.16	0.00
6	90	1.50	0.3	0.051	0.264	0.046	0.005	0.16	0.00
7	105	1.75	0.3	0.051	0.261	0.046	0.005	0.16	0.00
8	120	2.00	0.4	0.068	0.258	0.061	0.007	0.21	0.00
9	135	2.25	0.4	0.068	0.255	0.061	0.007	0.21	0.00
10	150	2.50	0.4	0.068	0.252	0.061	0.007	0.21	0.00
11	165	2.75	0.5	0.085	0.249	0.076	0.008	0.26	0.00
12	180	3.00	0.5	0.085	0.246	0.076	0.008	0.26	0.00
13	195	3.25	0.5	0.085	0.243	0.076	0.008	0.26	0.00
14	210	3.50	0.5	0.085	0.240	0.076	0.008	0.26	0.00
15	225	3.75	0.5	0.085	0.237	0.076	0.008	0.26	0.00
16	240	4.00	0.6	0.102	0.234	0.092	0.010	0.31	0.00
17	255	4.25	0.6	0.102	0.231	0.092	0.010	0.31	0.00
18	270	4.50	0.7	0.119	0.228	0.107	0.012	0.36	0.00
19	285	4.75	0.7	0.119	0.225	0.107	0.012	0.36	0.00
20	300	5.00	0.8	0.136	0.222	0.122	0.014	0.42	0.00
21	315	5.25	0.6	0.102	0.219	0.092	0.010	0.31	0.00
22	330	5.50	0.7	0.119	0.216	0.107	0.012	0.36	0.00
23	345	5.75	0.8	0.136	0.213	0.122	0.014	0.42	0.00
24	360	6.00	0.8	0.136	0.211	0.122	0.014	0.42	0.00
25	375	6.25	0.9	0.153	0.208	0.137	0.015	0.47	0.00
26	390	6.50	0.9	0.153	0.205	0.137	0.015	0.47	0.00
27	405	6.75	1.0	0.170	0.202	0.153	0.017	0.52	0.00
28	420	7.00	1.0	0.170	0.200	0.153	0.017	0.52	0.00
29	435	7.25	1.0	0.170	0.197	0.153	0.017	0.52	0.00
30	450	7.50	1.1	0.187	0.194	0.168	0.019	0.57	0.00
31	465	7.75	1.2	0.204	0.191	0.183	0.012	0.37	0.00
32	480	8.00	1.3	0.220	0.189	0.198	0.032	0.97	280.90
33	495	8.25	1.5	0.254	0.186	0.229	0.068	2.09	1291.12
34	510	8.50	1.5	0.254	0.184	0.229	0.071	2.17	1362.89
35	525	8.75	1.6	0.271	0.181	0.244	0.090	2.77	1902.95
36	540	9.00	1.7	0.288	0.179	0.259	0.110	3.37	2442.37
37	555	9.25	1.9	0.322	0.176	0.290	0.146	4.49	3450.07
38	570	9.50	2.0	0.339	0.173	0.305	0.166	5.09	3988.21
39	585	9.75	2.1	0.356	0.171	0.321	0.185	5.69	4525.70
40	600	10.00	2.2	0.373	0.169	0.336	0.205	6.28	5062.54
41	615	10.25	1.5	0.254	0.166	0.229	0.088	2.71	1847.45
42	630	10.50	1.5	0.254	0.164	0.229	0.091	2.79	1914.05
43	645	10.75	2.0	0.339	0.161	0.305	0.178	5.46	4324.55
44	660	11.00	2.0	0.339	0.159	0.305	0.180	5.54	4389.81
45	675	11.25	1.9	0.322	0.157	0.290	0.166	5.09	3985.49
46	690	11.50	1.9	0.322	0.154	0.290	0.168	5.16	4049.39
47	705	11.75	1.7	0.288	0.152	0.259	0.136	4.19	3174.77
48	720	12.00	1.8	0.305	0.150	0.275	0.156	4.78	3706.19
49	735	12.25	2.5	0.424	0.148	0.382	0.276	8.49	7050.37
50	750	12.50	2.6	0.441	0.145	0.397	0.296	9.08	7580.37
51	765	12.75	2.8	0.475	0.143	0.427	0.332	10.19	8578.57
52	780	13.00	2.9	0.492	0.141	0.443	0.351	10.78	9107.12
53	795	13.25	3.4	0.577	0.139	0.519	0.438	13.45	11510.59
54	810	13.50	3.4	0.577	0.137	0.519	0.440	13.51	11568.77
55	825	13.75	2.3	0.390	0.135	0.351	0.255	7.85	6468.18
56	840	14.00	2.3	0.390	0.133	0.351	0.257	7.91	6524.86
57	855	14.25	2.7	0.458	0.131	0.412	0.327	10.06	8456.40
58	870	14.50	2.6	0.441	0.129	0.397	0.312	9.60	8042.63
59	885	14.75	2.6	0.441	0.127	0.397	0.314	9.66	8096.98
60	900	15.00	2.5	0.424	0.125	0.382	0.299	9.19	7681.63
61	915	15.25	2.4	0.407	0.123	0.366	0.284	8.73	7265.48

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	30.720	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1588
LAG TIME - MINUTES	2.58	MINIMUM LOSS RATE (for var. loss) - in/hr	0.079
UNIT TIME-PERCENT OF LAG	581.8	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00147
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.390	0.121	0.351	0.269	8.27	6848.52
63	945	15.75	1.9	0.322	0.119	0.290	0.203	6.24	5024.00
64	960	16.00	1.9	0.322	0.117	0.290	0.205	6.30	5074.30
65	975	16.25	0.4	0.068	0.115	0.061	0.007	0.21	0.00
66	990	16.50	0.4	0.068	0.114	0.061	0.007	0.21	0.00
67	1005	16.75	0.3	0.051	0.112	0.046	0.005	0.16	0.00
68	1020	17.00	0.3	0.051	0.110	0.046	0.005	0.16	0.00
69	1035	17.25	0.5	0.085	0.109	0.076	0.008	0.26	0.00
70	1050	17.50	0.5	0.085	0.107	0.076	0.008	0.26	0.00
71	1065	17.75	0.5	0.085	0.105	0.076	0.008	0.26	0.00
72	1080	18.00	0.4	0.068	0.104	0.061	0.007	0.21	0.00
73	1095	18.25	0.4	0.068	0.102	0.061	0.007	0.21	0.00
74	1110	18.50	0.4	0.068	0.101	0.061	0.007	0.21	0.00
75	1125	18.75	0.3	0.051	0.099	0.046	0.005	0.16	0.00
76	1140	19.00	0.2	0.034	0.098	0.031	0.003	0.10	0.00
77	1155	19.25	0.3	0.051	0.097	0.046	0.005	0.16	0.00
78	1170	19.50	0.4	0.068	0.095	0.061	0.007	0.21	0.00
79	1185	19.75	0.3	0.051	0.094	0.046	0.005	0.16	0.00
80	1200	20.00	0.2	0.034	0.093	0.031	0.003	0.10	0.00
81	1215	20.25	0.3	0.051	0.091	0.046	0.005	0.16	0.00
82	1230	20.50	0.3	0.051	0.090	0.046	0.005	0.16	0.00
83	1245	20.75	0.3	0.051	0.089	0.046	0.005	0.16	0.00
84	1260	21.00	0.2	0.034	0.088	0.031	0.003	0.10	0.00
85	1275	21.25	0.3	0.051	0.087	0.046	0.005	0.16	0.00
86	1290	21.50	0.2	0.034	0.086	0.031	0.003	0.10	0.00
87	1305	21.75	0.3	0.051	0.085	0.046	0.005	0.16	0.00
88	1320	22.00	0.2	0.034	0.084	0.031	0.003	0.10	0.00
89	1335	22.25	0.3	0.051	0.083	0.046	0.005	0.16	0.00
90	1350	22.50	0.2	0.034	0.083	0.031	0.003	0.10	0.00
91	1365	22.75	0.2	0.034	0.082	0.031	0.003	0.10	0.00
92	1380	23.00	0.2	0.034	0.081	0.031	0.003	0.10	0.00
93	1395	23.25	0.2	0.034	0.081	0.031	0.003	0.10	0.00
94	1410	23.50	0.2	0.034	0.080	0.031	0.003	0.10	0.00
95	1425	23.75	0.2	0.034	0.080	0.031	0.003	0.10	0.00
96	1440	24.00	0.2	0.034	0.079	0.031	0.003	0.10	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	1.89
FLOOD VOLUME (acft)	4.85
FLOOD VOLUME (cuft)	211181.60
REQUIRED STORAGE (acft)	4.05
REQUIRED STORAGE (cuft)	176577.21
PEAK FLOW (cfs)	13.51

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
379	0	0		42516	0	0	0.00
380	1	1	2511	45027	43772	43772	1.00
381	1	2	2582	47609	46318	90090	2.07
382	1	3	2654	50263	48936	139026	3.19

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	5	4.85	1,455	1,455	198	1,257	379.03	1,257	0.03
2	10	4.85	1,455	2,711	198	2,514	379.06	2,514	0.06
3	15	3.35	1,006	3,519	198	3,322	379.08	3,322	0.08
4	20	6.35	1,904	5,225	198	5,027	379.11	5,027	0.12
5	25	6.35	1,904	6,931	198	6,733	379.15	6,733	0.15
6	30	8.59	2,577	9,310	198	9,113	379.21	9,113	0.21
7	35	6.35	1,904	11,016	198	10,818	379.25	10,818	0.25
8	40	8.59	2,577	13,396	198	13,198	379.30	13,198	0.30
9	45	8.59	2,577	15,775	198	15,577	379.36	15,577	0.36
10	50	6.35	1,904	17,481	198	17,283	379.39	17,283	0.40
11	55	7.09	2,128	19,411	198	19,213	379.44	19,213	0.44
12	60	8.59	2,577	21,790	198	21,593	379.49	21,593	0.50
13	65	11.58	3,475	25,068	198	24,870	379.57	24,870	0.57
14	70	11.58	3,475	28,345	198	28,147	379.64	28,147	0.65
15	75	11.58	3,475	31,623	198	31,425	379.72	31,425	0.72
16	80	10.09	3,026	34,451	198	34,253	379.78	34,253	0.79
17	85	14.58	4,373	38,626	198	38,428	379.88	38,428	0.88
18	90	15.33	4,598	43,026	198	42,828	379.98	42,828	0.98
19	95	13.08	3,924	46,752	198	46,555	380.06	46,555	1.07
20	100	15.33	4,598	51,152	198	50,954	380.16	50,954	1.17
21	105	19.82	5,945	56,899	198	56,701	380.28	56,701	1.30
22	110	18.32	5,496	62,197	198	61,999	380.39	61,999	1.42
23	115	16.82	5,047	67,046	198	66,848	380.50	66,848	1.53
24	120	17.57	5,271	72,119	198	71,921	380.61	71,921	1.65
25	125	18.32	5,496	77,417	198	77,219	380.72	77,219	1.77
26	130	26.55	7,965	85,185	198	84,987	380.89	84,987	1.95
27	135	32.54	9,761	94,748	198	94,550	381.09	94,550	2.17
28	140	21.31	6,394	100,944	198	100,746	381.22	100,746	2.31
29	145	46.01	13,802	114,548	198	114,350	381.50	114,350	2.63
30	150	49.75	14,925	129,275	198	129,077	381.80	129,077	2.96
31	155	56.48	16,945	146,023	198	145,825	-	145,825	3.35
32	160	39.27	11,782	157,607	198	157,409	-	157,409	3.61
33	165	10.09	3,026	160,435	198	160,237	-	160,237	3.68
34	170	8.59	2,577	162,814	198	162,616	-	162,616	3.73
35	175	8.59	2,577	165,194	198	164,996	-	164,996	3.79
36	180	0.45	135	165,131	198	164,933	-	164,933	3.79

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	5	0.12	35	35	198	-	379.00	-	0.00
2	10	1.11	334	334	198	137	379.00	137	0.00
3	15	1.11	334	471	198	273	379.01	273	0.01
4	20	1.11	334	607	198	410	379.01	410	0.01
5	25	1.11	334	744	198	546	379.01	546	0.01
6	30	2.11	634	1,180	198	982	379.02	982	0.02
7	35	2.11	634	1,616	198	1,419	379.03	1,419	0.03
8	40	2.11	634	2,053	198	1,855	379.04	1,855	0.04
9	45	2.11	634	2,489	198	2,291	379.05	2,291	0.05
10	50	2.11	634	2,925	198	2,727	379.06	2,727	0.06
11	55	2.11	634	3,361	198	3,164	379.07	3,164	0.07
12	60	3.11	934	4,097	198	3,900	379.09	3,900	0.09
13	65	3.11	934	4,833	198	4,636	379.11	4,636	0.11
14	70	3.11	934	5,569	198	5,372	379.12	5,372	0.12
15	75	3.11	934	6,305	198	6,107	379.14	6,107	0.14
16	80	3.11	934	7,041	198	6,843	379.16	6,843	0.16
17	85	3.11	934	7,777	198	7,579	379.17	7,579	0.17
18	90	3.11	934	8,513	198	8,315	379.19	8,315	0.19
19	95	3.11	934	9,249	198	9,051	379.21	9,051	0.21
20	100	3.11	934	9,985	198	9,787	379.22	9,787	0.22
21	105	3.11	934	10,721	198	10,523	379.24	10,523	0.24
22	110	3.11	934	11,457	198	11,259	379.26	11,259	0.26
23	115	3.11	934	12,193	198	11,995	379.27	11,995	0.28
24	120	4.11	1,233	13,229	198	13,031	379.30	13,031	0.30
25	125	3.11	934	13,964	198	13,767	379.31	13,767	0.32
26	130	4.11	1,233	15,000	198	14,802	379.34	14,802	0.34
27	135	4.11	1,233	16,036	198	15,838	379.36	15,838	0.36
28	140	4.11	1,233	17,071	198	16,874	379.39	16,874	0.39
29	145	4.11	1,233	18,107	198	17,909	379.41	17,909	0.41
30	150	4.11	1,233	19,143	198	18,945	379.43	18,945	0.43
31	155	4.11	1,233	20,178	198	19,981	379.46	19,981	0.46
32	160	4.11	1,233	21,214	198	21,016	379.48	21,016	0.48
33	165	5.11	1,533	22,549	198	22,352	379.51	22,352	0.51
34	170	5.11	1,533	23,885	198	23,687	379.54	23,687	0.54
35	175	5.11	1,533	25,220	198	25,022	379.57	25,022	0.57
36	180	5.11	1,533	26,556	198	26,358	379.60	26,358	0.61
37	185	5.11	1,533	27,891	198	27,693	379.63	27,693	0.64
38	190	6.11	1,833	29,526	198	29,328	379.67	29,328	0.67
39	195	6.11	1,833	31,161	198	30,963	379.71	30,963	0.71
40	200	6.11	1,833	32,796	198	32,598	379.74	32,598	0.75
41	205	7.11	2,133	34,731	198	34,533	379.79	34,533	0.79
42	210	8.11	2,432	36,965	198	36,767	379.84	36,767	0.84
43	215	9.11	2,732	39,499	198	39,302	379.90	39,302	0.90
44	220	9.11	2,732	42,034	198	41,836	379.96	41,836	0.96
45	225	10.11	3,032	44,868	198	44,670	380.02	44,670	1.03
46	230	10.11	3,032	47,701	198	47,504	380.08	47,504	1.09
47	235	11.10	3,331	50,835	198	50,637	380.15	50,637	1.16
48	240	11.10	3,331	53,969	198	53,771	380.22	53,771	1.23
49	245	12.10	3,631	57,402	198	57,204	380.29	57,204	1.31
50	250	13.10	3,931	61,135	198	60,937	380.37	60,937	1.40
51	255	14.10	4,231	65,168	198	64,970	380.46	64,970	1.49
52	260	15.10	4,530	69,500	198	69,302	380.55	69,302	1.59
53	265	16.10	4,830	74,132	198	73,934	380.65	73,934	1.70
54	270	16.10	4,830	78,764	198	78,566	380.75	78,566	1.80
55	275	17.10	5,130	83,696	198	83,498	380.86	83,498	1.92

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN BASIN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	(cuft)	(acre-ft)
56	280	18.10	5,429	88,928	198	88,730	380.97	88,730	2.04
57	285	19.10	5,729	94,459	198	94,261	381.09	94,261	2.16
58	290	19.10	5,729	99,990	198	99,792	381.20	99,792	2.29
59	295	20.10	6,029	105,821	198	105,623	381.32	105,623	2.42
60	300	21.09	6,328	111,952	198	111,754	381.44	111,754	2.57
61	305	26.09	7,827	119,581	198	119,383	381.60	119,383	2.74
62	310	31.08	9,325	128,708	198	128,511	381.79	128,511	2.95
63	315	34.08	10,225	138,735	198	138,537	381.99	138,537	3.18
64	320	37.08	11,124	149,661	198	149,463	-	149,463	3.43
65	325	42.07	12,622	162,085	198	161,888	-	161,888	3.72
66	330	51.07	15,320	177,207	198	177,009	-	177,009	4.06
67	335	14.10	4,231	181,240	198	181,042	-	181,042	4.16
68	340	4.11	1,233	182,276	198	182,078	-	182,078	4.18
69	345	1.11	334	182,412	198	182,214	-	182,214	4.18
70	350	0.12	35	182,249	198	182,051	-	182,051	4.18
71	355	0.30	90	182,141	198	181,943	-	181,943	4.18
72	360	0.20	60	182,003	198	181,805	-	181,805	4.17

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	15	0.10	94	94	593	-	379.00	-	0.00
2	30	0.16	141	141	593	-	379.00	-	0.00
3	45	0.16	141	141	593	-	379.00	-	0.00
4	60	0.21	188	188	593	-	379.00	-	0.00
5	75	0.16	141	141	593	-	379.00	-	0.00
6	90	0.16	141	141	593	-	379.00	-	0.00
7	105	0.16	141	141	593	-	379.00	-	0.00
8	120	0.21	188	188	593	-	379.00	-	0.00
9	135	0.21	188	188	593	-	379.00	-	0.00
10	150	0.21	188	188	593	-	379.00	-	0.00
11	165	0.26	234	234	593	-	379.00	-	0.00
12	180	0.26	234	234	593	-	379.00	-	0.00
13	195	0.26	234	234	593	-	379.00	-	0.00
14	210	0.26	234	234	593	-	379.00	-	0.00
15	225	0.26	234	234	593	-	379.00	-	0.00
16	240	0.31	281	281	593	-	379.00	-	0.00
17	255	0.31	281	281	593	-	379.00	-	0.00
18	270	0.36	328	328	593	-	379.00	-	0.00
19	285	0.36	328	328	593	-	379.00	-	0.00
20	300	0.42	375	375	593	-	379.00	-	0.00
21	315	0.31	281	281	593	-	379.00	-	0.00
22	330	0.36	328	328	593	-	379.00	-	0.00
23	345	0.42	375	375	593	-	379.00	-	0.00
24	360	0.42	375	375	593	-	379.00	-	0.00
25	375	0.47	422	422	593	-	379.00	-	0.00
26	390	0.47	422	422	593	-	379.00	-	0.00
27	405	0.52	469	469	593	-	379.00	-	0.00
28	420	0.52	469	469	593	-	379.00	-	0.00
29	435	0.52	469	469	593	-	379.00	-	0.00
30	450	0.57	516	516	593	-	379.00	-	0.00
31	465	0.37	332	332	593	-	379.00	-	0.00
32	480	0.97	874	874	593	281	379.01	281	0.01
33	495	2.09	1,885	2,165	593	1,572	379.04	1,572	0.04
34	510	2.17	1,956	3,528	593	2,935	379.07	2,935	0.07
35	525	2.77	2,496	5,431	593	4,838	379.11	4,838	0.11
36	540	3.37	3,036	7,874	593	7,280	379.17	7,280	0.17
37	555	4.49	4,044	11,324	593	10,730	379.25	10,730	0.25
38	570	5.09	4,582	15,312	593	14,719	379.34	14,719	0.34
39	585	5.69	5,119	19,838	593	19,244	379.44	19,244	0.44
40	600	6.28	5,656	24,900	593	24,307	379.56	24,307	0.56
41	615	2.71	2,441	26,748	593	26,154	379.60	26,154	0.60
42	630	2.79	2,508	28,662	593	28,068	379.64	28,068	0.64
43	645	5.46	4,918	32,986	593	32,393	379.74	32,393	0.74
44	660	5.54	4,983	37,376	593	36,783	379.84	36,783	0.84
45	675	5.09	4,579	41,362	593	40,768	379.93	40,768	0.94
46	690	5.16	4,643	45,411	593	44,817	380.02	44,817	1.03
47	705	4.19	3,768	48,586	593	47,992	380.09	47,992	1.10
48	720	4.78	4,300	52,292	593	51,698	380.17	51,698	1.19
49	735	8.49	7,644	59,342	593	58,749	380.32	58,749	1.35
50	750	9.08	8,174	66,923	593	66,329	380.49	66,329	1.52
51	765	10.19	9,172	75,501	593	74,908	380.67	74,908	1.72
52	780	10.78	9,701	84,608	593	84,015	380.87	84,015	1.93
53	795	13.45	12,104	96,119	593	95,525	381.11	95,525	2.19
54	810	13.51	12,162	107,688	593	107,094	381.35	107,094	2.46
55	825	7.85	7,062	114,156	593	113,562	381.48	113,562	2.61
56	840	7.91	7,118	120,681	593	120,087	381.61	120,087	2.76
57	855	10.06	9,050	129,137	593	128,544	381.79	128,544	2.95
58	870	9.60	8,636	137,180	593	136,586	381.95	136,586	3.14

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
59	885	9.66	8,690	145,277	593	144,683	-	144,683	3.32
60	900	9.19	8,275	152,958	593	152,365	-	152,365	3.50
61	915	8.73	7,859	160,224	593	159,630	-	159,630	3.66
62	930	8.27	7,442	167,072	593	166,479	-	166,479	3.82
63	945	6.24	5,617	172,096	593	171,503	-	171,503	3.94
64	960	6.30	5,668	177,171	593	176,577	-	176,577	4.05
65	975	0.21	188	176,765	593	176,171	-	176,171	4.04
66	990	0.21	188	176,359	593	175,765	-	175,765	4.04
67	1005	0.16	141	175,906	593	175,313	-	175,313	4.02
68	1020	0.16	141	175,453	593	174,860	-	174,860	4.01
69	1035	0.26	234	175,094	593	174,501	-	174,501	4.01
70	1050	0.26	234	174,735	593	174,142	-	174,142	4.00
71	1065	0.26	234	174,376	593	173,783	-	173,783	3.99
72	1080	0.21	188	173,970	593	173,377	-	173,377	3.98
73	1095	0.21	188	173,565	593	172,971	-	172,971	3.97
74	1110	0.21	188	173,159	593	172,565	-	172,565	3.96
75	1125	0.16	141	172,706	593	172,112	-	172,112	3.95
76	1140	0.10	94	172,206	593	171,613	-	171,613	3.94
77	1155	0.16	141	171,753	593	171,160	-	171,160	3.93
78	1170	0.21	188	171,348	593	170,754	-	170,754	3.92
79	1185	0.16	141	170,895	593	170,301	-	170,301	3.91
80	1200	0.10	94	170,395	593	169,802	-	169,802	3.90
81	1215	0.16	141	169,942	593	169,349	-	169,349	3.89
82	1230	0.16	141	169,490	593	168,896	-	168,896	3.88
83	1245	0.16	141	169,037	593	168,443	-	168,443	3.87
84	1260	0.10	94	168,537	593	167,944	-	167,944	3.86
85	1275	0.16	141	168,084	593	167,491	-	167,491	3.85
86	1290	0.10	94	167,585	593	166,991	-	166,991	3.83
87	1305	0.16	141	167,132	593	166,538	-	166,538	3.82
88	1320	0.10	94	166,632	593	166,039	-	166,039	3.81
89	1335	0.16	141	166,179	593	165,586	-	165,586	3.80
90	1350	0.10	94	165,680	593	165,086	-	165,086	3.79
91	1365	0.10	94	165,180	593	164,587	-	164,587	3.78
92	1380	0.10	94	164,680	593	164,087	-	164,087	3.77
93	1395	0.10	94	164,181	593	163,587	-	163,587	3.76
94	1410	0.10	94	163,681	593	163,088	-	163,088	3.74
95	1425	0.10	94	163,181	593	162,588	-	162,588	3.73
96	1440	0.10	94	162,682	593	162,088	-	162,088	3.72

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA BUSINESS PARK - INTERIM BASIN		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA B - 100 YEAR STORM EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	8.18		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING			
23	RETENTION BASIN	1		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	1000		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	285		
30				
31	ELEVATION OF HEADWATER	387		
32	ELEVATION OF CONCENTRATION POINT	382		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	2.03		
40	6-HOUR	2.71		
41	24-HOUR	4.24		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		382	42380	
45		383	44806	
46		384	47288	
47		385	49827	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

	A	B	C	D
1	**RCFCD SYNTHETIC UNIT HYDROGRAPH**			
2	DATA INPUT SHEET			
3				
4	WORKSHEET PREPARED BY:	JAMES BAZUA, PE		
5				
6	PROJECT NAME	COACHELLA AIRPORT BUSINESS PARK		
7	TAG Project No.	C1443		
8				
9	CONCENTRATION POINT DESIGNATION	1		
10	AREA DESIGNATION	SUBAREA C - 100 YEAR EVENT		
11				
12	TRIBUTARY AREAS	ACRES		
13				
14	COMMERCIAL	2.32		
15	PAVING/HARDSCAPE			
16	SF - 1 ACRE			
17	SF - 1/2 ACRE			
18	SF - 1/4 ACRE			
19	MF - CONDOMINIUMS			
20	MF - APARTMENTS			
21	MOBILE HOME PARK			
22	LANDSCAPING	0.1		
23	RETENTION BASIN	0.21		
24	GOLF COURSE			
25	MOUNTAINOUS			
26	LOW LOSS RATE (PERCENT)	90%		
27				
28	LENGTH OF WATERCOURSE (L)	400		
29	LENGTH TO POINT OPPOSITE CENTROID (Lca)	30		
30				
31	ELEVATION OF HEADWATER	386		
32	ELEVATION OF CONCENTRATION POINT	384		
33				
34	AVERAGE MANNINGS 'N' VALUE	0.02		
35				
36	STORM FREQUENCY (YEAR)	100		
37				
38	POINT RAIN			
39	3-HOUR	2.03		
40	6-HOUR	2.71		
41	24-HOUR	4.24		
42				
43	BASIN CHARACTERISTICS:	ELEVATION	AREA	
44		381	2664	
45		382	4561	
46		383	6529	
47		384	8568	
48				
49				
50				
51				
52	PERCOLATION RATE (in/hr)	0.67		
53				
54	DRYWELL DATA			
55	NUMBER USED			
56	PERCOLATION RATE (cfs)			

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
BY MES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA C - 100 YEAR EVENT
[3] AREA - ACRES	2.630
[4] L-FEET	400
[5] L-MILES	0.076
[6] La-FEET	30.00
[7] La-MILES	0.006
[8] ELEVATION OF HEADWATER	386
[9] ELEVATION OF CONCENTRATION POINT	384
[10] H-FEET	2
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.000
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.01
[16] LAG TIME-MINUTES	0.8
[17] 100% OF LAG-MINUTES	0.8
[18] 200% OF LAG-MINUTES	1.6
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.04

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
2.03	2.630	1.00	2.03	2.71	2.630	1.00	2.71	4.24	2.630	1.00	4.24
		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			0.00	0.00
SUM [5]	2.63	SUM [7]	2.03	SUM [9]	2.63	SUM [11]	2.71	SUM [13]	2.63	SUM [15]	4.24
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			2.03				2.71				4.24

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.59	1.85	2.00
FLOOD VOLUME	(cu-ft)	15,210	17,648	19,085
	(acre-ft)	0.35	0.41	0.44
REQUIRED STORAGE	(cu-ft)	14,650	16,621	16,588
	(acre-ft)	0.34	0.38	0.38
PEAK FLOW	(cfs)	4.87	4.41	1.19
MAXIMUM WSEL	(ft)	383.73	383.99	383.98

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT COACHELLA AIRPORT BUSINESS PARK
	CONCENTRATION POINT: 1
	BY JAMES BAZUA, PE DATE 6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.51	90%	0.10	2.32	0.882	0.0855
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.51	20%	0.42	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.51	40%	0.33	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.51	50%	0.28	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.51	65%	0.21	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.51	80%	0.14	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.51	75%	0.17	0.00	0.000	0.0000
B	LANDSCAPING	56	0.51	0%	0.51	0.10	0.038	0.0194
B	RETENTION BASINS	56	0.51	0%	0.51	0.21	0.080	0.0407
B	GOLF COURSE	56	0.51	0%	0.51	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.08	90%	0.02	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	2.63	SUM	0.1456

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.072796198

C= 0.00135

Ft=C(24-(T/60))^1.55 = 0.00135 (24-(T/60))^1.55 + 0.07 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 3 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: \AMES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63		
UNIT TIME-MINUTES	5		
LAG TIME - MINUTES	0.81		
UNIT TIME-PERCENT OF LAG	614.9		
TOTAL ADJUSTED STORM RAIN-INCHES	2.03		
CONSTANT LOSS RATE-in/hr	0.15		
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.317	0.15	0.29	0.17	0.45	122.59
2	10	0.17	1.3	0.317	0.15	0.29	0.17	0.45	122.59
3	15	0.25	1.1	0.268	0.15	0.24	0.12	0.32	84.15
4	20	0.33	1.5	0.365	0.15	0.33	0.22	0.58	161.03
5	25	0.42	1.5	0.365	0.15	0.33	0.22	0.58	161.03
6	30	0.50	1.8	0.438	0.15	0.39	0.29	0.77	218.69
7	35	0.58	1.5	0.365	0.15	0.33	0.22	0.58	161.03
8	40	0.67	1.8	0.438	0.15	0.39	0.29	0.77	218.69
9	45	0.75	1.8	0.438	0.15	0.39	0.29	0.77	218.69
10	50	0.83	1.5	0.365	0.15	0.33	0.22	0.58	161.03
11	55	0.92	1.6	0.390	0.15	0.35	0.24	0.64	180.25
12	60	1.00	1.8	0.438	0.15	0.39	0.29	0.77	218.69
13	65	1.08	2.2	0.536	0.15	0.48	0.39	1.03	295.57
14	70	1.17	2.2	0.536	0.15	0.48	0.39	1.03	295.57
15	75	1.25	2.2	0.536	0.15	0.48	0.39	1.03	295.57
16	80	1.33	2.0	0.487	0.15	0.44	0.34	0.90	257.13
17	85	1.42	2.6	0.633	0.15	0.57	0.49	1.28	372.45
18	90	1.50	2.7	0.658	0.15	0.59	0.51	1.35	391.67
19	95	1.58	2.4	0.585	0.15	0.53	0.44	1.15	334.01
20	100	1.67	2.7	0.658	0.15	0.59	0.51	1.35	391.67
21	105	1.75	3.3	0.804	0.15	0.72	0.66	1.73	506.99
22	110	1.83	3.1	0.755	0.15	0.68	0.61	1.60	468.55
23	115	1.92	2.9	0.706	0.15	0.64	0.56	1.48	430.11
24	120	2.00	3.0	0.731	0.15	0.66	0.59	1.54	449.33
25	125	2.08	3.1	0.755	0.15	0.68	0.61	1.60	468.55
26	130	2.17	4.2	1.023	0.15	0.92	0.88	2.31	679.97
27	135	2.25	5.0	1.218	0.15	1.10	1.07	2.82	833.73
28	140	2.33	3.5	0.853	0.15	0.77	0.71	1.86	545.43
29	145	2.42	6.8	1.656	0.15	1.49	1.51	3.97	1179.70
30	150	2.50	7.3	1.778	0.15	1.60	1.63	4.29	1275.80
31	155	2.58	8.2	1.998	0.15	1.80	1.85	4.87	1448.78
32	160	2.67	5.9	1.437	0.15	1.29	1.29	3.40	1006.71
33	165	2.75	2.0	0.487	0.15	0.44	0.34	0.90	257.13
34	170	2.83	1.8	0.438	0.15	0.39	0.29	0.77	218.69
35	175	2.92	1.8	0.438	0.15	0.39	0.29	0.77	218.69
36	180	3.00	0.6	0.146	0.15	0.13	0.00	0.00	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.59
FLOOD VOLUME (acft)	0.35
FLOOD VOLUME (cuft)	15210.40
REQUIRED STORAGE (acft)	0.34
REQUIRED STORAGE (cuft)	14650.36
PEAK FLOW RATE (cfs)	4.87

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	0.81	
UNIT TIME-PERCENT OF LAG	614.9	
TOTAL ADJUSTED STORM RAIN-INCHES	2.71	
CONSTANT LOSS RATE-in/hr	0.146	
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs) 0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.163	0.15	0.15	0.02	0.04	1.02
2	10	0.17	0.6	0.195	0.15	0.18	0.05	0.13	26.68
3	15	0.25	0.6	0.195	0.15	0.18	0.05	0.13	26.68
4	20	0.33	0.6	0.195	0.15	0.18	0.05	0.13	26.68
5	25	0.42	0.6	0.195	0.15	0.18	0.05	0.13	26.68
6	30	0.50	0.7	0.228	0.15	0.20	0.08	0.22	52.34
7	35	0.58	0.7	0.228	0.15	0.20	0.08	0.22	52.34
8	40	0.67	0.7	0.228	0.15	0.20	0.08	0.22	52.34
9	45	0.75	0.7	0.228	0.15	0.20	0.08	0.22	52.34
10	50	0.83	0.7	0.228	0.15	0.20	0.08	0.22	52.34
11	55	0.92	0.7	0.228	0.15	0.20	0.08	0.22	52.34
12	60	1.00	0.8	0.260	0.15	0.23	0.11	0.30	78.00
13	65	1.08	0.8	0.260	0.15	0.23	0.11	0.30	78.00
14	70	1.17	0.8	0.260	0.15	0.23	0.11	0.30	78.00
15	75	1.25	0.8	0.260	0.15	0.23	0.11	0.30	78.00
16	80	1.33	0.8	0.260	0.15	0.23	0.11	0.30	78.00
17	85	1.42	0.8	0.260	0.15	0.23	0.11	0.30	78.00
18	90	1.50	0.8	0.260	0.15	0.23	0.11	0.30	78.00
19	95	1.58	0.8	0.260	0.15	0.23	0.11	0.30	78.00
20	100	1.67	0.8	0.260	0.15	0.23	0.11	0.30	78.00
21	105	1.75	0.8	0.260	0.15	0.23	0.11	0.30	78.00
22	110	1.83	0.8	0.260	0.15	0.23	0.11	0.30	78.00
23	115	1.92	0.8	0.260	0.15	0.23	0.11	0.30	78.00
24	120	2.00	0.9	0.293	0.15	0.26	0.15	0.39	103.66
25	125	2.08	0.8	0.260	0.15	0.23	0.11	0.30	78.00
26	130	2.17	0.9	0.293	0.15	0.26	0.15	0.39	103.66
27	135	2.25	0.9	0.293	0.15	0.26	0.15	0.39	103.66
28	140	2.33	0.9	0.293	0.15	0.26	0.15	0.39	103.66
29	145	2.42	0.9	0.293	0.15	0.26	0.15	0.39	103.66
30	150	2.50	0.9	0.293	0.15	0.26	0.15	0.39	103.66
31	155	2.58	0.9	0.293	0.15	0.26	0.15	0.39	103.66
32	160	2.67	0.9	0.293	0.15	0.26	0.15	0.39	103.66
33	165	2.75	1.0	0.325	0.15	0.29	0.18	0.47	129.32
34	170	2.83	1.0	0.325	0.15	0.29	0.18	0.47	129.32
35	175	2.92	1.0	0.325	0.15	0.29	0.18	0.47	129.32
36	180	3.00	1.0	0.325	0.15	0.29	0.18	0.47	129.32
37	185	3.08	1.0	0.325	0.15	0.29	0.18	0.47	129.32
38	190	3.17	1.1	0.358	0.15	0.32	0.21	0.56	154.97
39	195	3.25	1.1	0.358	0.15	0.32	0.21	0.56	154.97
40	200	3.33	1.1	0.358	0.15	0.32	0.21	0.56	154.97
41	205	3.42	1.2	0.390	0.15	0.35	0.24	0.64	180.63
42	210	3.50	1.3	0.423	0.15	0.38	0.28	0.73	206.29
43	215	3.58	1.4	0.455	0.15	0.41	0.31	0.81	231.95
44	220	3.67	1.4	0.455	0.15	0.41	0.31	0.81	231.95
45	225	3.75	1.5	0.488	0.15	0.44	0.34	0.90	257.61
46	230	3.83	1.5	0.488	0.15	0.44	0.34	0.90	257.61
47	235	3.92	1.6	0.520	0.15	0.47	0.37	0.99	283.27
48	240	4.00	1.6	0.520	0.15	0.47	0.37	0.99	283.27
49	245	4.08	1.7	0.553	0.15	0.50	0.41	1.07	308.92
50	250	4.17	1.8	0.585	0.15	0.53	0.44	1.16	334.58
51	255	4.25	1.9	0.618	0.15	0.56	0.47	1.24	360.24
52	260	4.33	2.0	0.650	0.15	0.59	0.50	1.33	385.90
53	265	4.42	2.1	0.683	0.15	0.61	0.54	1.41	411.56
54	270	4.50	2.1	0.683	0.15	0.61	0.54	1.41	411.56
55	275	4.58	2.2	0.715	0.15	0.64	0.57	1.50	437.21
56	280	4.67	2.3	0.748	0.15	0.67	0.60	1.58	462.87

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.63		
UNIT TIME-MINUTES	5		
LAG TIME - MINUTES	0.81		
UNIT TIME-PERCENT OF LAG	614.9		
TOTAL ADJUSTED STORM RAIN-INCHES	2.71		
CONSTANT LOSS RATE-in/hr	0.146		
LOW LOSS RATE - PERCENT	90%	TOTAL PERCOLATION RATE (cfs)	0.04 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.780	0.15	0.70	0.63	1.67	488.53
58	290	4.83	2.4	0.780	0.15	0.70	0.63	1.67	488.53
59	295	4.92	2.5	0.813	0.15	0.73	0.67	1.76	514.19
60	300	5.00	2.6	0.846	0.15	0.76	0.70	1.84	539.85
61	305	5.08	3.1	1.008	0.15	0.91	0.86	2.27	668.14
62	310	5.17	3.6	1.171	0.15	1.05	1.03	2.70	796.43
63	315	5.25	3.9	1.268	0.15	1.14	1.12	2.95	873.41
64	320	5.33	4.2	1.366	0.15	1.23	1.22	3.21	950.38
65	325	5.42	4.7	1.528	0.15	1.38	1.38	3.64	1078.67
66	330	5.50	5.6	1.821	0.15	1.64	1.68	4.41	1309.60
67	335	5.58	1.9	0.618	0.15	0.56	0.47	1.24	360.24
68	340	5.67	0.9	0.293	0.15	0.26	0.15	0.39	103.66
69	345	5.75	0.6	0.195	0.15	0.18	0.05	0.13	26.68
70	350	5.83	0.5	0.163	0.15	0.15	0.02	0.04	1.02
71	355	5.92	0.3	0.098	0.15	0.09	0.01	0.03	0.00
72	360	6.00	0.2	0.065	0.15	0.06	0.01	0.02	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.85
FLOOD VOLUME (acft)	0.41
FLOOD VOLUME (cuft)	17647.67
REQUIRED STORAGE (acft)	0.38
REQUIRED STORAGE (cuft)	16621.27
PEAK FLOW RATE (cfs)	4.41

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD		PROJECT:	COACHELLA AIRPORT BUSINESS PARK
100 YEAR - 24 HOUR STORM EVENT		CONCENTRATION POINT:	1
		BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1456
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.073
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00135
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.034	0.257	0.031	0.003	0.01	0.00
2	30	0.50	0.3	0.051	0.254	0.046	0.005	0.01	0.00
3	45	0.75	0.3	0.051	0.251	0.046	0.005	0.01	0.00
4	60	1.00	0.4	0.068	0.248	0.061	0.007	0.02	0.00
5	75	1.25	0.3	0.051	0.245	0.046	0.005	0.01	0.00
6	90	1.50	0.3	0.051	0.242	0.046	0.005	0.01	0.00
7	105	1.75	0.3	0.051	0.239	0.046	0.005	0.01	0.00
8	120	2.00	0.4	0.068	0.237	0.061	0.007	0.02	0.00
9	135	2.25	0.4	0.068	0.234	0.061	0.007	0.02	0.00
10	150	2.50	0.4	0.068	0.231	0.061	0.007	0.02	0.00
11	165	2.75	0.5	0.085	0.228	0.076	0.008	0.02	0.00
12	180	3.00	0.5	0.085	0.225	0.076	0.008	0.02	0.00
13	195	3.25	0.5	0.085	0.222	0.076	0.008	0.02	0.00
14	210	3.50	0.5	0.085	0.220	0.076	0.008	0.02	0.00
15	225	3.75	0.5	0.085	0.217	0.076	0.008	0.02	0.00
16	240	4.00	0.6	0.102	0.214	0.092	0.010	0.03	0.00
17	255	4.25	0.6	0.102	0.212	0.092	0.010	0.03	0.00
18	270	4.50	0.7	0.119	0.209	0.107	0.012	0.03	0.00
19	285	4.75	0.7	0.119	0.206	0.107	0.012	0.03	0.00
20	300	5.00	0.8	0.136	0.203	0.122	0.014	0.04	0.00
21	315	5.25	0.6	0.102	0.201	0.092	0.010	0.03	0.00
22	330	5.50	0.7	0.119	0.198	0.107	0.012	0.03	0.00
23	345	5.75	0.8	0.136	0.196	0.122	0.014	0.04	0.00
24	360	6.00	0.8	0.136	0.193	0.122	0.014	0.04	0.00
25	375	6.25	0.9	0.153	0.190	0.137	0.015	0.04	0.00
26	390	6.50	0.9	0.153	0.188	0.137	0.015	0.04	0.00
27	405	6.75	1.0	0.170	0.185	0.153	0.017	0.04	2.96
28	420	7.00	1.0	0.170	0.183	0.153	0.017	0.04	2.96
29	435	7.25	1.0	0.170	0.180	0.153	0.017	0.04	2.96
30	450	7.50	1.1	0.187	0.178	0.168	0.009	0.02	0.00
31	465	7.75	1.2	0.204	0.176	0.183	0.028	0.07	29.08
32	480	8.00	1.3	0.220	0.173	0.198	0.047	0.12	74.95
33	495	8.25	1.5	0.254	0.171	0.229	0.084	0.22	160.92
34	510	8.50	1.5	0.254	0.168	0.229	0.086	0.23	166.55
35	525	8.75	1.6	0.271	0.166	0.244	0.105	0.28	212.28
36	540	9.00	1.7	0.288	0.164	0.259	0.125	0.33	257.96
37	555	9.25	1.9	0.322	0.161	0.290	0.161	0.42	343.73
38	570	9.50	2.0	0.339	0.159	0.305	0.180	0.47	389.31
39	585	9.75	2.1	0.356	0.157	0.321	0.199	0.52	434.83
40	600	10.00	2.2	0.373	0.154	0.336	0.219	0.57	480.31
41	615	10.25	1.5	0.254	0.152	0.229	0.102	0.27	204.58
42	630	10.50	1.5	0.254	0.150	0.229	0.104	0.27	209.80
43	645	10.75	2.0	0.339	0.148	0.305	0.191	0.50	415.70
44	660	11.00	2.0	0.339	0.146	0.305	0.193	0.51	420.82
45	675	11.25	1.9	0.322	0.144	0.290	0.179	0.47	385.75
46	690	11.50	1.9	0.322	0.141	0.290	0.181	0.48	390.76
47	705	11.75	1.7	0.288	0.139	0.259	0.149	0.39	315.43
48	720	12.00	1.8	0.305	0.137	0.275	0.168	0.44	360.48
49	735	12.25	2.5	0.424	0.135	0.382	0.289	0.76	646.34
50	750	12.50	2.6	0.441	0.133	0.397	0.308	0.81	691.28
51	765	12.75	2.8	0.475	0.131	0.427	0.344	0.90	776.31
52	780	13.00	2.9	0.492	0.129	0.443	0.363	0.95	821.13
53	795	13.25	3.4	0.577	0.127	0.519	0.449	1.18	1026.48
54	810	13.50	3.4	0.577	0.125	0.519	0.451	1.19	1031.04
55	825	13.75	2.3	0.390	0.123	0.351	0.267	0.70	593.96
56	840	14.00	2.3	0.390	0.122	0.351	0.269	0.71	598.41
57	855	14.25	2.7	0.458	0.120	0.412	0.338	0.89	763.37
58	870	14.50	2.6	0.441	0.118	0.397	0.323	0.85	727.55
59	885	14.75	2.6	0.441	0.116	0.397	0.325	0.85	731.82
60	900	15.00	2.5	0.424	0.114	0.382	0.310	0.81	695.88
61	915	15.25	2.4	0.407	0.113	0.366	0.294	0.77	659.87

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 100 YEAR - 24 HOUR STORM EVENT	PROJECT: COACHELLA AIRPORT BUSINESS PARK CONCENTRATION POINT: 1 BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	2.630	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1456
LAG TIME - MINUTES	0.81	MINIMUM LOSS RATE (for var. loss) - in/hr	0.073
UNIT TIME-PERCENT OF LAG	1844.7	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00135
		PERCOLATION RATE (cfs)	0.04

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.390	0.111	0.351	0.279	0.73	623.81
63	945	15.75	1.9	0.322	0.109	0.290	0.213	0.56	467.24
64	960	16.00	1.9	0.322	0.107	0.290	0.215	0.56	471.19
65	975	16.25	0.4	0.068	0.106	0.061	0.007	0.02	0.00
66	990	16.50	0.4	0.068	0.104	0.061	0.007	0.02	0.00
67	1005	16.75	0.3	0.051	0.103	0.046	0.005	0.01	0.00
68	1020	17.00	0.3	0.051	0.101	0.046	0.005	0.01	0.00
69	1035	17.25	0.5	0.085	0.100	0.076	0.008	0.02	0.00
70	1050	17.50	0.5	0.085	0.098	0.076	0.008	0.02	0.00
71	1065	17.75	0.5	0.085	0.097	0.076	0.008	0.02	0.00
72	1080	18.00	0.4	0.068	0.095	0.061	0.007	0.02	0.00
73	1095	18.25	0.4	0.068	0.094	0.061	0.007	0.02	0.00
74	1110	18.50	0.4	0.068	0.092	0.061	0.007	0.02	0.00
75	1125	18.75	0.3	0.051	0.091	0.046	0.005	0.01	0.00
76	1140	19.00	0.2	0.034	0.090	0.031	0.003	0.01	0.00
77	1155	19.25	0.3	0.051	0.089	0.046	0.005	0.01	0.00
78	1170	19.50	0.4	0.068	0.087	0.061	0.007	0.02	0.00
79	1185	19.75	0.3	0.051	0.086	0.046	0.005	0.01	0.00
80	1200	20.00	0.2	0.034	0.085	0.031	0.003	0.01	0.00
81	1215	20.25	0.3	0.051	0.084	0.046	0.005	0.01	0.00
82	1230	20.50	0.3	0.051	0.083	0.046	0.005	0.01	0.00
83	1245	20.75	0.3	0.051	0.082	0.046	0.005	0.01	0.00
84	1260	21.00	0.2	0.034	0.081	0.031	0.003	0.01	0.00
85	1275	21.25	0.3	0.051	0.080	0.046	0.005	0.01	0.00
86	1290	21.50	0.2	0.034	0.079	0.031	0.003	0.01	0.00
87	1305	21.75	0.3	0.051	0.078	0.046	0.005	0.01	0.00
88	1320	22.00	0.2	0.034	0.077	0.031	0.003	0.01	0.00
89	1335	22.25	0.3	0.051	0.076	0.046	0.005	0.01	0.00
90	1350	22.50	0.2	0.034	0.076	0.031	0.003	0.01	0.00
91	1365	22.75	0.2	0.034	0.075	0.031	0.003	0.01	0.00
92	1380	23.00	0.2	0.034	0.074	0.031	0.003	0.01	0.00
93	1395	23.25	0.2	0.034	0.074	0.031	0.003	0.01	0.00
94	1410	23.50	0.2	0.034	0.073	0.031	0.003	0.01	0.00
95	1425	23.75	0.2	0.034	0.073	0.031	0.003	0.01	0.00
96	1440	24.00	0.2	0.034	0.073	0.031	0.003	0.01	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	2.00
FLOOD VOLUME (acft)	0.44
FLOOD VOLUME (cuft)	19085.17
REQUIRED STORAGE (acft)	0.38
REQUIRED STORAGE (cuft)	16587.80
PEAK FLOW (cfs)	1.19

PROJECT: COACHELLA AIRPORT BUSINESS PARK
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
381	0	0		2664	0	0	0.00
382	1	1	1897	4561	3613	3613	0.08
383	1	2	1968	6529	5545	9158	0.21
384	1	3	2039	8568	7549	16706	0.38

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.04 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.04 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.45	135	135	12	123	381.03	123	0.00
2	10	0.45	135	258	12	245	381.07	245	0.01
3	15	0.32	97	342	12	329	381.09	329	0.01
4	20	0.58	173	503	12	490	381.14	490	0.01
5	25	0.58	173	664	12	651	381.18	651	0.01
6	30	0.77	231	882	12	870	381.24	870	0.02
7	35	0.58	173	1,044	12	1,031	381.29	1,031	0.02
8	40	0.77	231	1,262	12	1,250	381.35	1,250	0.03
9	45	0.77	231	1,481	12	1,469	381.41	1,469	0.03
10	50	0.58	173	1,642	12	1,630	381.45	1,630	0.04
11	55	0.64	193	1,822	12	1,810	381.50	1,810	0.04
12	60	0.77	231	2,041	12	2,028	381.56	2,028	0.05
13	65	1.03	308	2,336	12	2,324	381.64	2,324	0.05
14	70	1.03	308	2,632	12	2,620	381.73	2,620	0.06
15	75	1.03	308	2,928	12	2,915	381.81	2,915	0.07
16	80	0.90	270	3,185	12	3,172	381.88	3,172	0.07
17	85	1.28	385	3,557	12	3,545	381.98	3,545	0.08
18	90	1.35	404	3,949	12	3,936	382.06	3,936	0.09
19	95	1.15	346	4,283	12	4,270	382.12	4,270	0.10
20	100	1.35	404	4,675	12	4,662	382.19	4,662	0.11
21	105	1.73	519	5,182	12	5,169	382.28	5,169	0.12
22	110	1.60	481	5,650	12	5,638	382.37	5,638	0.13
23	115	1.48	443	6,080	12	6,068	382.44	6,068	0.14
24	120	1.54	462	6,530	12	6,517	382.52	6,517	0.15
25	125	1.60	481	6,998	12	6,986	382.61	6,986	0.16
26	130	2.31	692	7,678	12	7,666	382.73	7,666	0.18
27	135	2.82	846	8,512	12	8,499	382.88	8,499	0.20
28	140	1.86	558	9,057	12	9,045	382.98	9,045	0.21
29	145	3.97	1,192	10,237	12	10,225	383.14	10,225	0.23
30	150	4.29	1,288	11,513	12	11,500	383.31	11,500	0.26
31	155	4.87	1,461	12,962	12	12,949	383.50	12,949	0.30
32	160	3.40	1,019	13,968	12	13,956	383.64	13,956	0.32
33	165	0.90	270	14,225	12	14,213	383.67	14,213	0.33
34	170	0.77	231	14,444	12	14,432	383.70	14,432	0.33
35	175	0.77	231	14,663	12	14,650	383.73	14,650	0.34
36	180	0.00	0	14,651	12	14,638	383.73	14,638	0.34

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
1	5	0.04	13	13	12	1	381.00	1	0.00
2	10	0.13	39	40	12	28	381.01	28	0.00
3	15	0.13	39	67	12	54	381.02	54	0.00
4	20	0.13	39	93	12	81	381.02	81	0.00
5	25	0.13	39	120	12	108	381.03	108	0.00
6	30	0.22	65	172	12	160	381.04	160	0.00
7	35	0.22	65	225	12	212	381.06	212	0.00
8	40	0.22	65	277	12	265	381.07	265	0.01
9	45	0.22	65	330	12	317	381.09	317	0.01
10	50	0.22	65	382	12	369	381.10	369	0.01
11	55	0.22	65	434	12	422	381.12	422	0.01
12	60	0.30	90	512	12	500	381.14	500	0.01
13	65	0.30	90	590	12	578	381.16	578	0.01
14	70	0.30	90	668	12	656	381.18	656	0.02
15	75	0.30	90	746	12	734	381.20	734	0.02
16	80	0.30	90	824	12	812	381.22	812	0.02
17	85	0.30	90	902	12	890	381.25	890	0.02
18	90	0.30	90	980	12	968	381.27	968	0.02
19	95	0.30	90	1,058	12	1,046	381.29	1,046	0.02
20	100	0.30	90	1,136	12	1,124	381.31	1,124	0.03
21	105	0.30	90	1,214	12	1,202	381.33	1,202	0.03
22	110	0.30	90	1,292	12	1,280	381.35	1,280	0.03
23	115	0.30	90	1,370	12	1,358	381.38	1,358	0.03
24	120	0.39	116	1,474	12	1,461	381.40	1,461	0.03
25	125	0.30	90	1,552	12	1,539	381.43	1,539	0.04
26	130	0.39	116	1,655	12	1,643	381.45	1,643	0.04
27	135	0.39	116	1,759	12	1,747	381.48	1,747	0.04
28	140	0.39	116	1,863	12	1,850	381.51	1,850	0.04
29	145	0.39	116	1,966	12	1,954	381.54	1,954	0.04
30	150	0.39	116	2,070	12	2,058	381.57	2,058	0.05
31	155	0.39	116	2,174	12	2,161	381.60	2,161	0.05
32	160	0.39	116	2,277	12	2,265	381.63	2,265	0.05
33	165	0.47	142	2,407	12	2,394	381.66	2,394	0.05
34	170	0.47	142	2,536	12	2,524	381.70	2,524	0.06
35	175	0.47	142	2,665	12	2,653	381.73	2,653	0.06
36	180	0.47	142	2,795	12	2,782	381.77	2,782	0.06
37	185	0.47	142	2,924	12	2,912	381.81	2,912	0.07
38	190	0.56	167	3,079	12	3,067	381.85	3,067	0.07
39	195	0.56	167	3,234	12	3,222	381.89	3,222	0.07
40	200	0.56	167	3,389	12	3,377	381.93	3,377	0.08
41	205	0.64	193	3,570	12	3,557	381.98	3,557	0.08
42	210	0.73	219	3,776	12	3,763	382.03	3,763	0.09
43	215	0.81	244	4,008	12	3,995	382.07	3,995	0.09
44	220	0.81	244	4,240	12	4,227	382.11	4,227	0.10
45	225	0.90	270	4,497	12	4,485	382.16	4,485	0.10
46	230	0.90	270	4,755	12	4,743	382.20	4,743	0.11
47	235	0.99	296	5,038	12	5,026	382.25	5,026	0.12
48	240	0.99	296	5,321	12	5,309	382.31	5,309	0.12
49	245	1.07	321	5,630	12	5,618	382.36	5,618	0.13
50	250	1.16	347	5,965	12	5,953	382.42	5,953	0.14
51	255	1.24	373	6,325	12	6,313	382.49	6,313	0.14
52	260	1.33	398	6,711	12	6,699	382.56	6,699	0.15
53	265	1.41	424	7,123	12	7,110	382.63	7,110	0.16
54	270	1.41	424	7,534	12	7,522	382.71	7,522	0.17
55	275	1.50	450	7,971	12	7,959	382.78	7,959	0.18

1
TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
56	280	1.58	475	8,434	12	8,422	382.87	8,422	0.19
57	285	1.67	501	8,923	12	8,910	382.96	8,910	0.20
58	290	1.67	501	9,411	12	9,399	383.03	9,399	0.22
59	295	1.76	527	9,926	12	9,913	383.10	9,913	0.23
60	300	1.84	552	10,465	12	10,453	383.17	10,453	0.24
61	305	2.27	681	11,134	12	11,121	383.26	11,121	0.26
62	310	2.70	809	11,930	12	11,918	383.37	11,918	0.27
63	315	2.95	886	12,803	12	12,791	383.48	12,791	0.29
64	320	3.21	963	13,754	12	13,741	383.61	13,741	0.32
65	325	3.64	1,091	14,832	12	14,820	383.75	14,820	0.34
66	330	4.41	1,322	16,142	12	16,130	383.92	16,130	0.37
67	335	1.24	373	16,502	12	16,490	383.97	16,490	0.38
68	340	0.39	116	16,606	12	16,594	383.99	16,594	0.38
69	345	0.13	39	16,633	12	16,620	383.99	16,620	0.38
70	350	0.04	13	16,634	12	16,621	383.99	16,621	0.38
71	355	0.03	8	16,629	12	16,617	383.99	16,617	0.38
72	360	0.02	5	16,622	12	16,609	383.99	16,609	0.38

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TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	15	0.01	8	8	37	-	381.00	-	0.00
2	30	0.01	12	12	37	-	381.00	-	0.00
3	45	0.01	12	12	37	-	381.00	-	0.00
4	60	0.02	16	16	37	-	381.00	-	0.00
5	75	0.01	12	12	37	-	381.00	-	0.00
6	90	0.01	12	12	37	-	381.00	-	0.00
7	105	0.01	12	12	37	-	381.00	-	0.00
8	120	0.02	16	16	37	-	381.00	-	0.00
9	135	0.02	16	16	37	-	381.00	-	0.00
10	150	0.02	16	16	37	-	381.00	-	0.00
11	165	0.02	20	20	37	-	381.00	-	0.00
12	180	0.02	20	20	37	-	381.00	-	0.00
13	195	0.02	20	20	37	-	381.00	-	0.00
14	210	0.02	20	20	37	-	381.00	-	0.00
15	225	0.02	20	20	37	-	381.00	-	0.00
16	240	0.03	24	24	37	-	381.00	-	0.00
17	255	0.03	24	24	37	-	381.00	-	0.00
18	270	0.03	28	28	37	-	381.00	-	0.00
19	285	0.03	28	28	37	-	381.00	-	0.00
20	300	0.04	32	32	37	-	381.00	-	0.00
21	315	0.03	24	24	37	-	381.00	-	0.00
22	330	0.03	28	28	37	-	381.00	-	0.00
23	345	0.04	32	32	37	-	381.00	-	0.00
24	360	0.04	32	32	37	-	381.00	-	0.00
25	375	0.04	36	36	37	-	381.00	-	0.00
26	390	0.04	36	36	37	-	381.00	-	0.00
27	405	0.04	40	40	37	3	381.00	3	0.00
28	420	0.04	40	43	37	6	381.00	6	0.00
29	435	0.04	40	46	37	9	381.00	9	0.00
30	450	0.02	20	29	37	-	381.00	-	0.00
31	465	0.07	66	66	37	29	381.01	29	0.00
32	480	0.12	112	141	37	104	381.03	104	0.00
33	495	0.22	198	302	37	265	381.07	265	0.01
34	510	0.23	204	469	37	432	381.12	432	0.01
35	525	0.28	249	681	37	644	381.18	644	0.01
36	540	0.33	295	939	37	902	381.25	902	0.02
37	555	0.42	381	1,283	37	1,245	381.34	1,245	0.03
38	570	0.47	426	1,672	37	1,635	381.45	1,635	0.04
39	585	0.52	472	2,107	37	2,070	381.57	2,070	0.05
40	600	0.57	517	2,587	37	2,550	381.71	2,550	0.06
41	615	0.27	242	2,792	37	2,755	381.76	2,755	0.06
42	630	0.27	247	3,001	37	2,964	381.82	2,964	0.07
43	645	0.50	453	3,417	37	3,380	381.94	3,380	0.08
44	660	0.51	458	3,838	37	3,801	382.03	3,801	0.09
45	675	0.47	423	4,224	37	4,187	382.10	4,187	0.10
46	690	0.48	428	4,615	37	4,577	382.17	4,577	0.11
47	705	0.39	353	4,930	37	4,893	382.23	4,893	0.11
48	720	0.44	398	5,290	37	5,253	382.30	5,253	0.12
49	735	0.76	684	5,937	37	5,900	382.41	5,900	0.14
50	750	0.81	728	6,628	37	6,591	382.54	6,591	0.15
51	765	0.90	813	7,404	37	7,367	382.68	7,367	0.17
52	780	0.95	858	8,225	37	8,188	382.83	8,188	0.19
53	795	1.18	1,064	9,252	37	9,215	383.01	9,215	0.21
54	810	1.19	1,068	10,283	37	10,246	383.14	10,246	0.24
55	825	0.70	631	10,877	37	10,840	383.22	10,840	0.25
56	840	0.71	636	11,475	37	11,438	383.30	11,438	0.26
57	855	0.89	801	12,239	37	12,202	383.40	12,202	0.28
58	870	0.85	765	12,966	37	12,929	383.50	12,929	0.30

1
TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
59	885	0.85	769	13,698	37	13,661	383.60	13,661	0.31
60	900	0.81	733	14,394	37	14,357	383.69	14,357	0.33
61	915	0.77	697	15,054	37	15,017	383.78	15,017	0.34
62	930	0.73	661	15,678	37	15,640	383.86	15,640	0.36
63	945	0.56	504	16,145	37	16,108	383.92	16,108	0.37
64	960	0.56	508	16,616	37	16,579	383.98	16,579	0.38
65	975	0.02	16	16,595	37	16,558	383.98	16,558	0.38
66	990	0.02	16	16,574	37	16,537	383.98	16,537	0.38
67	1005	0.01	12	16,549	37	16,512	383.97	16,512	0.38
68	1020	0.01	12	16,524	37	16,486	383.97	16,486	0.38
69	1035	0.02	20	16,506	37	16,469	383.97	16,469	0.38
70	1050	0.02	20	16,489	37	16,452	383.97	16,452	0.38
71	1065	0.02	20	16,472	37	16,435	383.96	16,435	0.38
72	1080	0.02	16	16,451	37	16,414	383.96	16,414	0.38
73	1095	0.02	16	16,430	37	16,393	383.96	16,393	0.38
74	1110	0.02	16	16,409	37	16,372	383.96	16,372	0.38
75	1125	0.01	12	16,384	37	16,347	383.95	16,347	0.38
76	1140	0.01	8	16,355	37	16,317	383.95	16,317	0.37
77	1155	0.01	12	16,329	37	16,292	383.95	16,292	0.37
78	1170	0.02	16	16,308	37	16,271	383.94	16,271	0.37
79	1185	0.01	12	16,283	37	16,246	383.94	16,246	0.37
80	1200	0.01	8	16,254	37	16,217	383.94	16,217	0.37
81	1215	0.01	12	16,229	37	16,192	383.93	16,192	0.37
82	1230	0.01	12	16,204	37	16,167	383.93	16,167	0.37
83	1245	0.01	12	16,179	37	16,141	383.93	16,141	0.37
84	1260	0.01	8	16,149	37	16,112	383.92	16,112	0.37
85	1275	0.01	12	16,124	37	16,087	383.92	16,087	0.37
86	1290	0.01	8	16,095	37	16,058	383.91	16,058	0.37
87	1305	0.01	12	16,070	37	16,033	383.91	16,033	0.37
88	1320	0.01	8	16,041	37	16,004	383.91	16,004	0.37
89	1335	0.01	12	16,016	37	15,978	383.90	15,978	0.37
90	1350	0.01	8	15,987	37	15,949	383.90	15,949	0.37
91	1365	0.01	8	15,957	37	15,920	383.90	15,920	0.37
92	1380	0.01	8	15,928	37	15,891	383.89	15,891	0.36
93	1395	0.01	8	15,899	37	15,862	383.89	15,862	0.36
94	1410	0.01	8	15,870	37	15,833	383.88	15,833	0.36
95	1425	0.01	8	15,841	37	15,804	383.88	15,804	0.36
96	1440	0.01	8	15,812	37	15,774	383.88	15,774	0.36

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD
BASIC DATA CALCULATION FORM
SHORTCUT METHOD

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
BY ΜES BAZUA, PE DATE 6/10/2020

PHYSICAL DATA

[1] CONCENTRATION POINT	1
[2] AREA DESIGNATION	SUBAREA B - 100 YEAR STORM EVENT
[3] AREA - ACRES	9.180
[4] L-FEET	1000
[5] L-MILES	0.189
[6] La-FEET	285.00
[7] La-MILES	0.054
[8] ELEVATION OF HEADWATER	387
[9] ELEVATION OF CONCENTRATION POINT	382
[10] H-FEET	5
[11] S-FEET/MILE	26.4
[12] S^0.5	5.14
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.05
[16] LAG TIME-MINUTES	2.7
[17] 100% OF LAG-MINUTES	2.7
[18] 200% OF LAG-MINUTES	5.4
[19] UNIT TIME-MINUTES (100%-200% OF LAG)	5
[24] TOTAL PERCOLATION RATE (cfs)	0.66

RAINFALL DATA

[1] SOURCE
[2] FREQUENCY-YEARS 100
[3] DURATION:

3-HOURS				6-HOURS				24-HOURS			
[4] POINT RAIN INCHES (Plate E-5.2)	[5] AREA	[6]	[7] AVERAGE POINT RAIN INCHES	[8] POINT RAIN INCHES (Plate E-5.4)	[9] AREA	[10]	[11] AVERAGE POINT RAIN INCHES	[12] POINT RAIN INCHES (Plate E-5.6)	[13] AREA	[14]	[15] AVERAGE POINT RAIN INCHES
2.03	9.180	1.00	2.03	2.71	9.180	1.00	2.71	4.24	9.180	1.00	4.24
		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			0.00	0.00
SUM [5]	9.18	SUM [7]	2.03	SUM [9]	9.18	SUM [11]	2.71	SUM [13]	9.18	SUM [15]	4.24
[16] AREA ADJ FACTOR			1.000				1.000				1.000
[17] ADJ AVG POINT RAIN			2.03				2.71				4.24

STORM EVENT SUMMARY

DURATION		3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.60	1.87	2.03
FLOOD VOLUME	(cu-ft)	53,461	62,317	67,656
	(acre-ft)	1.23	1.43	1.55
REQUIRED STORAGE	(cu-ft)	46,106	48,487	43,649
	(acre-ft)	1.06	1.11	1.00
PEAK FLOW	(cfs)	17.03	15.42	4.17
MAXIMUM WSEL	(ft)	383.05	383.11	383.00

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT	COACHELLA BUSINESS PARK - INTERIM BASIN		
	CONCENTRATION POINT:		1	
	BY	JAMES BAZUA, PE	DATE	6/10/2020

ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA		AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	COMMERCIAL	56	0.51	90%	0.10	8.18	0.891	0.0863
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.00	0.000	0.0000
B	SF - 1 ACRE	56	0.51	20%	0.42	0.00	0.000	0.0000
B	SF - 1/2 ACRE	56	0.51	40%	0.33	0.00	0.000	0.0000
B	SF - 1/4 ACRE	56	0.51	50%	0.28	0.00	0.000	0.0000
B	MF - COND0MINIUMS	56	0.51	65%	0.21	0.00	0.000	0.0000
B	MF - APARTMENTS	56	0.51	80%	0.14	0.00	0.000	0.0000
B	MOBILE HOME PARKS	56	0.51	75%	0.17	0.00	0.000	0.0000
B	LANDSCAPING	56	0.51	0%	0.51	0.00	0.000	0.0000
B	RETENTION BASINS	32	0.51	0%	0.51	1.00	0.109	0.0556
B	GOLF COURSE	56	0.51	0%	0.51	0.00	0.000	0.0000
D	MOUNTAINOUS	93	0.08	90%	0.02	0.00	0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					0.00		0.000	0.0000
					SUM	9.18	SUM	0.1419

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.07095

C= 0.00131

Ft=C(24-(T/60))^1.55 = 0.00131 (24-(T/60))^1.55 + 0.07 in/hr

LOW LOSS RATE (80-90 PERCENT) = 90%

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period,
T=1 1/2 unit time for the second period, etc.

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD 100 YEAR - 3 HOUR STORM EVENT	PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN CONCENTRATION POINT: 1 BY: \MES BAZUA, F DATE 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.71
UNIT TIME-PERCENT OF LAG	184.5
TOTAL ADJUSTED STORM RAIN-INCHES	2.03
CONSTANT LOSS RATE-in/hr	0.14
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	1.3	0.317	0.14	0.29	0.17	1.60	284.16
2	10	0.17	1.3	0.317	0.14	0.29	0.17	1.60	284.16
3	15	0.25	1.1	0.268	0.14	0.24	0.13	1.16	149.98
4	20	0.33	1.5	0.365	0.14	0.33	0.22	2.05	418.33
5	25	0.42	1.5	0.365	0.14	0.33	0.22	2.05	418.33
6	30	0.50	1.8	0.438	0.14	0.39	0.30	2.72	619.60
7	35	0.58	1.5	0.365	0.14	0.33	0.22	2.05	418.33
8	40	0.67	1.8	0.438	0.14	0.39	0.30	2.72	619.60
9	45	0.75	1.8	0.438	0.14	0.39	0.30	2.72	619.60
10	50	0.83	1.5	0.365	0.14	0.33	0.22	2.05	418.33
11	55	0.92	1.6	0.390	0.14	0.35	0.25	2.28	485.42
12	60	1.00	1.8	0.438	0.14	0.39	0.30	2.72	619.60
13	65	1.08	2.2	0.536	0.14	0.48	0.39	3.62	887.95
14	70	1.17	2.2	0.536	0.14	0.48	0.39	3.62	887.95
15	75	1.25	2.2	0.536	0.14	0.48	0.39	3.62	887.95
16	80	1.33	2.0	0.487	0.14	0.44	0.35	3.17	753.77
17	85	1.42	2.6	0.633	0.14	0.57	0.49	4.51	1156.30
18	90	1.50	2.7	0.658	0.14	0.59	0.52	4.74	1223.38
19	95	1.58	2.4	0.585	0.14	0.53	0.44	4.06	1022.12
20	100	1.67	2.7	0.658	0.14	0.59	0.52	4.74	1223.38
21	105	1.75	3.3	0.804	0.14	0.72	0.66	6.08	1625.91
22	110	1.83	3.1	0.755	0.14	0.68	0.61	5.63	1491.73
23	115	1.92	2.9	0.706	0.14	0.64	0.56	5.18	1357.56
24	120	2.00	3.0	0.731	0.14	0.66	0.59	5.41	1424.65
25	125	2.08	3.1	0.755	0.14	0.68	0.61	5.63	1491.73
26	130	2.17	4.2	1.023	0.14	0.92	0.88	8.09	2229.70
27	135	2.25	5.0	1.218	0.14	1.10	1.08	9.88	2766.39
28	140	2.33	3.5	0.853	0.14	0.77	0.71	6.52	1760.08
29	145	2.42	6.8	1.656	0.14	1.49	1.51	13.90	3973.97
30	150	2.50	7.3	1.778	0.14	1.60	1.64	15.02	4309.41
31	155	2.58	8.2	1.998	0.14	1.80	1.86	17.03	4913.19
32	160	2.67	5.9	1.437	0.14	1.29	1.30	11.89	3370.18
33	165	2.75	2.0	0.487	0.14	0.44	0.35	3.17	753.77
34	170	2.83	1.8	0.438	0.14	0.39	0.30	2.72	619.60
35	175	2.92	1.8	0.438	0.14	0.39	0.30	2.72	619.60
36	180	3.00	0.6	0.146	0.14	0.13	0.00	0.04	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.60
FLOOD VOLUME (acft)	1.23
FLOOD VOLUME (cuft)	53460.94
REQUIRED STORAGE (acft)	1.06
REQUIRED STORAGE (cuft)	46105.71
PEAK FLOW RATE (cfs)	17.03

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT: COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT: 1
	BY: JAMES BAZUA DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.71
UNIT TIME-PERCENT OF LAG	184.5
TOTAL ADJUSTED STORM RAIN-INCHES	2.71
CONSTANT LOSS RATE-in/hr	0.142
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	5	0.08	0.5	0.163	0.14	0.15	0.02	0.19	0.00
2	10	0.17	0.6	0.195	0.14	0.18	0.05	0.49	0.00
3	15	0.25	0.6	0.195	0.14	0.18	0.05	0.49	0.00
4	20	0.33	0.6	0.195	0.14	0.18	0.05	0.49	0.00
5	25	0.42	0.6	0.195	0.14	0.18	0.05	0.49	0.00
6	30	0.50	0.7	0.228	0.14	0.20	0.09	0.79	38.94
7	35	0.58	0.7	0.228	0.14	0.20	0.09	0.79	38.94
8	40	0.67	0.7	0.228	0.14	0.20	0.09	0.79	38.94
9	45	0.75	0.7	0.228	0.14	0.20	0.09	0.79	38.94
10	50	0.83	0.7	0.228	0.14	0.20	0.09	0.79	38.94
11	55	0.92	0.7	0.228	0.14	0.20	0.09	0.79	38.94
12	60	1.00	0.8	0.260	0.14	0.23	0.12	1.09	128.50
13	65	1.08	0.8	0.260	0.14	0.23	0.12	1.09	128.50
14	70	1.17	0.8	0.260	0.14	0.23	0.12	1.09	128.50
15	75	1.25	0.8	0.260	0.14	0.23	0.12	1.09	128.50
16	80	1.33	0.8	0.260	0.14	0.23	0.12	1.09	128.50
17	85	1.42	0.8	0.260	0.14	0.23	0.12	1.09	128.50
18	90	1.50	0.8	0.260	0.14	0.23	0.12	1.09	128.50
19	95	1.58	0.8	0.260	0.14	0.23	0.12	1.09	128.50
20	100	1.67	0.8	0.260	0.14	0.23	0.12	1.09	128.50
21	105	1.75	0.8	0.260	0.14	0.23	0.12	1.09	128.50
22	110	1.83	0.8	0.260	0.14	0.23	0.12	1.09	128.50
23	115	1.92	0.8	0.260	0.14	0.23	0.12	1.09	128.50
24	120	2.00	0.9	0.293	0.14	0.26	0.15	1.38	218.06
25	125	2.08	0.8	0.260	0.14	0.23	0.12	1.09	128.50
26	130	2.17	0.9	0.293	0.14	0.26	0.15	1.38	218.06
27	135	2.25	0.9	0.293	0.14	0.26	0.15	1.38	218.06
28	140	2.33	0.9	0.293	0.14	0.26	0.15	1.38	218.06
29	145	2.42	0.9	0.293	0.14	0.26	0.15	1.38	218.06
30	150	2.50	0.9	0.293	0.14	0.26	0.15	1.38	218.06
31	155	2.58	0.9	0.293	0.14	0.26	0.15	1.38	218.06
32	160	2.67	0.9	0.293	0.14	0.26	0.15	1.38	218.06
33	165	2.75	1.0	0.325	0.14	0.29	0.18	1.68	307.62
34	170	2.83	1.0	0.325	0.14	0.29	0.18	1.68	307.62
35	175	2.92	1.0	0.325	0.14	0.29	0.18	1.68	307.62
36	180	3.00	1.0	0.325	0.14	0.29	0.18	1.68	307.62
37	185	3.08	1.0	0.325	0.14	0.29	0.18	1.68	307.62
38	190	3.17	1.1	0.358	0.14	0.32	0.22	1.98	397.18
39	195	3.25	1.1	0.358	0.14	0.32	0.22	1.98	397.18
40	200	3.33	1.1	0.358	0.14	0.32	0.22	1.98	397.18
41	205	3.42	1.2	0.390	0.14	0.35	0.25	2.28	486.74
42	210	3.50	1.3	0.423	0.14	0.38	0.28	2.58	576.30
43	215	3.58	1.4	0.455	0.14	0.41	0.31	2.88	665.86
44	220	3.67	1.4	0.455	0.14	0.41	0.31	2.88	665.86
45	225	3.75	1.5	0.488	0.14	0.44	0.35	3.18	755.42
46	230	3.83	1.5	0.488	0.14	0.44	0.35	3.18	755.42
47	235	3.92	1.6	0.520	0.14	0.47	0.38	3.47	844.98
48	240	4.00	1.6	0.520	0.14	0.47	0.38	3.47	844.98
49	245	4.08	1.7	0.553	0.14	0.50	0.41	3.77	934.54
50	250	4.17	1.8	0.585	0.14	0.53	0.44	4.07	1024.10
51	255	4.25	1.9	0.618	0.14	0.56	0.48	4.37	1113.66
52	260	4.33	2.0	0.650	0.14	0.59	0.51	4.67	1203.22
53	265	4.42	2.1	0.683	0.14	0.61	0.54	4.97	1292.78
54	270	4.50	2.1	0.683	0.14	0.61	0.54	4.97	1292.78
55	275	4.58	2.2	0.715	0.14	0.64	0.57	5.27	1382.34
56	280	4.67	2.3	0.748	0.14	0.67	0.61	5.56	1471.90

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 6 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.18
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.71
UNIT TIME-PERCENT OF LAG	184.5
TOTAL ADJUSTED STORM RAIN-INCHES	2.71
CONSTANT LOSS RATE-in/hr	0.142
LOW LOSS RATE - PERCENT	90%

TOTAL PERCOLATION RATE (cfs) 0.66 cfs

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
57	285	4.75	2.4	0.780	0.14	0.70	0.64	5.86	1561.46
58	290	4.83	2.4	0.780	0.14	0.70	0.64	5.86	1561.46
59	295	4.92	2.5	0.813	0.14	0.73	0.67	6.16	1651.02
60	300	5.00	2.6	0.846	0.14	0.76	0.70	6.46	1740.58
61	305	5.08	3.1	1.008	0.14	0.91	0.87	7.95	2188.39
62	310	5.17	3.6	1.171	0.14	1.05	1.03	9.44	2636.19
63	315	5.25	3.9	1.268	0.14	1.14	1.13	10.34	2904.87
64	320	5.33	4.2	1.366	0.14	1.23	1.22	11.24	3173.55
65	325	5.42	4.7	1.528	0.14	1.38	1.39	12.73	3621.35
66	330	5.50	5.6	1.821	0.14	1.64	1.68	15.42	4427.39
67	335	5.58	1.9	0.618	0.14	0.56	0.48	4.37	1113.66
68	340	5.67	0.9	0.293	0.14	0.26	0.15	1.38	218.06
69	345	5.75	0.6	0.195	0.14	0.18	0.05	0.49	0.00
70	350	5.83	0.5	0.163	0.14	0.15	0.02	0.19	0.00
71	355	5.92	0.3	0.098	0.14	0.09	0.01	0.09	0.00
72	360	6.00	0.2	0.065	0.14	0.06	0.01	0.06	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

EFFECTIVE RAIN (in)	1.87
FLOOD VOLUME (acft)	1.43
FLOOD VOLUME (cuft)	62316.83
REQUIRED STORAGE (acft)	1.11
REQUIRED STORAGE (cuft)	48487.31
PEAK FLOW RATE (cfs)	15.42

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD		PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 24 HOUR STORM EVENT		CONCENTRATION POINT:	1
		BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1419
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.071
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00131
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
1	15	0.25	0.2	0.034	0.251	0.031	0.003	0.03	0.00
2	30	0.50	0.3	0.051	0.248	0.046	0.005	0.05	0.00
3	45	0.75	0.3	0.051	0.245	0.046	0.005	0.05	0.00
4	60	1.00	0.4	0.068	0.242	0.061	0.007	0.06	0.00
5	75	1.25	0.3	0.051	0.239	0.046	0.005	0.05	0.00
6	90	1.50	0.3	0.051	0.236	0.046	0.005	0.05	0.00
7	105	1.75	0.3	0.051	0.233	0.046	0.005	0.05	0.00
8	120	2.00	0.4	0.068	0.231	0.061	0.007	0.06	0.00
9	135	2.25	0.4	0.068	0.228	0.061	0.007	0.06	0.00
10	150	2.50	0.4	0.068	0.225	0.061	0.007	0.06	0.00
11	165	2.75	0.5	0.085	0.222	0.076	0.008	0.08	0.00
12	180	3.00	0.5	0.085	0.220	0.076	0.008	0.08	0.00
13	195	3.25	0.5	0.085	0.217	0.076	0.008	0.08	0.00
14	210	3.50	0.5	0.085	0.214	0.076	0.008	0.08	0.00
15	225	3.75	0.5	0.085	0.211	0.076	0.008	0.08	0.00
16	240	4.00	0.6	0.102	0.209	0.092	0.010	0.09	0.00
17	255	4.25	0.6	0.102	0.206	0.092	0.010	0.09	0.00
18	270	4.50	0.7	0.119	0.204	0.107	0.012	0.11	0.00
19	285	4.75	0.7	0.119	0.201	0.107	0.012	0.11	0.00
20	300	5.00	0.8	0.136	0.198	0.122	0.014	0.12	0.00
21	315	5.25	0.6	0.102	0.196	0.092	0.010	0.09	0.00
22	330	5.50	0.7	0.119	0.193	0.107	0.012	0.11	0.00
23	345	5.75	0.8	0.136	0.191	0.122	0.014	0.12	0.00
24	360	6.00	0.8	0.136	0.188	0.122	0.014	0.12	0.00
25	375	6.25	0.9	0.153	0.186	0.137	0.015	0.14	0.00
26	390	6.50	0.9	0.153	0.183	0.137	0.015	0.14	0.00
27	405	6.75	1.0	0.170	0.181	0.153	0.017	0.16	0.00
28	420	7.00	1.0	0.170	0.178	0.153	0.017	0.16	0.00
29	435	7.25	1.0	0.170	0.176	0.153	0.017	0.16	0.00
30	450	7.50	1.1	0.187	0.173	0.168	0.013	0.12	0.00
31	465	7.75	1.2	0.204	0.171	0.183	0.032	0.30	0.00
32	480	8.00	1.3	0.220	0.169	0.198	0.052	0.48	0.00
33	495	8.25	1.5	0.254	0.166	0.229	0.088	0.81	135.70
34	510	8.50	1.5	0.254	0.164	0.229	0.090	0.83	154.86
35	525	8.75	1.6	0.271	0.162	0.244	0.110	1.01	313.98
36	540	9.00	1.7	0.288	0.159	0.259	0.129	1.18	472.93
37	555	9.25	1.9	0.322	0.157	0.290	0.165	1.51	771.83
38	570	9.50	2.0	0.339	0.155	0.305	0.184	1.69	930.43
39	585	9.75	2.1	0.356	0.153	0.321	0.203	1.87	1088.87
40	600	10.00	2.2	0.373	0.151	0.336	0.223	2.04	1247.13
41	615	10.25	1.5	0.254	0.148	0.229	0.106	0.97	284.22
42	630	10.50	1.5	0.254	0.146	0.229	0.108	0.99	302.00
43	645	10.75	2.0	0.339	0.144	0.305	0.195	1.79	1020.22
44	660	11.00	2.0	0.339	0.142	0.305	0.197	1.81	1037.65
45	675	11.25	1.9	0.322	0.140	0.290	0.182	1.67	914.76
46	690	11.50	1.9	0.322	0.138	0.290	0.184	1.69	931.82
47	705	11.75	1.7	0.288	0.136	0.259	0.153	1.40	668.45
48	720	12.00	1.8	0.305	0.134	0.275	0.171	1.57	825.26
49	735	12.25	2.5	0.424	0.132	0.382	0.292	2.68	1822.63
50	750	12.50	2.6	0.441	0.130	0.397	0.311	2.86	1979.06
51	765	12.75	2.8	0.475	0.128	0.427	0.347	3.19	2275.42
52	780	13.00	2.9	0.492	0.126	0.443	0.366	3.36	2431.47
53	795	13.25	3.4	0.577	0.124	0.519	0.453	4.15	3147.82
54	810	13.50	3.4	0.577	0.122	0.519	0.454	4.17	3163.35
55	825	13.75	2.3	0.390	0.120	0.351	0.270	2.48	1637.32
56	840	14.00	2.3	0.390	0.118	0.351	0.272	2.49	1652.45
57	855	14.25	2.7	0.458	0.117	0.412	0.341	3.13	2227.87
58	870	14.50	2.6	0.441	0.115	0.397	0.326	2.99	2102.46
59	885	14.75	2.6	0.441	0.113	0.397	0.328	3.01	2116.97
60	900	15.00	2.5	0.424	0.111	0.382	0.313	2.87	1991.15
61	915	15.25	2.4	0.407	0.110	0.366	0.297	2.73	1865.11

RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD	PROJECT:	COACHELLA BUSINESS PARK - INTERIM BA
100 YEAR - 24 HOUR STORM EVENT	CONCENTRATION POINT:	1
	BY: JAMES BAZUA	DATE: 6/10/2020

EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	9.180	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.1419
LAG TIME - MINUTES	2.71	MINIMUM LOSS RATE (for var. loss) - in/hr	0.071
UNIT TIME-PERCENT OF LAG	553.6	LOW LOSS RATE - DECIMAL	0.90
TOTAL ADJUSTED STORM RAIN-INCHES	4.24	C	0.00131
		PERCOLATION RATE (cfs)	0.66

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Required Storage cf
62	930	15.50	2.3	0.390	0.108	0.351	0.282	2.59	1738.85
63	945	15.75	1.9	0.322	0.106	0.290	0.216	1.98	1192.01
64	960	16.00	1.9	0.322	0.105	0.290	0.218	2.00	1205.43
65	975	16.25	0.4	0.068	0.103	0.061	0.007	0.06	0.00
66	990	16.50	0.4	0.068	0.102	0.061	0.007	0.06	0.00
67	1005	16.75	0.3	0.051	0.100	0.046	0.005	0.05	0.00
68	1020	17.00	0.3	0.051	0.099	0.046	0.005	0.05	0.00
69	1035	17.25	0.5	0.085	0.097	0.076	0.008	0.08	0.00
70	1050	17.50	0.5	0.085	0.096	0.076	0.008	0.08	0.00
71	1065	17.75	0.5	0.085	0.094	0.076	0.008	0.08	0.00
72	1080	18.00	0.4	0.068	0.093	0.061	0.007	0.06	0.00
73	1095	18.25	0.4	0.068	0.091	0.061	0.007	0.06	0.00
74	1110	18.50	0.4	0.068	0.090	0.061	0.007	0.06	0.00
75	1125	18.75	0.3	0.051	0.089	0.046	0.005	0.05	0.00
76	1140	19.00	0.2	0.034	0.087	0.031	0.003	0.03	0.00
77	1155	19.25	0.3	0.051	0.086	0.046	0.005	0.05	0.00
78	1170	19.50	0.4	0.068	0.085	0.061	0.007	0.06	0.00
79	1185	19.75	0.3	0.051	0.084	0.046	0.005	0.05	0.00
80	1200	20.00	0.2	0.034	0.083	0.031	0.003	0.03	0.00
81	1215	20.25	0.3	0.051	0.082	0.046	0.005	0.05	0.00
82	1230	20.50	0.3	0.051	0.081	0.046	0.005	0.05	0.00
83	1245	20.75	0.3	0.051	0.080	0.046	0.005	0.05	0.00
84	1260	21.00	0.2	0.034	0.079	0.031	0.003	0.03	0.00
85	1275	21.25	0.3	0.051	0.078	0.046	0.005	0.05	0.00
86	1290	21.50	0.2	0.034	0.077	0.031	0.003	0.03	0.00
87	1305	21.75	0.3	0.051	0.076	0.046	0.005	0.05	0.00
88	1320	22.00	0.2	0.034	0.075	0.031	0.003	0.03	0.00
89	1335	22.25	0.3	0.051	0.074	0.046	0.005	0.05	0.00
90	1350	22.50	0.2	0.034	0.074	0.031	0.003	0.03	0.00
91	1365	22.75	0.2	0.034	0.073	0.031	0.003	0.03	0.00
92	1380	23.00	0.2	0.034	0.073	0.031	0.003	0.03	0.00
93	1395	23.25	0.2	0.034	0.072	0.031	0.003	0.03	0.00
94	1410	23.50	0.2	0.034	0.072	0.031	0.003	0.03	0.00
95	1425	23.75	0.2	0.034	0.071	0.031	0.003	0.03	0.00
96	1440	24.00	0.2	0.034	0.071	0.031	0.003	0.03	0.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
EFFECTIVE RAIN (in)	2.03
FLOOD VOLUME (acft)	1.55
FLOOD VOLUME (cuft)	67655.92
REQUIRED STORAGE (acft)	1.00
REQUIRED STORAGE (cuft)	43649.48
PEAK FLOW (cfs)	4.17

PROJECT: COACHELLA BUSINESS PARK - INTERIM BASIN
TKC JOB # C1443
1

BASIN CHARACTERISTICS

CONTOUR	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
382	0	0		42380	0	0	0.00
383	1	1	2426	44806	43593	43593	1.00
384	1	2	2482	47288	46047	89640	2.06
385	1	3	2539	49827	48558	138198	3.17

PERCOLATION CALCULATIONS
PERCOLATION RATE 0.67 in/hr 0.66 cfs

MAXWELL IV DRYWELLS
NUMBER USED 0
RATE/DRYWELL 0 cfs
TOTAL DISSIPATED 0 cfs

TOTAL PERCOLATION RATE 0.66 cfs

1
TKC JOB # C1443
100 YEAR - 3 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	5	1.60	481	481	197	284	382.01	284	0.01
2	10	1.60	481	766	197	568	382.01	568	0.01
3	15	1.16	347	915	197	718	382.02	718	0.02
4	20	2.05	616	1,334	197	1,137	382.03	1,137	0.03
5	25	2.05	616	1,752	197	1,555	382.04	1,555	0.04
6	30	2.72	817	2,372	197	2,175	382.05	2,175	0.05
7	35	2.05	616	2,790	197	2,593	382.06	2,593	0.06
8	40	2.72	817	3,410	197	3,212	382.07	3,212	0.07
9	45	2.72	817	4,029	197	3,832	382.09	3,832	0.09
10	50	2.05	616	4,448	197	4,250	382.10	4,250	0.10
11	55	2.28	683	4,933	197	4,736	382.11	4,736	0.11
12	60	2.72	817	5,553	197	5,355	382.12	5,355	0.12
13	65	3.62	1,085	6,441	197	6,243	382.14	6,243	0.14
14	70	3.62	1,085	7,329	197	7,131	382.16	7,131	0.16
15	75	3.62	1,085	8,216	197	8,019	382.18	8,019	0.18
16	80	3.17	951	8,970	197	8,773	382.20	8,773	0.20
17	85	4.51	1,353	10,127	197	9,929	382.23	9,929	0.23
18	90	4.74	1,421	11,350	197	11,153	382.26	11,153	0.26
19	95	4.06	1,219	12,372	197	12,175	382.28	12,175	0.28
20	100	4.74	1,421	13,595	197	13,398	382.31	13,398	0.31
21	105	6.08	1,823	15,221	197	15,024	382.34	15,024	0.34
22	110	5.63	1,689	16,713	197	16,516	382.38	16,516	0.38
23	115	5.18	1,555	18,071	197	17,873	382.41	17,873	0.41
24	120	5.41	1,622	19,495	197	19,298	382.44	19,298	0.44
25	125	5.63	1,689	20,987	197	20,790	382.48	20,790	0.48
26	130	8.09	2,427	23,217	197	23,020	382.53	23,020	0.53
27	135	9.88	2,964	25,983	197	25,786	382.59	25,786	0.59
28	140	6.52	1,957	27,743	197	27,546	382.63	27,546	0.63
29	145	13.90	4,171	31,717	197	31,520	382.72	31,520	0.72
30	150	15.02	4,507	36,027	197	35,829	382.82	35,829	0.82
31	155	17.03	5,110	40,940	197	40,743	382.93	40,743	0.94
32	160	11.89	3,567	44,310	197	44,113	383.01	44,113	1.01
33	165	3.17	951	45,064	197	44,867	383.03	44,867	1.03
34	170	2.72	817	45,683	197	45,486	383.04	45,486	1.04
35	175	2.72	817	46,303	197	46,106	383.05	46,106	1.06
36	180	0.04	12	46,117	197	45,920	383.05	45,920	1.05

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TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
1	5	0.19	57	57	197	-	382.00	-	0.00
2	10	0.49	147	147	197	-	382.00	-	0.00
3	15	0.49	147	147	197	-	382.00	-	0.00
4	20	0.49	147	147	197	-	382.00	-	0.00
5	25	0.49	147	147	197	-	382.00	-	0.00
6	30	0.79	236	236	197	39	382.00	39	0.00
7	35	0.79	236	275	197	78	382.00	78	0.00
8	40	0.79	236	314	197	117	382.00	117	0.00
9	45	0.79	236	353	197	156	382.00	156	0.00
10	50	0.79	236	392	197	195	382.00	195	0.00
11	55	0.79	236	431	197	234	382.01	234	0.01
12	60	1.09	326	559	197	362	382.01	362	0.01
13	65	1.09	326	688	197	491	382.01	491	0.01
14	70	1.09	326	816	197	619	382.01	619	0.01
15	75	1.09	326	945	197	748	382.02	748	0.02
16	80	1.09	326	1,073	197	876	382.02	876	0.02
17	85	1.09	326	1,202	197	1,005	382.02	1,005	0.02
18	90	1.09	326	1,330	197	1,133	382.03	1,133	0.03
19	95	1.09	326	1,459	197	1,262	382.03	1,262	0.03
20	100	1.09	326	1,587	197	1,390	382.03	1,390	0.03
21	105	1.09	326	1,716	197	1,519	382.03	1,519	0.03
22	110	1.09	326	1,844	197	1,647	382.04	1,647	0.04
23	115	1.09	326	1,973	197	1,776	382.04	1,776	0.04
24	120	1.38	415	2,191	197	1,994	382.05	1,994	0.05
25	125	1.09	326	2,319	197	2,122	382.05	2,122	0.05
26	130	1.38	415	2,538	197	2,340	382.05	2,340	0.05
27	135	1.38	415	2,756	197	2,558	382.06	2,558	0.06
28	140	1.38	415	2,974	197	2,776	382.06	2,776	0.06
29	145	1.38	415	3,192	197	2,995	382.07	2,995	0.07
30	150	1.38	415	3,410	197	3,213	382.07	3,213	0.07
31	155	1.38	415	3,628	197	3,431	382.08	3,431	0.08
32	160	1.38	415	3,846	197	3,649	382.08	3,649	0.08
33	165	1.68	505	4,154	197	3,956	382.09	3,956	0.09
34	170	1.68	505	4,461	197	4,264	382.10	4,264	0.10
35	175	1.68	505	4,769	197	4,572	382.10	4,572	0.10
36	180	1.68	505	5,076	197	4,879	382.11	4,879	0.11
37	185	1.68	505	5,384	197	5,187	382.12	5,187	0.12
38	190	1.98	594	5,781	197	5,584	382.13	5,584	0.13
39	195	1.98	594	6,178	197	5,981	382.14	5,981	0.14
40	200	1.98	594	6,576	197	6,378	382.15	6,378	0.15
41	205	2.28	684	7,062	197	6,865	382.16	6,865	0.16
42	210	2.58	773	7,639	197	7,441	382.17	7,441	0.17
43	215	2.88	863	8,304	197	8,107	382.19	8,107	0.19
44	220	2.88	863	8,970	197	8,773	382.20	8,773	0.20
45	225	3.18	953	9,726	197	9,529	382.22	9,529	0.22
46	230	3.18	953	10,481	197	10,284	382.24	10,284	0.24
47	235	3.47	1,042	11,326	197	11,129	382.26	11,129	0.26
48	240	3.47	1,042	12,171	197	11,974	382.27	11,974	0.27
49	245	3.77	1,132	13,106	197	12,909	382.30	12,909	0.30
50	250	4.07	1,221	14,130	197	13,933	382.32	13,933	0.32
51	255	4.37	1,311	15,243	197	15,046	382.35	15,046	0.35
52	260	4.67	1,400	16,447	197	16,250	382.37	16,250	0.37
53	265	4.97	1,490	17,739	197	17,542	382.40	17,542	0.40
54	270	4.97	1,490	19,032	197	18,835	382.43	18,835	0.43
55	275	5.27	1,580	20,415	197	20,217	382.46	20,217	0.46

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TKC JOB # C1443
100 YEAR - 6 HOUR STORM EVENT

TIME UNIT PERIOD	(min)	FLOW IN (cfs)	VOLUME IN (cuft)	TOTAL IN BASIN (cuft)	PERC OUT (cuft)	TOTAL IN BASIN (cuft)	BASIN DEPTH (ft)	BALANCE IN BASIN (cuft)	(acre-ft)
56	280	5.56	1,669	21,887	197	21,689	382.50	21,689	0.50
57	285	5.86	1,759	23,448	197	23,251	382.53	23,251	0.53
58	290	5.86	1,759	25,009	197	24,812	382.57	24,812	0.57
59	295	6.16	1,848	26,660	197	26,463	382.61	26,463	0.61
60	300	6.46	1,938	28,401	197	28,204	382.65	28,204	0.65
61	305	7.95	2,386	30,589	197	30,392	382.70	30,392	0.70
62	310	9.44	2,833	33,226	197	33,028	382.76	33,028	0.76
63	315	10.34	3,102	36,130	197	35,933	382.82	35,933	0.82
64	320	11.24	3,371	39,304	197	39,107	382.90	39,107	0.90
65	325	12.73	3,819	42,925	197	42,728	382.98	42,728	0.98
66	330	15.42	4,625	47,353	197	47,156	383.08	47,156	1.08
67	335	4.37	1,311	48,466	197	48,269	383.10	48,269	1.11
68	340	1.38	415	48,684	197	48,487	383.11	48,487	1.11
69	345	0.49	147	48,634	197	48,437	383.11	48,437	1.11
70	350	0.19	57	48,494	197	48,297	383.10	48,297	1.11
71	355	0.09	27	48,323	197	48,126	383.10	48,126	1.10
72	360	0.06	18	48,144	197	47,947	383.09	47,947	1.10

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TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT PERIOD	(min)	IN (cfs)	IN (cuft)	BASIN (cuft)	OUT (cuft)	BASIN (cuft)	DEPTH (ft)	BASIN (cuft)	(acre-ft)
1	15	0.03	28	28	592	-	382.00	-	0.00
2	30	0.05	42	42	592	-	382.00	-	0.00
3	45	0.05	42	42	592	-	382.00	-	0.00
4	60	0.06	56	56	592	-	382.00	-	0.00
5	75	0.05	42	42	592	-	382.00	-	0.00
6	90	0.05	42	42	592	-	382.00	-	0.00
7	105	0.05	42	42	592	-	382.00	-	0.00
8	120	0.06	56	56	592	-	382.00	-	0.00
9	135	0.06	56	56	592	-	382.00	-	0.00
10	150	0.06	56	56	592	-	382.00	-	0.00
11	165	0.08	70	70	592	-	382.00	-	0.00
12	180	0.08	70	70	592	-	382.00	-	0.00
13	195	0.08	70	70	592	-	382.00	-	0.00
14	210	0.08	70	70	592	-	382.00	-	0.00
15	225	0.08	70	70	592	-	382.00	-	0.00
16	240	0.09	84	84	592	-	382.00	-	0.00
17	255	0.09	84	84	592	-	382.00	-	0.00
18	270	0.11	98	98	592	-	382.00	-	0.00
19	285	0.11	98	98	592	-	382.00	-	0.00
20	300	0.12	112	112	592	-	382.00	-	0.00
21	315	0.09	84	84	592	-	382.00	-	0.00
22	330	0.11	98	98	592	-	382.00	-	0.00
23	345	0.12	112	112	592	-	382.00	-	0.00
24	360	0.12	112	112	592	-	382.00	-	0.00
25	375	0.14	126	126	592	-	382.00	-	0.00
26	390	0.14	126	126	592	-	382.00	-	0.00
27	405	0.16	140	140	592	-	382.00	-	0.00
28	420	0.16	140	140	592	-	382.00	-	0.00
29	435	0.16	140	140	592	-	382.00	-	0.00
30	450	0.12	108	108	592	-	382.00	-	0.00
31	465	0.30	268	268	592	-	382.00	-	0.00
32	480	0.48	428	428	592	-	382.00	-	0.00
33	495	0.81	727	727	592	136	382.00	136	0.00
34	510	0.83	746	882	592	291	382.01	291	0.01
35	525	1.01	906	1,196	592	605	382.01	605	0.01
36	540	1.18	1,064	1,669	592	1,077	382.02	1,077	0.02
37	555	1.51	1,363	2,441	592	1,849	382.04	1,849	0.04
38	570	1.69	1,522	3,371	592	2,780	382.06	2,780	0.06
39	585	1.87	1,680	4,460	592	3,869	382.09	3,869	0.09
40	600	2.04	1,839	5,707	592	5,116	382.12	5,116	0.12
41	615	0.97	876	5,992	592	5,400	382.12	5,400	0.12
42	630	0.99	894	6,294	592	5,702	382.13	5,702	0.13
43	645	1.79	1,612	7,314	592	6,722	382.15	6,722	0.15
44	660	1.81	1,629	8,351	592	7,760	382.18	7,760	0.18
45	675	1.67	1,506	9,266	592	8,675	382.20	8,675	0.20
46	690	1.69	1,523	10,198	592	9,606	382.22	9,606	0.22
47	705	1.40	1,260	10,866	592	10,275	382.24	10,275	0.24
48	720	1.57	1,417	11,692	592	11,100	382.25	11,100	0.25
49	735	2.68	2,414	13,514	592	12,923	382.30	12,923	0.30
50	750	2.86	2,571	15,493	592	14,902	382.34	14,902	0.34
51	765	3.19	2,867	17,769	592	17,177	382.39	17,177	0.39
52	780	3.36	3,023	20,200	592	19,609	382.45	19,609	0.45
53	795	4.15	3,739	23,348	592	22,757	382.52	22,757	0.52
54	810	4.17	3,755	26,511	592	25,920	382.59	25,920	0.60
55	825	2.48	2,229	28,149	592	27,557	382.63	27,557	0.63
56	840	2.49	2,244	29,801	592	29,210	382.67	29,210	0.67
57	855	3.13	2,819	32,029	592	31,437	382.72	31,437	0.72
58	870	2.99	2,694	34,132	592	33,540	382.77	33,540	0.77

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TKC JOB # C1443
100 YEAR - 24 HOUR STORM EVENT

TIME		FLOW	VOLUME	TOTAL IN	PERC	TOTAL IN	BASIN	BALANCE IN	
UNIT	(min)	IN	IN	BASIN	OUT	BASIN	DEPTH	BASIN	
PERIOD		(cfs)	(cuft)	(cuft)	(cuft)	(cuft)	(ft)	(cuft)	(acre-ft)
59	885	3.01	2,709	36,248	592	35,657	382.82	35,657	0.82
60	900	2.87	2,583	38,240	592	37,648	382.86	37,648	0.86
61	915	2.73	2,457	40,105	592	39,513	382.91	39,513	0.91
62	930	2.59	2,330	41,844	592	41,252	382.95	41,252	0.95
63	945	1.98	1,784	43,036	592	42,444	382.97	42,444	0.97
64	960	2.00	1,797	44,241	592	43,649	383.00	43,649	1.00
65	975	0.06	56	43,706	592	43,114	382.99	43,114	0.99
66	990	0.06	56	43,170	592	42,578	382.98	42,578	0.98
67	1005	0.05	42	42,621	592	42,029	382.96	42,029	0.96
68	1020	0.05	42	42,071	592	41,479	382.95	41,479	0.95
69	1035	0.08	70	41,549	592	40,958	382.94	40,958	0.94
70	1050	0.08	70	41,028	592	40,436	382.93	40,436	0.93
71	1065	0.08	70	40,507	592	39,915	382.92	39,915	0.92
72	1080	0.06	56	39,971	592	39,379	382.90	39,379	0.90
73	1095	0.06	56	39,435	592	38,844	382.89	38,844	0.89
74	1110	0.06	56	38,900	592	38,308	382.88	38,308	0.88
75	1125	0.05	42	38,350	592	37,759	382.87	37,759	0.87
76	1140	0.03	28	37,787	592	37,195	382.85	37,195	0.85
77	1155	0.05	42	37,237	592	36,646	382.84	36,646	0.84
78	1170	0.06	56	36,702	592	36,110	382.83	36,110	0.83
79	1185	0.05	42	36,152	592	35,561	382.82	35,561	0.82
80	1200	0.03	28	35,589	592	34,997	382.80	34,997	0.80
81	1215	0.05	42	35,039	592	34,448	382.79	34,448	0.79
82	1230	0.05	42	34,490	592	33,898	382.78	33,898	0.78
83	1245	0.05	42	33,940	592	33,349	382.77	33,349	0.77
84	1260	0.03	28	33,377	592	32,785	382.75	32,785	0.75
85	1275	0.05	42	32,827	592	32,236	382.74	32,236	0.74
86	1290	0.03	28	32,264	592	31,672	382.73	31,672	0.73
87	1305	0.05	42	31,714	592	31,123	382.71	31,123	0.71
88	1320	0.03	28	31,151	592	30,559	382.70	30,559	0.70
89	1335	0.05	42	30,601	592	30,010	382.69	30,010	0.69
90	1350	0.03	28	30,038	592	29,446	382.68	29,446	0.68
91	1365	0.03	28	29,474	592	28,883	382.66	28,883	0.66
92	1380	0.03	28	28,911	592	28,319	382.65	28,319	0.65
93	1395	0.03	28	28,347	592	27,756	382.64	27,756	0.64
94	1410	0.03	28	27,784	592	27,192	382.62	27,192	0.62
95	1425	0.03	28	27,220	592	26,628	382.61	26,628	0.61
96	1440	0.03	28	26,656	592	26,065	382.60	26,065	0.60

IV RETENTION BASIN INFILTRATION STUDY

The project runoff volume generated during the 100 year design storm event and stored in the on-site retention system will be designed to infiltrate into the soil to eliminate the presence of standing water and risk of vector control issues within a period of 72 hours in accordance with the City of Coachella Municipal Code. Since infiltration will occur within unpaved retention basin areas, the surface volume of the basin areas will be tabulated so that the allowable infiltration rate can be applied over this surface area

Retention basin calculations in Section III of this report show that the total volume of runoff stored on-site during 100 year storm event over the three separate subareas is **247,322** cu.ft. Assuming the maximum infiltration allowed by City of Coachella (10 gal/s.f./day), the time required to evacuate the stored volume of runoff during the 100 year storm event is:

Maximum allowable infiltration rate:

10 gal/s.f./day = 1.34 cu.ft/s.f./day = 4.02 cu.ft/s.f./72 hours

Total area contributing to infiltration:

42,516 s.f. (SUBAREA A) + 42,380 s.f. (SUBAREA B) + 2,664 s.f. (SUBAREA C)
= **87,560 s.f.**

(4.02 cu.ft/s.f./72 hours) X (87,560 s.f.) = 351,991 cu.ft / 72 hours

The retention basin and adjacent pervious area has the capacity to evacuate 351,991 cu.ft. of runoff volume within a 72 hour period which excess the amount of stored volume during the 100 year storm event (247,322 cu.ft.)

V APPENDIX

1 IN = 0.25 MI

The Altum Group

Project Vicinity

Coachella Airport Business Park

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.

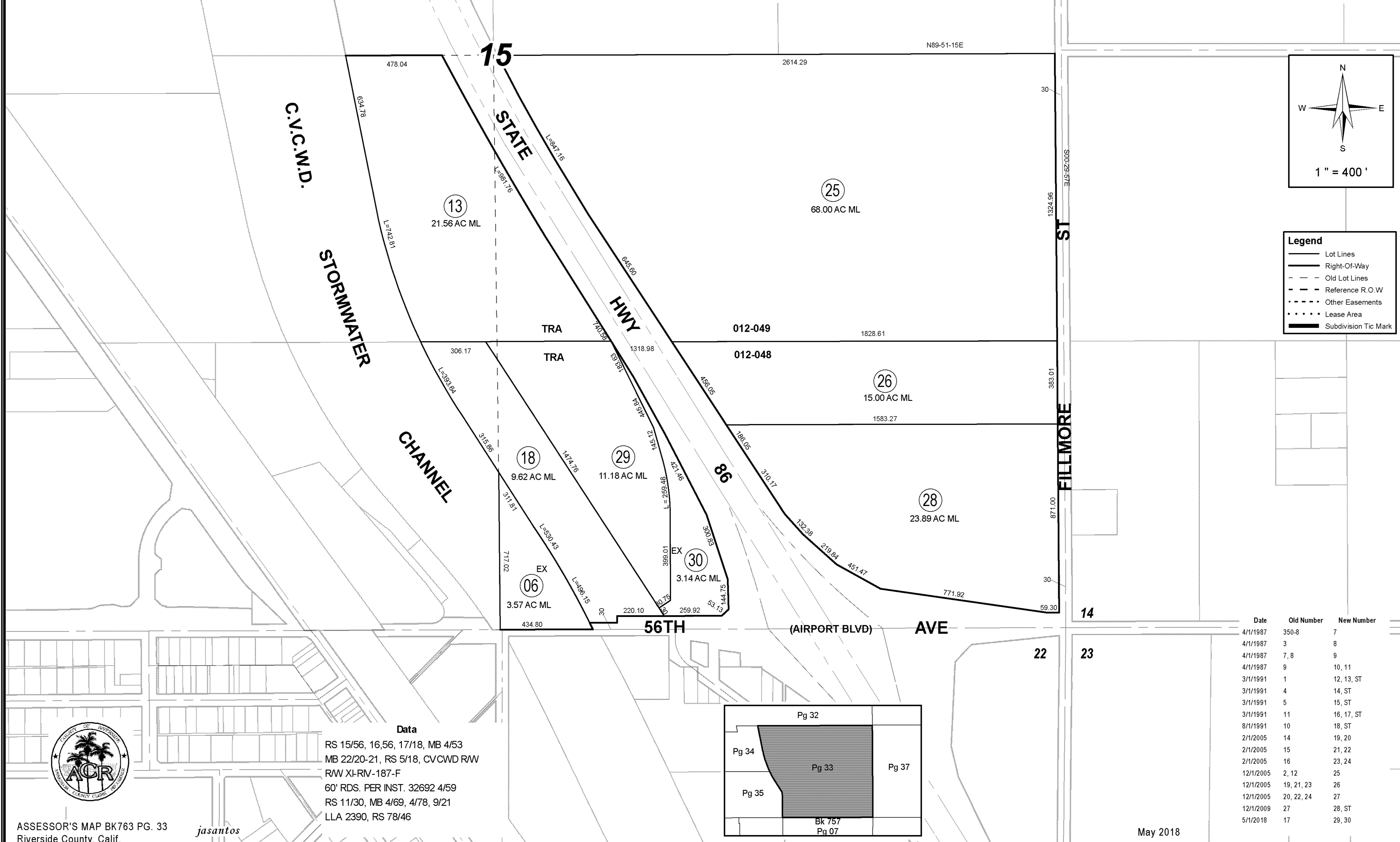
SEC. 15 T.6S, R.8E

CITY OF COACHELLA

TRA 012-048
012-049

763-33

25-39-1



Data

RS 15/56, 16,56, 17/18, MB 4/53
MB 22/20-21, RS 5/18, CVCWD R/W
R/W XI-RIV-187-F
60' RDS. PER INST. 32692 4/59
RS 11/30, MB 4/69, 4/78, 9/21
LLA 2390, RS 78/46

Date	Old Number	New Number
4/1/1987	350-8	7
4/1/1987	3	8
4/1/1987	7, 8	9
4/1/1987	9	10, 11
3/1/1991	1	12, 13, ST
3/1/1991	4	14, ST
3/1/1991	5	15, ST
3/1/1991	11	16, 17, ST
8/1/1991	10	18, ST
2/1/2005	14	19, 20
2/1/2005	15	21, 22
2/1/2005	16	23, 24
12/1/2005	2, 12	25
12/1/2005	19, 21, 23	26
12/1/2005	20, 22, 24	27
12/1/2009	27	28, ST
5/1/2018	17	29, 30

ASSESSOR'S MAP BK763 PG. 33
Riverside County, Calif.

jasantos

May 2018

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Type A Place Name Find

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Latitude

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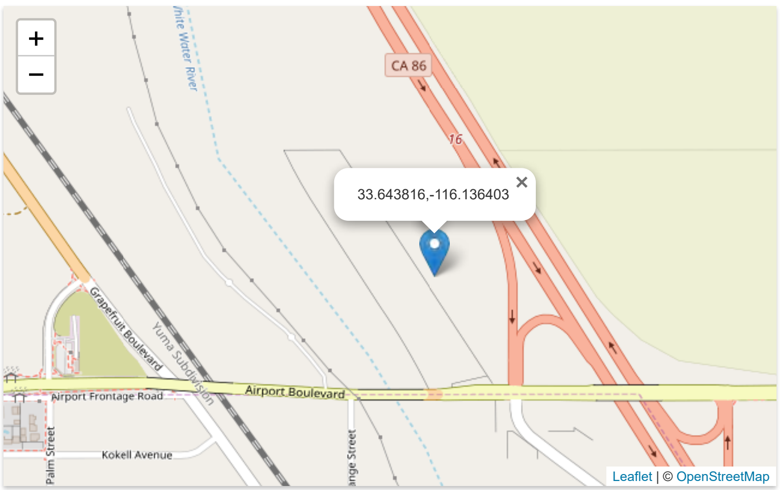
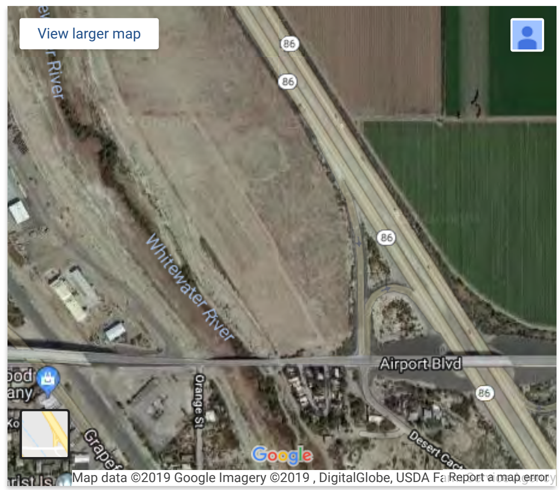
Longitude

-116.136403





Lat Long	GPS Coordinates
(33.643816, -116.136403)	33° 38' 37.7376'' N 116° 8' 11.0508'' W

Share this location link

<a href="https://www.latlong.net/c/?lat=33.643816&long=-116.136403" target="_blank">

Location page url

https://www.latlong.net/c/?lat=33.643816&long=-116.136403

Copy and paste the html code above in your website to share.

What is Latitude and Longitude?

Just like every actual house has its address (which includes the number, the name of the street, city, etc), every single point on the surface of earth can be specified by the *latitude and longitude coordinates*. Therefore, by using latitude and longitude we can specify virtually any point on earth.

NOAA Atlas 14, Volume 6, Version 2
Location name: Coachella, California, USA*
Latitude: 33.6438°, Longitude: -116.1364°
Elevation: -118.92 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.061 (0.051-0.074)	0.098 (0.081-0.118)	0.148 (0.123-0.180)	0.192 (0.158-0.235)	0.254 (0.203-0.322)	0.305 (0.238-0.395)	0.360 (0.274-0.478)	0.419 (0.310-0.573)	0.504 (0.357-0.719)	0.575 (0.393-0.849)
10-min	0.087 (0.073-0.106)	0.140 (0.117-0.169)	0.212 (0.177-0.258)	0.275 (0.227-0.336)	0.364 (0.290-0.462)	0.438 (0.341-0.567)	0.516 (0.392-0.685)	0.601 (0.444-0.821)	0.723 (0.512-1.03)	0.824 (0.563-1.22)
15-min	0.106 (0.088-0.128)	0.169 (0.141-0.205)	0.257 (0.214-0.312)	0.332 (0.274-0.407)	0.441 (0.351-0.559)	0.529 (0.413-0.685)	0.624 (0.475-0.828)	0.726 (0.537-0.993)	0.874 (0.619-1.25)	0.997 (0.681-1.47)
30-min	0.147 (0.123-0.178)	0.235 (0.196-0.285)	0.358 (0.297-0.434)	0.463 (0.381-0.567)	0.614 (0.489-0.778)	0.737 (0.575-0.954)	0.869 (0.661-1.15)	1.01 (0.748-1.38)	1.22 (0.862-1.74)	1.39 (0.949-2.05)
60-min	0.207 (0.172-0.250)	0.330 (0.275-0.400)	0.501 (0.417-0.609)	0.649 (0.535-0.795)	0.861 (0.686-1.09)	1.03 (0.806-1.34)	1.22 (0.927-1.62)	1.42 (1.05-1.94)	1.71 (1.21-2.43)	1.95 (1.33-2.88)
2-hr	0.285 (0.238-0.345)	0.429 (0.358-0.519)	0.640 (0.532-0.778)	0.832 (0.686-1.02)	1.13 (0.896-1.43)	1.38 (1.07-1.78)	1.66 (1.26-2.21)	1.99 (1.47-2.71)	2.48 (1.76-3.53)	2.91 (1.99-4.29)
3-hr	0.348 (0.290-0.420)	0.510 (0.425-0.617)	0.756 (0.629-0.918)	0.984 (0.812-1.21)	1.34 (1.07-1.70)	1.66 (1.30-2.15)	2.03 (1.54-2.69)	2.45 (1.81-3.35)	3.12 (2.21-4.44)	3.71 (2.54-5.48)
6-hr	0.461 (0.385-0.558)	0.666 (0.556-0.807)	0.983 (0.818-1.19)	1.28 (1.06-1.57)	1.77 (1.41-2.24)	2.20 (1.72-2.85)	2.71 (2.06-3.60)	3.32 (2.45-4.53)	4.28 (3.03-6.11)	5.17 (3.53-7.63)
12-hr	0.545 (0.455-0.659)	0.801 (0.668-0.970)	1.19 (0.993-1.45)	1.56 (1.29-1.92)	2.15 (1.72-2.73)	2.68 (2.09-3.47)	3.30 (2.51-4.38)	4.02 (2.97-5.50)	5.17 (3.66-7.37)	6.21 (4.25-9.18)
24-hr	0.693 (0.613-0.799)	1.05 (0.925-1.21)	1.58 (1.39-1.83)	2.07 (1.81-2.41)	2.82 (2.39-3.40)	3.49 (2.90-4.29)	4.24 (3.44-5.34)	5.11 (4.04-6.61)	6.46 (4.90-8.69)	7.65 (5.62-10.6)
2-day	0.785 (0.695-0.906)	1.21 (1.07-1.39)	1.82 (1.60-2.11)	2.37 (2.07-2.76)	3.19 (2.70-3.84)	3.89 (3.23-4.77)	4.66 (3.78-5.86)	5.52 (4.36-7.14)	6.82 (5.18-9.17)	7.93 (5.82-11.0)
3-day	0.846 (0.748-0.975)	1.31 (1.16-1.51)	1.97 (1.73-2.28)	2.55 (2.23-2.97)	3.41 (2.89-4.10)	4.12 (3.43-5.07)	4.91 (3.98-6.17)	5.78 (4.56-7.46)	7.06 (5.36-9.49)	8.14 (5.97-11.3)
4-day	0.897 (0.794-1.03)	1.39 (1.23-1.60)	2.08 (1.84-2.41)	2.69 (2.35-3.14)	3.58 (3.03-4.31)	4.32 (3.59-5.31)	5.12 (4.16-6.44)	6.01 (4.74-7.76)	7.30 (5.54-9.81)	8.38 (6.15-11.6)
7-day	0.962 (0.851-1.11)	1.47 (1.30-1.70)	2.19 (1.93-2.54)	2.82 (2.46-3.29)	3.73 (3.16-4.49)	4.48 (3.72-5.50)	5.29 (4.29-6.65)	6.18 (4.88-7.98)	7.47 (5.67-10.0)	8.54 (6.27-11.9)
10-day	0.995 (0.881-1.15)	1.52 (1.34-1.75)	2.25 (1.98-2.60)	2.88 (2.52-3.36)	3.81 (3.23-4.58)	4.57 (3.79-5.61)	5.38 (4.37-6.77)	6.28 (4.96-8.11)	7.57 (5.74-10.2)	8.64 (6.35-12.0)
20-day	1.07 (0.947-1.23)	1.64 (1.45-1.89)	2.43 (2.15-2.82)	3.12 (2.73-3.64)	4.11 (3.48-4.95)	4.92 (4.08-6.04)	5.78 (4.69-7.27)	6.72 (5.31-8.69)	8.08 (6.13-10.9)	9.20 (6.76-12.8)
30-day	1.14 (1.01-1.32)	1.77 (1.56-2.04)	2.64 (2.33-3.06)	3.39 (2.96-3.95)	4.47 (3.79-5.38)	5.35 (4.44-6.57)	6.29 (5.10-7.91)	7.31 (5.77-9.44)	8.78 (6.66-11.8)	9.99 (7.33-13.9)
45-day	1.25 (1.11-1.44)	1.97 (1.74-2.27)	2.96 (2.61-3.43)	3.82 (3.34-4.45)	5.04 (4.27-6.07)	6.04 (5.02-7.42)	7.11 (5.77-8.94)	8.26 (6.53-10.7)	9.92 (7.53-13.3)	11.3 (8.29-15.7)
60-day	1.32 (1.17-1.52)	2.10 (1.86-2.42)	3.18 (2.81-3.68)	4.11 (3.60-4.80)	5.45 (4.61-6.56)	6.53 (5.42-8.02)	7.69 (6.24-9.67)	8.94 (7.06-11.6)	10.7 (8.15-14.4)	12.2 (8.97-17.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

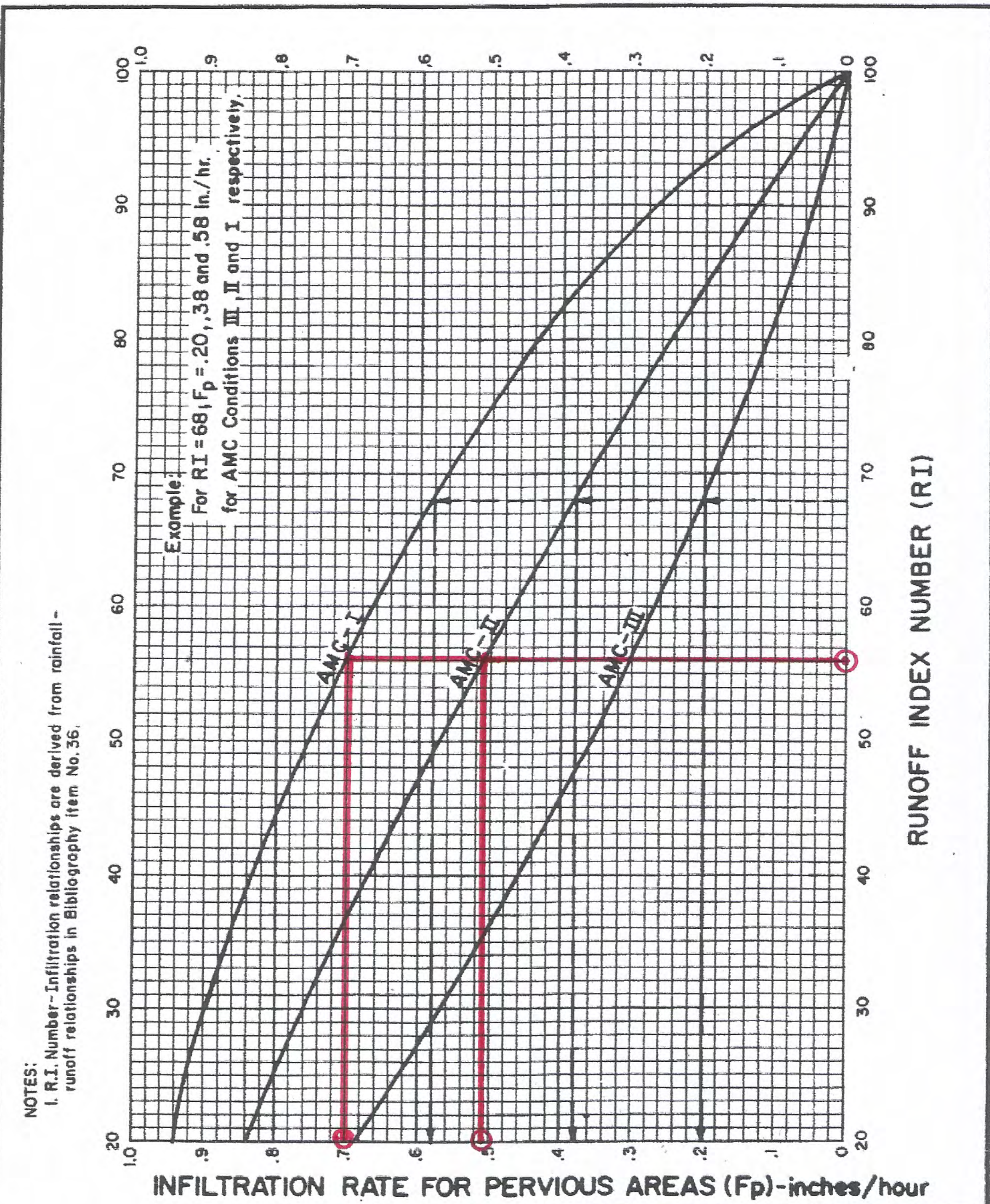
PF graphical

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

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREA



RCFC & WCD
HYDROLOGY MANUAL

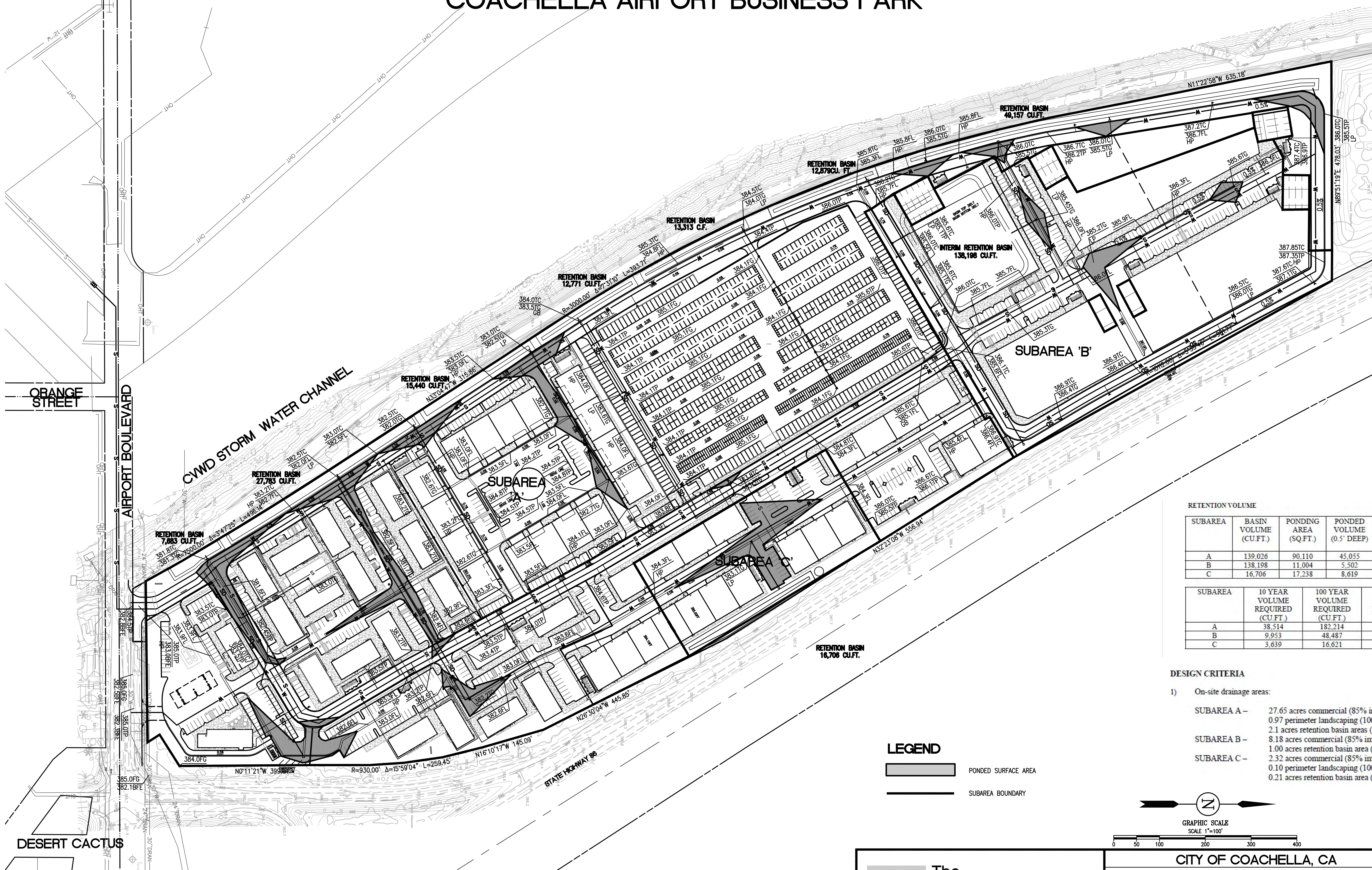
10 YR

100 YR

INFILTRATION RATE FOR PERVIOUS AREAS VERSUS RUNOFF INDEX NUMBERS

IN THE CITY OF COACHELLA, STATE OF CALIFORNIA

PRELIMINARY WQMP AND HYDROLOGY EXHIBIT
COACHELLA AIRPORT BUSINESS PARK



RETENTION VOLUME

SUBAREA	BASIN VOLUME (CU.FT.)	PONDING AREA (SQ.FT.)	PONDED VOLUME (0.5' DEEP)	TOTAL VOLUME PROVIDED (CU.FT.)
A	139,026	90,110	45,055	184,081
B	138,198	11,004	5,502	143,700
C	16,706	17,238	8,619	25,325

SUBAREA	10 YEAR VOLUME REQUIRED (CU.FT.)	100 YEAR VOLUME REQUIRED (CU.FT.)	TOTAL VOLUME PROVIDED (CU.FT.)
A	38,514	182,214	184,081
B	9,953	48,487	143,700
C	3,639	16,621	25,325

DESIGN CRITERIA

1) On-site drainage areas:

SUBAREA A – 27.65 acres commercial (85% impervious)
0.97 perimeter landscaping (100% pervious)
2.1 acres retention basin areas (100% impervious)

SUBAREA B – 8.18 acres commercial (85% impervious)
1.00 acres retention basin area (100% impervious)

SUBAREA C – 2.32 acres commercial (85% impervious)
0.10 perimeter landscaping (100% pervious)
0.21 acres retention basin area (100% impervious)

LEGEND

PONDED SURFACE AREA

SUBAREA BOUNDARY

N

GRAPHIC SCALE
SCALE 1"=100'
0 50 100 200 300 400

The Altum Group
73-710 Fred Waring Dr., Ste. 219
Palm Desert, CA 92260
t.760.346.4750 f. 760.340.0089
TheAltumGroup.com
ENGINEERING | PLANNING | SURVEY | ENVIRONMENTAL

CITY OF COACHELLA, CA

PRELIMINARY WQMP AND HYDROLOGY EXHIBIT
COACHELLA AIRPORT BUSINESS PARK

BEING A PORTION OF THE SOUTH HALF OF SECTION 15, T6S, R8E, SBM

FOR: HAAGEN COMPANY, LLC

SHEET NO. 1 OF 1

Appendix G

AGREEMENTS – CC&RS, COVENANT AND AGREEMENTS, BMP MAINTENANCE AGREEMENTS AND/OR OTHER MECHANISMS FOR ENSURING ONGOING OPERATION, MAINTENANCE, FUNDING AND TRANSFER OF REQUIREMENTS FOR THIS PROJECT-SPECIFIC WQMP

Recording requested by:
City of Coachella

After Recordation Return To
And Mail Tax Statements To:
City of Coachella
City Clerk
1515 6th Street
Coachella, CA. 92236

Attn: City Clerk

For Recorder's Office Use Only

CITY OF COACHELLA

WQMP Covenant and Agreement

Water Quality Management Plan and Urban Runoff BMP Transfer, Access and Maintenance Agreement.

Recorded at the request of:

City of ___COACHELLA_______________________________________

After recording, return to:

City of _COACHELLA_________________________

City Clerk ____

OWNER: ___HAAGEN COMPANY, LLC

PROPERTY ADDRESS: ___AIRPORT BOULEVARD

______COACHELLA, CA 92236________________

APN: _763-330-013, 763-330-018, 763-330-029

THIS AGREEMENT is made and entered into in

___________________________, California, this _______ day of __________________ ,

by and between HAAGEN COMPANY, LLC., herein after referred to as "Owner" and the CITY OF COACHELLA, a municipal corporation, located in the County of Riverside, State of California hereinafter referred to as "CITY";

WHEREAS, the Owner owns real property ("Property") in the City of Coachella, County of Riverside, State of California, legally described in Exhibit "A" and depicted in Exhibit "B", each of which exhibits is attached hereto and incorporated herein by this reference;

WHEREAS, at the time of initial approval of development project known as

COACHELLA AIRPORT BUSINESS PARK within the Property described herein, the City required the project to employ Best Management Practices, hereinafter referred to as "BMPs," to minimize pollutants in urban runoff;

WHEREAS, the Owner has chosen to install and/or implement Best Management Practices(BMPs) as described in the Water Quality Management Plan, on file with the City, hereinafter referred to as "WQMP", to minimize pollutants in urban runoff and to minimize other adverse impacts of urban runoff;

WHEREAS, said WQMP has been signed by the Owner and reviewed and approved by the City;

WHEREAS, said BMPs, with installation and/or implementation on private property and draining only private property, are part of a private facility with all maintenance, replacement obligations and therefore, the sole responsibility of the Owner in accordance with the terms of this Agreement;

WHEREAS, the Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of all BMPs in the WQMP and that, furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs;

NOW THEREFORE, it is mutually stipulated and agreed as follows:

1. Owner hereby provides the City or City's designee complete access, of any duration, to the BMPs and their immediate vicinity at any time, upon reasonable notice, or in the event of emergency, as determined by City's Director of Public Works no advance notice, for the purpose of inspection, sampling, testing of the BMPs, and in case of emergency, to undertake all necessary repairs or other preventative measures at Owner's expense as provided in paragraph 3 below. City shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

2. Owner shall use its best efforts diligently to maintain all BMPs in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the removal and extraction of any material(s) from the BMPs and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by the City, the Owner shall provide the City with documentation identifying the material(s) removed, the quantity, and disposal destination.

3. In the event the Owner, or its successors or assignees, fails to accomplish the necessary maintenance detailed by this Agreement, within five (5) days of being given written notice by the City, the City is hereby authorized to cause any maintenance necessary to be done and charge the entire cost and expense to the Owner or Owner's successors or assignees, including administrative costs, attorneys' fees and interest thereon at the maximum rate authorized by the Civil Code from the date of the notice of expense until paid in full.

4. The City may require the Owner to post security in form and for a time period satisfactory to the City to guarantee the performance of the obligations stated herein. Should the Owner fail to perform the obligations under the Agreement, the City may, in the case of a cash bond, act for the Owner using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement. As an additional remedy, the City's Public Works Director may withdraw any previous Urban Runoff-related approval with respect to the Property on which BMPs have been installed and/or implemented until such time as Owner repays to the City its reasonable costs incurred in accordance with paragraph 3 above.

5. This Agreement shall be recorded in the Office of the Recorder of Riverside County, California, at the expense of the Owner and shall constitute notice to all successors and assignees of the title to said Property of the obligations herein set forth, and also a lien in such amount as will fully reimburse the City, including interest as set forth above, subject to foreclosure in event of default in payment.

6. In event of legal action occasioned by any default or action of the Owner, or its successors or assignees, then the Owner and its successors or assignees agree(s) to pay all costs incurred by the City in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and that the same shall become a part of the lien against said Property.

7. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with said Property and constitute a lien there against.

8. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assignees of the parties hereto. The term "Owner" shall include not only the present Owner, but also its heirs, successors, executors, administrators, and assignees. Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the City at the same time such notice is provided to the successor.

9. Time is of the essence in the performance of this Agreement.

10. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

IF TO CITY:

CITY OF COACHELLA

1515 6TH STREET

COACHELLA, CA 92236

IF TO OWNER:

CHRISTOPHER FAHEY

HAAGEN COMPANY, LLC

12302 EXPOSITION BOULEVARD

LOS ANGELES, CA 90064

IN WITNESS THEREOF, the parties hereto have affixed their signatures as of the date first written above.

APPROVED AS TO FORM:

City Attorney

CITY OF COACHELLA

Name

Title

ATTEST:

City Clerk Date

OWNER:

CHRISTOPHER FAHEY
Name

CHIEF OPERATING OFFICER
Title

OWNER:

Name

Title

<u>EXHIBIT A</u>
<u>(Legal Description)</u>

BEING A PORTION OF THE SOUTHWEST QUARTER AND THE SOUTHEAST QUARTER OF SECTION 15, TOWNSHIP 6 SOUTH, RANGE 8 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXHIBIT B
(Map/Illustration)

Public Record

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.

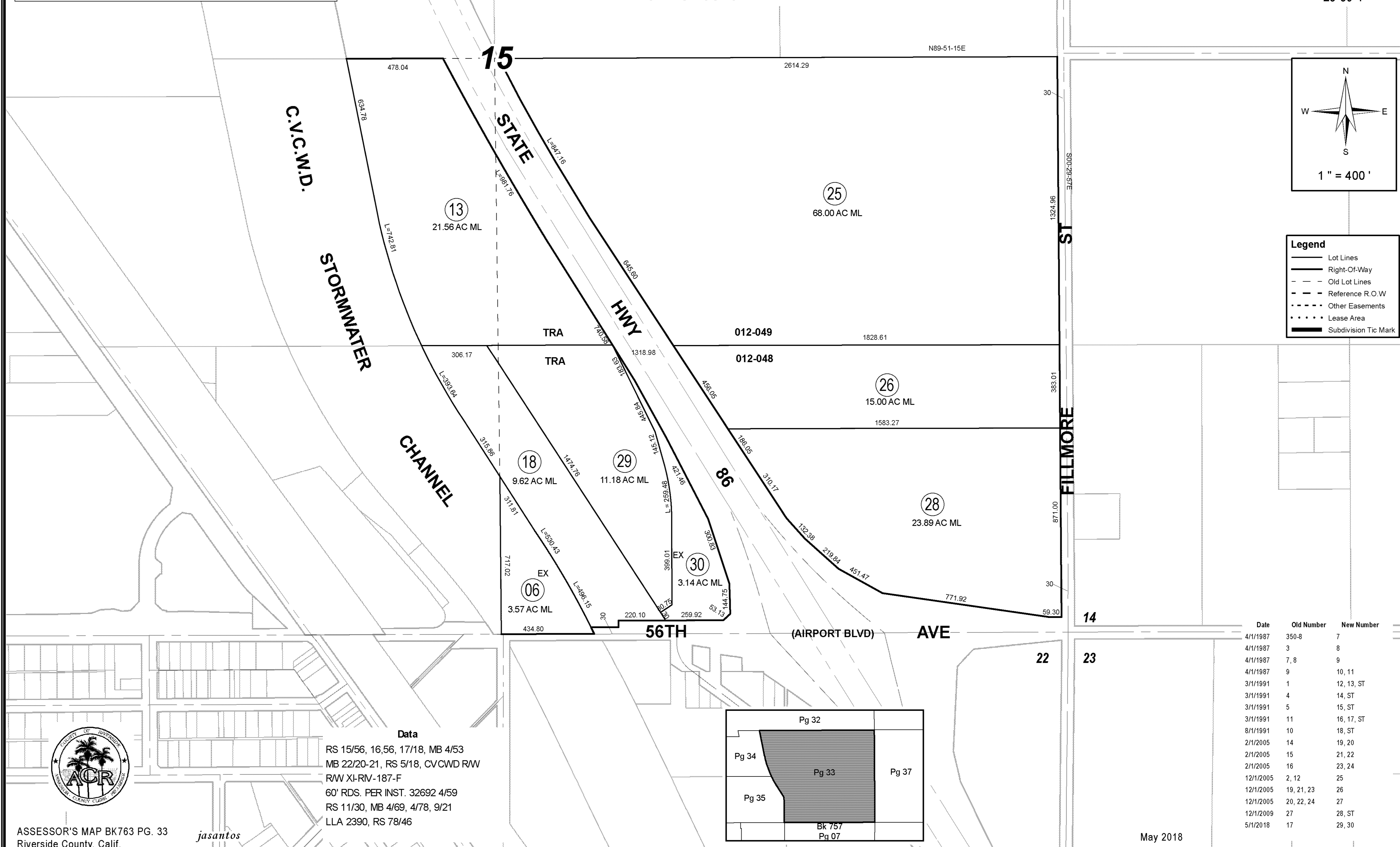
SEC. 15 T.6S, R.8E

CITY OF COACHELLA

TRA 012-048
012-049

763-33

25-39-1



Date	Old Number	New Number
4/1/1987	350-8	7
4/1/1987	3	8
4/1/1987	7, 8	9
4/1/1987	9	10, 11
3/1/1991	1	12, 13, ST
3/1/1991	4	14, ST
3/1/1991	5	15, ST
3/1/1991	11	16, 17, ST
8/1/1991	10	18, ST
2/1/2005	14	19, 20
2/1/2005	15	21, 22
2/1/2005	16	23, 24
12/1/2005	2, 12	25
12/1/2005	19, 21, 23	26
12/1/2005	20, 22, 24	27
12/1/2009	27	28, ST
5/1/2018	17	29, 30

Data

RS 15/56, 16,56, 17/18, MB 4/53
MB 22/20-21, RS 5/18, CVCWD R/W
R/W XI-RIV-187-F
60' RDS. PER INST. 32692 4/59
RS 11/30, MB 4/69, 4/78, 9/21
LLA 2390, RS 78/46

ASSESSOR'S MAP BK763 PG. 33
Riverside County, Calif.

jasantos

May 2018

Infiltration System
Inspection and Maintenance Checklist

Property Address: ____ Property Owner: __________________________

Treatment Measure No.: __________ Date of Inspection: _________ Type of Inspection: ☐ Monthly ☐ Pre-Wet Season
☐ After heavy runoff (1" or greater)
Inspector(s): __________________ ☐ End of Wet Season ☐ Other:__________

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Yes/No)	Comments (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)	Results Expected When Maintenance Is Performed
1. Standing Water	When water stands in the infiltration system between storms and does not drain within 3 days after rainfall.			There should be no areas of standing water once inflow has ceased. Any of the following may apply: sediment or trash blockages removed, improved grade from head to foot of infiltration system.
2. Trash and Debris Accumulation	Trash and debris accumulated in the infiltration system.			Trash and debris removed from infiltration system and disposed of properly.
3. Sediment	Evidence of sedimentation in system.			Material removed and disposed of properly so that there is no clogging or blockage.
4. Inlet/Outlet	Inlet/outlet areas clogged with sediment or debris, and/or eroded.			Material removed and disposed of properly so that there is no clogging or blockage in the inlet and outlet areas.
5. Overflow Spillway	Clogged with sediment or debris, and/or eroded.			Material removed and disposed of properly so that there is no clogging or blockage, and system is restored to design condition.
6. Miscellaneous	Any condition not covered above that needs attention in order for the infiltration system to function as designed.			Meet the design specifications.

Infiltration System Maintenance Plan
for

Routine Maintenance Activities

The principal maintenance objective is to prevent sediment buildup and clogging, which reduces pollutant removal efficiency and may lead to system failure. Routine maintenance activities, and the frequency at which they will be conducted, are shown in Table 1.

Table 1
Routine Maintenance Activities for Infiltration Systems

No.	Maintenance Task	Frequency of Task
1	Remove obstructions, debris and trash from infiltration system and dispose of properly. Drywells may cleaned by vacuuming the upper chamber with a vacuum truck.	Monthly, or as needed after storm events
2	Inspect system to ensure that it drains between storms, and within 3 days after rainfall. Check drywell/observation well 2-3 days after storm to confirm drainage.	Monthly during wet season, or as needed after storm events
3	For drywells, replace filter material (and screen if it is damaged). See City of Coachella Standard Drawing No. SD-4.2.	Monthly, or as needed after storm events
4	Monitor drywell/observation well to confirm that system has drained during dry season.	Annually, during dry season
5	Remove any trash, grass clippings and other debris in the streets, gutters or parking area, and near the system perimeter. Dispose of properly.	As needed
6	Inspect infiltration system using the inspection checklist.	Monthly, or after storm events 1” or greater, and after removal of accumulated debris or material

Mosquito Abatement

Standing water shall not remain in the treatment measures for more than three days, to prevent mosquito generation.

Inspections

The Infiltration System Inspection and Maintenance Checklist provided shall be used to conduct inspections monthly (or as needed), identify needed maintenance, and record maintenance that is conducted.

Appendix H

Phase 1 Environmental Site Assessment – Summary of Site Remediation Conducted and Use Restrictions

N/A

Appendix I

PROJECT-SPECIFIC WQMP SUMMARY DATA FORM

Project-Specific Preliminary WQMP Summary Data Form

Applicant Information	
Name and Title	Christopher Fahey – Chief Operating Officer
Company	Haagen Company, LLC
Phone	(310) 820-1200
Email	CFahey@Haagenco.com
Project Information	
Project Name (as shown on project application/project-specific WQMP)	Coachella Airport Business Park
Street Address	Noerthwesterly corner of Airport Boulevard at State Highway 86 Expressway
Nearest Cross Streets	State Highway 86 Expressway (to the East)
Municipality (City or Unincorporated County)	Coachella
Zip Code	92236
Tract Number(s) and/or Assessor Parcel Number(s)	763-330-013, 763-330-018, 763-330-029
Other (other information to help identify location of project)	

Indicate type of project.	**Priority Development Projects (Use an "X" in cell preceding project type):**	
		SF hillside residence; impervious area ≥ 10,000 sq. ft.; Slope ≥ 25%
		SF hillside residence; impervious area ≥ 10,000 sq. ft.; Slope ≥ 10% & erosive soils
	X	Commercial or Industrial ≥ 100,000 sq. ft.
		Automotive repair shop
		Retail Gasoline Outlet disturbing > 5,000 sq. ft.
		Restaurant disturbing > 5,000 sq. ft.
		Home subdivision ≥ 10 housing units
		Parking lot ≥ 5,000 sq. ft. or ≥ 25 parking spaces

Date Project-Specific Final WQMP Submitted	June 12, 2020
Size of Project Area (nearest 0.1 acre)	42.69 acres
Will the project replace more than 50% of the impervious surfaces on an existing developed site?	Yes
Project Area managed with LID/Site Design BMPs (nearest 0.1 acre)	42.69 acres
Are Treatment Control BMPs required?	No
Is the project subject to onsite retention by ordinance or policy?	Yes
Did the project meet the 100% LID/Site Design Measurable Goal?	Yes
Name of the entity that will implement, operate, and maintain the post-construction BMPs	Haagen Company, LLC
Contact Name	Christopher Fahey, Chief Operating Officer
Street or Mailing Address	12302 Exposition Boulevard
City	Los Angeles, CA
Zip Code	90064
Phone	(310) 820-1200

Space Below for Use by City/County Staff Only	
Preceding Information Verified by (consistent with information in project-specific WQMP)	**Name:** **Date:**
Date Project-Specific Final WQMP Approved:	
Data Entered by	**Name:** **Date:**

Other Comments	

Appendix I

Water Supply Assessment and Water Supply Verification

Water Supply Assessment and

Water Supply Verification

for the Proposed

Coachella Airport Business Park Project

Prepared for:

City of Coachella
Coachella Water Authority
1515 Sixth Street
Coachella, CA 92236

Prepared by:

MSA Consulting, Inc.
34200 Bob Hope Drive
Rancho Mirage, CA 92270

July 2022

Table of Contents

List of Figures 4

List of Tables 4

1 Summary and Requirements 5

1.1 Regulatory Requirements 5

1.1.1 Senate Bill 610 6

1.1.2 Senate Bill 221 6

1.1.3 Senate Bill 1262 7

1.2 Water Management Planning Documents 7

1.2.1 Urban Water Management Planning Act 7

1.2.2 Sustainable Groundwater Management Act 8

1.2.3 Groundwater Replenishment 9

2 Public Water System 11

2.1 Coachella Water Authority 11

2.1.2 Potable Water Distribution Systems 12

2.2 Coachella Valley Hydrology 13

3 Public Water System – Existing Supply and Demand 15

3.1 Groundwater 15

3.1.1 Coachella Valley Groundwater Basin 15

3.1.2 Groundwater Demand 17

3.1.3 Groundwater Sustainability 18

3.2 Imported Water 21

3.2.1 Colorado River Water 21

3.2.2 State Water Project 24

3.2.3 Other SWP Water 25

3.3 Surface Water 26

3.3.1 River/Stream Diversion 26

3.3.2 Stormwater Capture 26

3.4 Wastewater and Recycled Water 27

3.5 Conservation 28

3.6 Landscape Ordinance 28

3.7 Water Shortage Contingency Planning 29

4 Public Water System – Projected Supply and Demand 30

4.1 Projected Urban Demand and Supply 30
4.2 Normal, Single-Dry, Multiple-Dry Year Comparison 31
5 Project Description 34
6 Project Water Demands 37
6.1 Projected Indoor Residential Water Demand 37
6.2 Projected Indoor Commercial and Industrial Water Demand 37
6.3 Projected Outdoor Irrigation Water Demand 38
6.4 Projected Outdoor Water Features Demand 38
6.5 Projected Total Water Demand 39
6.6 Projected Water Sources 39
6.7 Conservation Measures 40
6.7.1 Desert Landscaping & Drought Tolerant Plants 40
7 Assessment and Verification – Availability of Sufficient Supplies 42
7.1 Water Supply Assessment 42
7.2 Water Supply Verification 42
8 References 43

List of Figures

Figure 2-1: Coachella Valley Water District Service Area 12
Figure 2-2: Coachella Valley Water District Domestic Water Distribution Systems 13
Figure 3-1: Coachella Valley Groundwater Basin and Subbasins 16
Figure 3-2: Historical Annual Change in Groundwater Storage in the Indio Subbasin 18
Figure 3-3: 10-Year Change in Groundwater Elevation from Water Year 2008-2009 through Water Year 2018-2019 in the Indio Subbasin 19
Figure 3-4: Historical Annual Change in Groundwater Storage in the Mission Creek Subbasin 20
Figure 3-5: 10-Year Change in Groundwater Elevation from Water Year 2008-2009 through Water Year 2018-2019 in the Mission Creek Subbasin 21
Figure 5-1: Project Regional Location Map 34
Figure 5-2: Project Vicinity Map 35
Figure 5-3: Project Site Plan 36

List of Tables

Table 2-1: Current and Projected Population for CVWD's Service Area 13
Table 2-2: Monthly Average Climate Data for Palm Springs 14
Table 2-3: Monthly Average Climate Data for Thermal 14
Table 3-1: Groundwater Storage in the Coachella Valley Groundwater Basin 17
Table 3-2: CVWD Groundwater Demand in the Coachella Valley Groundwater Basin 17
Table 3-3: CVWD Colorado River Entitlements (AFY) 23
Table 3-4: Colorado River Deliveries to CVWD at the Imperial Dam/Coachella Canal 24
Table 3-5: CVWD Groundwater Recharge of Colorado River Water 24
Table 3-6: State Water Project Table A Allocations 25
Table 3-7: CVWD and DWA Groundwater Recharge of State Water Project Exchange Water 25
Table 3-8: Wastewater Treated by CVWD 28
Table 3-9: Recycled Water Produced by CVWD 28
Table 3-10: Urban Water Shortage Contingency Plan Shortage Levels 29
Table 4-1: CWA Projected Demands for Potable and Raw Water 30
Table 4-2: CVWD Projected Urban Retail Demands 30
Table 4-3: CVWD Project Urban Water Supplies 31
Table 4-4: Normal Year Supply and Demand Comparison 31
Table 4-5: Single-Dry Year Supply and Demand Comparison 32
Table 4-6: Multiple-Dry Years Supply and Demand Comparison 33
Table 5-1: Project Land Use Summary 36
Table 6-1: Projected Indoor Commercial and Industrial Water Demand 38
Table 6-2: Projected Outdoor Irrigation Water Demand 38
Table 6-3: Projected Total Water Demand 39
Table 6-4: Projected Water Sources 39

1 Summary and Requirements

The environmental review of the Coachella Airport Business Park (Project) is being prepared in compliance with the California Environmental Quality Act (CEQA) process. The City of Coachella is the Lead Agency for the planning and environmental review of the proposed Project. The City of Coachella has identified the Coachella Water Authority (CWA) as the Public Water System (PWS) that will supply water for the proposed Project and has requested that CWA assist in preparing a Water Supply Assessment/Water Supply Verification (WSA/WSV) as part of the environmental review for the Project.

The Project is located in the eastern portion of the Coachella Valley within the City of Coachella, Riverside County. The Project proposes to develop approximately 42.36 acres of vacant land to include Large Warehouse with a Cooling Tower (135,340 SF), Large Warehouse with a Cooling Tower and Cannabis Cultivation (97,760 SF), Small Warehouse (96,000 SF), Small Business (81,000 SF), Brick Yard (76,800 SF), Self-Storage (133,900 SF), and Retail comprised of a Service Station/Mini Mart (4,000 SF) and Drive-Thru Fast Food Restaurant (4,650 SF). In total, the Project will have 245,274 square feet of outdoor landscaping, 971,824 square feet of impervious surfaces (driveways, parking, medians, etc.), 300,350 square feet of commercial uses, and 329,100 square feet of industrial uses.

This WSA/WSV determined that the total projected water demand for the Project is 104.67 AFY, or 2.47 acre-feet per acre. This WSA/WSV demonstrates that sufficient water supplies exist, or will exist based on current water planning assumptions, to meet the projected demands of the Project, in addition to current and future projected water demands within CWA's service area in normal, single-dry, and multiple-dry years over a 20-year projection. This WSA/WSV will be reviewed every five years, or in the event that the water planning assumptions have changed, until the Project completes construction to ensure it remains accurate and no significant changes to either the Project or available water supply has occurred. This WSA/WSV does not relieve the Project from complying with all applicable state, county, city, and local ordinances or regulations including the CVWD Landscape Ordinance, and indoor water use performance standards provided in the California Water Code (CWC).

1.1 Regulatory Requirements

This WSA/WSV provides an assessment and verification of the availability of sufficient water supplies during normal, single-dry, and multiple-dry years over a 20-year projection to meet the projected demands of the Project, in addition to existing and planned future water demands of CWA, as required by Senate Bill 610 (SB 610), SB 221, and SB 1262. This WSA/WSV also includes identification of existing water supply entitlements, water rights, water service contracts, or agreements relevant to the identified water supply for the Project and quantities of water received in prior years pursuant to those entitlements, rights, contracts, and agreements.

This WSA/WSV has been prepared in compliance with the requirements under SB 610, SB 221, and SB 1262 by MSA Consulting, Inc. in consultation with CWA and the City of Coachella. This

WSA/WSV does not relieve the Project from complying with all applicable state, county, city, and local ordinances or regulations, including the CVWD Landscape Ordinance and indoor water use performance standards provided in the California Water Code (CWC). This WSA/WSV will be reviewed every five years, or in the event that the water planning assumptions have changed, until the Project completes construction, to ensure it remains accurate and no significant changes to either the Project or available water supply has occurred. The Project applicant shall notify CWA when construction begins. If neither the Project applicant nor the Lead Agency contacts CWA within five years of approval of this WSA/WSV, it will be assumed that the Project no longer exists and the WSA/WSV provided by this document will become invalid.

1.1.1 Senate Bill 610

On January 1, 2002, Senate Bill 610 (SB 610) was enacted and codified in CWC Section 10910 et seq., requiring the preparation of a Water Supply Assessment (WSA) for certain new development projects. As stated in SB 610, the purpose of a WSA is to determine whether the PWS's "total projected water supplies available during normal, single-dry, and multiple-dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the PWS's existing and planned future uses, including agricultural and manufacturing uses."

CWC Section 10912 defines a "project" as any of the following:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park, planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor space;
- A mixed-use project that includes one or more of the projects specified in this subdivision; or
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project (about 250 acre-feet per year).

The intent of SB 610 is to improve the link between information on water supply availability and certain land-use decisions made by cities and counties.

1.1.2 Senate Bill 221

On January 1, 2002, Senate Bill 221 (SB 221) was enacted and amended Section 11010 of the Business and Professional Code. SB 221 also amended Section 65867.5 to add Section 66455.3

and 66473.7 to the Government Code. SB 221 establishes the relationship between the WSA prepared for a project and project approval under the Subdivision Map Act. Pursuant to CWC Section 66473.7, the PWS must provide a written verification of sufficient water supply prior to the approval of a new subdivision. SB 221 states that "a Water Supply Verification (WSV) is required prior to approval of a tentative subdivision map, or a parcel map for which a tentative map is not required, or a development agreement for a subdivision of property of more than 500 dwelling units, except as specified, including the design of the subdivision or similar type of improvement."

1.1.3 Senate Bill 1262

On January 1, 2017, Senate Bill 1262 (SB 1262) was enacted and amended CWC Section 10910, requiring that information regarding the Sustainable Groundwater Management Act (SGMA) be included in a WSA if the water supply for a proposed project includes groundwater from a basin that is not adjudicated and was designated medium- or high-priority by the California Department of Water Resources (DWR).

1.2 Water Management Planning Documents

CVWD has prepared long-term planning documents to better manage the water supplies within its service area. These planning documents can be used for compliance with SB 610, SB 221, and SB 1262, and are discussed in further detail in the following sections.

1.2.1 Urban Water Management Planning Act

The Urban Water Management Planning Act (UWMPA) was established by Assembly Bill 797 (AB 797) on September 21, 1983, and passage of this law recognized that water is a limited resource and that efficient water use and conservation would be actively pursued throughout the State. The UWMPA requires that municipal water suppliers providing either directly or indirectly to more than 3,000 customers or supplying more the 3,000 acre-feet per year (AFY), prepare and adopt an Urban Water Management Plan (UWMP) every five years which defines their current and future water use, source of supply, source reliability, and existing conservation measures.

1.2.1.1 Coachella Water Authority Urban Water Management Plan

CWA is required to prepare an Urban Water Management Plan (UWMP) every five years in response to the requirements of the UWMP Act and Water Conservation Act of 2009 (SBx7-7). CWA prepared and adopted its 2010 and 2015 UWMP to document CWA's projected water demands and plans for delivering water supplies to its water service area during normal, single-dry, and multiple-dry years over a 20-year projection.

The six urban water suppliers in the Coachella Valley (CWA, Coachella Valley Water District (CVWD), Desert Water Agency (DWA), Indio Water Authority (IWA), Mission Springs Water District (MSWD), and Myoma Dunes Mutual Water Company) collaboratively prepared the 2020 Coachella Valley Regional UWMP, including regional and individual agency content and other necessary elements as set forth in DWR's 2020 UWMP Guidebook. The 2020 Coachella Valley Regional UWMP was submitted to DWR on July 1, 2021.

1.2.2 Sustainable Groundwater Management Act

In September 2014, Governor Brown signed three bills into law: Assembly Bill 1739, Senate Bill 1319, and Senate Bill 1168, which became collectively known as the Sustainable Groundwater Management Act (SGMA), creating a framework for sustainable, local groundwater management for the first time in California history. DWR evaluated and prioritized the 515 groundwater basins identified in Bulletin 118, and 94 of these groundwater basins were designated as high- or medium-priority basins, as of December 2019, requiring them to be sustainably managed within 20 years. SGMA required local authorities to form local Groundwater Sustainability Agencies (GSAs) by June 30, 2017, to evaluate conditions in their local groundwater basins and adopt locally-based Groundwater Sustainability Plans (GSPs), or Alternatives to a GSP (Alternative Plans), tailored to their regional economic and environmental needs.

As defined by DWR, the subbasins of the Coachella Valley Groundwater Basin are the Indio, Mission Creek, San Gorgonio Pass, and Desert Hot Springs Subbasins. CWA produces all of its water supplies from the Indio Subbasin, specifically the East Whitewater River Subbasin. The Indio Subbasin has been designated medium-priority by DWR and is subject to the requirements of SGMA. The Project is located within the Indio Subbasin, which has been designated as a medium-priority groundwater basin by DWR under SGMA.

1.2.2.1 Alternative Plan for the Indio Subbasin

Twenty years before the adoption of SGMA, CVWD began the development of the initial water management plan for the Coachella Valley in 1994 after recognizing the need to sustainably manage the Coachella Valley Groundwater Basin. The original planning document is the 2002 Coachella Valley Water Management Plan (CVWMP). The 2002 CVWMP was updated in 2010 and adopted in 2012.

CVWD, DWA, CWA, and IWA, are the Indio Subbasin GSAs designated by DWR for their respective service areas. On December 29, 2016, CVWD, DWA, CWA, and IWA collaboratively submitted the 2010 CVWMP Update as an Alternative Plan for the Indio Subbasin, with an associated Bridge Document and supporting documents, to DWR for review and evaluation. On July 17, 2019, DWR determined that the Alternative Plan for the Indio Subbasin satisfies the objectives of SGMA and notified the Indio Subbasin GSAs that the Alternative Plan was approved, and that they would be required to submit an assessment and update of the Alternative Plan pursuant to the SGMA by January 1, 2022 and every five years thereafter. The 2022 Alternative Plan Update for the Indio Subbasin was submitted to DWR on December 29, 2021.

On February 1, 2018, DWR notified all GSAs who submitted Alternative Plans that they would be required to submit annual reports pursuant to SGMA by April 1, 2018 and every year thereafter. CVWD, DWA, CWA, and IWA have collaboratively prepared and submitted the Indio Subbasin Annual Reports for Water Years 2016-2017 through 2020-2021.

1.2.2.2 Alternative Plan for the Mission Creek Subbasin

In 2004, CVWD, DWA, and MSWD reached an agreement and created the Mission Creek Subbasin Management Committee (Management Committee). The Management Committee jointly prepared the 2013 Mission Creek-Garnet Hill Subbasin Water Management Plan (2013 MC-GH WMP).

On December 29, 2016, CVWD, DWA, and MSWD collaboratively submitted the 2013 MC-GH WMP as an Alternative Plan for the Mission Creek Subbasin, with an associated Bridge Document and supporting documents, to DWR for review and evaluation. On July 17, 2019, DWR determined that the Alternative Plan for the Mission Creek Subbasin satisfies the objectives of SGMA and notified the Management Committee that the Alternative Plan was approved, and that they would be required to submit an assessment and update of the Alternative Plan pursuant to SGMA by January 1, 2022 and every five years thereafter. The 2022 Alternative Plan Update for the Mission Creek Subbasin was submitted to DWR on December 30, 2021.

On February 1, 2018, DWR notified all GSAs who submitted Alternative Plans that they would be required to submit annual reports pursuant to SGMA by April 1, 2018 and every year thereafter. CVWD, DWA, and MSWD have collaboratively prepared and submitted the Mission Creek Subbasin Annual Reports for Water Years 2016-2017 through 2020-2021.

1.2.3 Groundwater Replenishment

State Water Code (SWC) 31630-31639 provides CVWD with the authority to levy and collect water replenishment assessments to implement groundwater replenishment programs (GRPs) within its jurisdictional boundary. Groundwater replenishment is necessary to mitigate overdraft of the groundwater basin and associated undesirable results. The jurisdictional areas that benefit from the GRPs, and where CVWD levies replenishment assessments on groundwater production, are termed Areas of Benefit (AOBs). There are three AOBs within CVWD's boundary: the Mission Creek Subbasin AOB, the West Whitewater River Subbasin AOB, and the East Whitewater River Subbasin AOB. The GRP for the West Whitewater River Subbasin AOB was formed in 1976, the GRP for the Mission Creek Subbasin AOB was formed in 2003, and the GRP for the East Whitewater River Subbasin AOB was formed in 2004. The Project is located within the East Whitewater River Subbasin AOB.

1.2.3.1 Annual Engineer's Reports

CVWD is required to prepare and present to its Board of Directors annually an Engineer's Report on Water Supply and Replenishment Assessment on the conditions of the groundwater supplies and recommend Replenishment Assessment Charges (RACs) to be levied upon groundwater production greater than 25 AFY within each AOB in accordance with SWC 31630-31639. The Engineer's Report must include the following information: a summary of the conditions of groundwater supplies; the need for replenishment; a description of the replenishment programs, including the source and amount of replenishment waters, the costs associated with the GRP, the areas directly and indirectly benefited by the GRP, and the amount of groundwater produced in each area during the prior year; and a recommendation for the RAC to be levied on each AOB. The 2021-2022 Engineer's Report on Water Supply and Replenishment Assessment was prepared and presented to CVWD's Board of Directors on April 27, 2021.

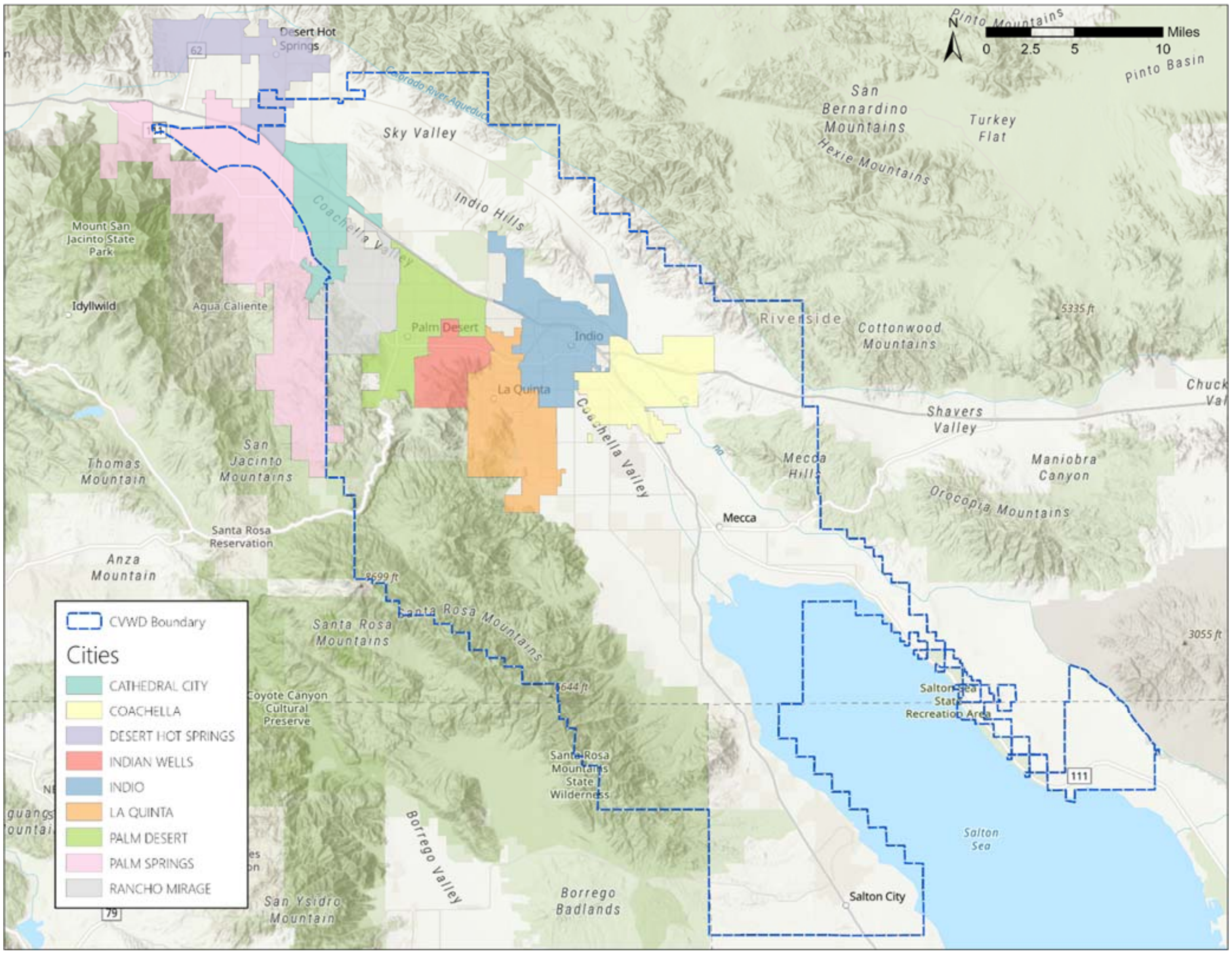
2 Public Water System

The City of Coachella is the Lead Agency for the planning and environmental review of the proposed Coachella Airport Business Park (Project). The City of Coachella has identified the Coachella Water Authority (CWA) as the Public Water System (PWS) that will supply water for the proposed Project and has requested that CWA assist in preparing a Water Supply Assessment/Water Supply Verification (WSA/WSV) as part of the environmental review for the Project.

2.1 Coachella Water Authority

CWA was established in 1957 and is administered and managed by the Utilities General Manager under direct supervision of the City Manager. The City of Coachella provides the following water-related services: domestic water delivery, wastewater collection and reclamation, local drainage control, and water conservation. In addition, the City manages the Coachella Sanitary District that operates a 4.5 MGD secondary treatment wastewater facility. While CWA is responsible for the water supply for its residents, the City pays a replenishment charge to Coachella Valley Water District (CVWD). CVWD's boundary encompasses approximately 640,000 acres as shown in **Figure 2-1**, mostly within Riverside County, but also extending into northern Imperial and San Diego Counties. CWA's water service area lies within the City's boundaries, serving the more densely populated areas to the west and commercial/resort areas to the north. The service area covers approximately 32 percent of the City Limits with a total area of approximately 10 square miles.

Figure 2-1: Coachella Valley Water District Boundary and Cities



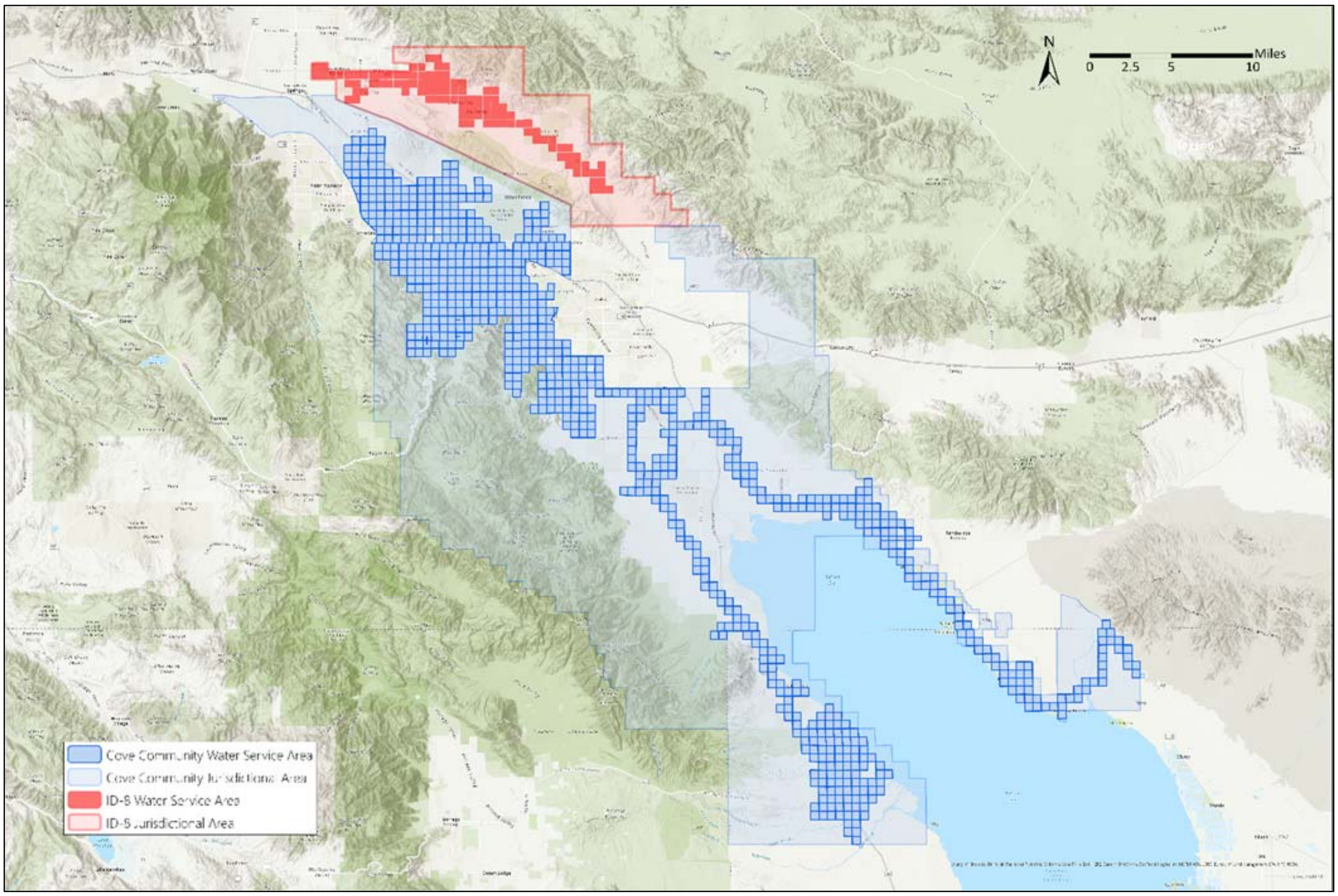
2.1.2 Potable Water Distribution Systems

CVWD has two domestic water service areas that serve potable water to its local communities: the Cove Communities system and Improvement District No. 8 (ID-8) as shown in **Figure 2-2**. CVWD previously had three water systems, but ID-11 was consolidated into the Cove Communities system in March 2021. CVWD had approximately 112,609 domestic water connections and served approximately 93,648 acre-feet (AF) of water in 2021. CWA increased water connections from 6,823 to 8,037 for an increase of 17.7% from 2005 to 2015. However, between 2010 and 2015 the increase was only 1.8 percent, likely a result of the economic downturn. Since 2005, total single-family residential water services connections increased from 80.6 percent to 88.1 percent.

CVWD serves all of the Cities of Rancho Mirage, Thousand Palms, Palm Desert, Indian Wells, and La Quinta, and a portion of Indio, Coachella, and Cathedral City. Other areas served with domestic water within the CVWD boundary include a portion of lands near Desert Hot Springs and the Indio

Hills. CVWD also serves other unincorporated communities including Thermal, Mecca, Oasis, Desert Shores, Salton Sea Beach, Salton City, North Shore, Bombay Beach, Hot Mineral Springs, and other portions of unincorporated Riverside and Imperial Counties. The Project is located within CVWD's Cove Community domestic water distribution system.

Figure 2-2: Coachella Valley Water District Domestic Water Service Areas



The 2020 Regional UMWP projected that population in CVWD's urban water service area would increase as shown in **Table 2-1**.

Table 2-1: Current and Projected Population for CVWD's Service Area

	2020	2025	2030	2035	2040	2045
Population Served	268,952	292,077	315,202	338,274	360,813	383,300

Source: 2020 Coachella Valley Regional Urban Water Management Plan

2.2 Coachella Valley Hydrology

The bulk of natural groundwater replenishment comes from runoff from the adjacent mountains. Climate in the Coachella Valley is characterized by low humidity, high summer temperatures, and mild dry winters. Average annual precipitation varies from 3 to 6 inches of rain on the Coachella

Valley floor to more than 30 inches in the surrounding mountains. Most of the precipitation occurs between December and February, except for summer thundershowers. Prevailing winds in the area are usually gentle, but occasionally increase to velocities as high as 30 miles per hour or more. Mid-summer temperatures commonly exceed 100 degrees Fahrenheit (°F), frequently reach 110 °F, and periodically reach or exceed 120 °F, and the average winter temperature is approximately 60 °F as shown in **Table 2-2** and **Table 2-3**.

Table 2-2: Monthly Average Climate Data for Palm Springs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Max (°F)[1]	71	73	80	86	94	104	108	107	102	90	78	69	89
Min (°F)[1]	47	49	54	59	65	73	80	79	74	64	53	46	62
Rain (in)[1]	0.95	0.92	0.36	0.10	0.02	0.00	0.25	0.14	0.20	0.20	0.26	0.70	3.80
ETo (in)[2]	2.5	3.4	5.6	7.1	8.3	8.7	8.1	7.5	6.2	4.7	2.9	2.2	67.2

Source: 2020 Coachella Valley Regional Urban Water Management Plan

[1] National Weather Service Forecast, Station Palm Springs Airport, 1998-2020

[2] CIMIS Station 208 – La Quinta II, 2007-2020

Table 2-3: Monthly Average Climate Data for Thermal

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Max (°F) [1]	71	74	81	87	95	103	107	106	101	91	79	69	89
Min (°F) [1]	39	43	49	55	63	69	76	75	68	57	45	38	56
Rain (in)[1]	0.64	0.61	0.34	0.08	0.01	0.01	0.13	0.12	0.32	0.19	0.17	0.34	2.96
ETo (in) [2]	2.7	3.9	6.4	8.0	9.3	9.3	9.6	9.1	7.1	5.3	3.2	2.4	70.2

Source: 2020 Coachella Valley Regional Urban Water Management Plan

[1] National Weather Service Forecast, Station Desert Resorts Regional Airport, 1990-2020

[2] CIMIS Station 218 – Thermal South, 2010-2020

3 Public Water System – Existing Supply and Demand

Currently, all of Coachella Water Authority's (CWA's) urban potable water uses are supplied using groundwater from the East Whitewater River Subbasin, which is continually replenished by CVWD. In addition to groundwater, CVWD has imported water supplies from the State Water Project (SWP) and the Colorado River, and recycled water from water reclamation plants. These imported and recycled water supplies are used to meet CVWD's non-potable water demands and to replenish the groundwater basin.

3.1 Groundwater

Groundwater is the principal source of potable supply in the Coachella Valley and CWA obtains water from the East Whitewater River Subbasin of the Coachella Valley Groundwater Basin. CVWD has statutory authority to replenish local groundwater supplies and collect assessments necessary to support a groundwater replenishment program as provided in the County Water District Law (California Water Code section 30000, et seq.) and as a Groundwater Sustainability Agency (GSA) under the Sustainable Groundwater Management Act (SGMA). CVWD obtains groundwater from both the Indio and Mission Creek Subbasins of the Coachella Valley Groundwater Basin.

Groundwater, to be supplied to the Project, is also used by other domestic water suppliers and private pumpers for crop irrigation, fish farms, duck clubs, golf course irrigation, greenhouses, and industrial uses in the Coachella Valley.

3.1.1 Coachella Valley Groundwater Basin

The Coachella Valley Groundwater Basin is bounded on the north and east by the San Bernardino and Little San Bernardino Mountains, on the south and west by the Santa Rosa and San Jacinto Mountains, and on the south by the Salton Sea. At the west end of the San Gorgonio Pass, between Beaumont and Banning, the basin boundary is defined by a surface drainage divide separating the Coachella Valley Groundwater Basin from the Beaumont Groundwater Basin of the Upper Santa Ana Drainage Area.

The southern boundary is formed primarily by the watershed of the Mecca Hills and by the northwest shoreline of the Salton Sea running between the Santa Rosa Mountains and Mortmar. Between the Salton Sea and Travertine Rock, at the base of the Santa Rosa Mountains, the southern boundary crosses the Riverside County Line into Imperial and San Diego Counties.

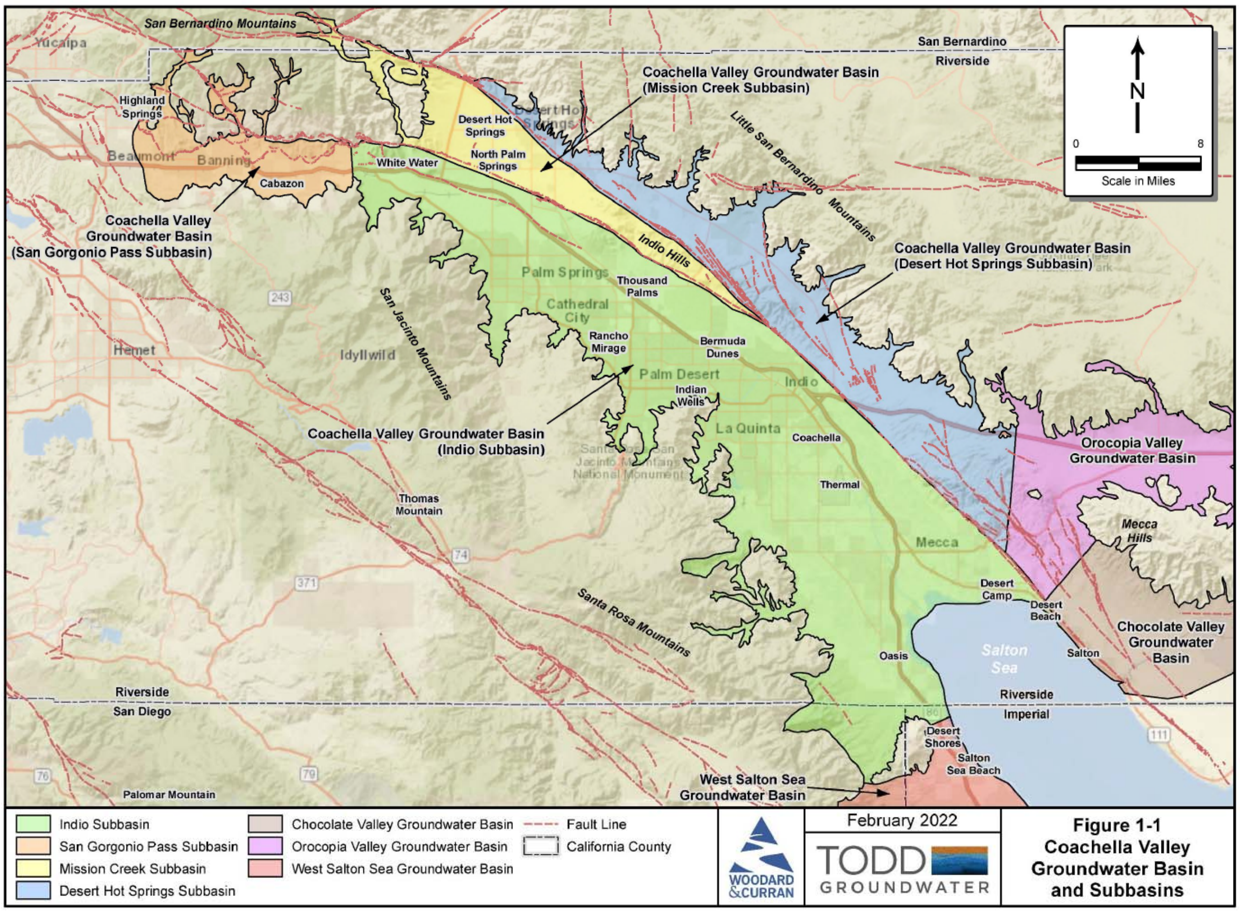
Although there is interflow of groundwater throughout the Coachella Valley Groundwater Basin, fault barriers, constrictions in the basin profile, and areas of low permeability limit and control movement of groundwater. Based on these factors, the Coachella Valley Groundwater Basin has been divided into subbasins and subareas as described by DWR in 1964 and 2003, and by the United States Geological Survey (USGS) in 1974.

3.1.1.1 Coachella Valley Groundwater Basin – Subbasins

As shown on **Figure 3-1,** the subbasins of the Coachella Valley Groundwater Basin are the Indio, Mission Creek, San Gorgonio Pass, and Desert Hot Springs Subbasins. The subbasins are defined without regard to water quantity or quality. They delineate areas underlain by formations which readily yield stored groundwater through water wells and offer natural reservoirs for the regulation of water supplies.

The boundaries between subbasins within the Coachella Valley Groundwater Basin are generally defined by faults that impede the lateral movement of groundwater. Minor subareas have also been delineated based on one or more of the following geologic or hydrologic characteristics: types of water-bearing formations, water quality, areas of confined groundwater, forebay areas, groundwater divides, and surface drainage divides.

Figure 3-1: Coachella Valley Groundwater Basin and Subbasins



Source: Indio Subbasin Annual Report for Water Year 2020-2021

The following is a list of the subbasins in the Coachella Valley Groundwater Basin as designated by DWR in Bulletin 118:

- Indio Subbasin (Subbasin 7-21.01)

- Mission Creek Subbasin (Subbasin 7-21.02)
- San Gorgonio Pass Subbasin (Subbasin 7-21.03)
- Desert Hot Springs Subbasin (Subbasin 7-21.04)

DWR designated the Indio, Mission Creek, and San Gorgonio Pass Subbasins as medium-priority, and the Desert Hot Springs Subbasin as very low priority. None of the subbasins are adjudicated or in a state of overdraft.

In 1964, DWR estimated that the subbasins in the Coachella Valley Groundwater Basin contained approximately 39,200,000 acre-feet (AF) of water in the first 1,000 feet below the groundwater surface. The capacities of the subbasins are shown in **Table 3-1**.

Table 3-1: Groundwater Storage in the Coachella Valley Groundwater Basin

Subbasin/Subarea	Storage (AF) [1]
Indio Subbasin	
Palm Springs Subarea	4,600,000
Thousand Palms Subarea	1,800,000
Oasis Subarea	3,000,000
Garnet Hill Subarea	1,000,000
Thermal Subarea	19,400,000
Indio Subbasin Subtotal	**29,800,000**
Mission Creek Subbasin	2,600,000
San Gorgonio Subbasin	2,700,000
Desert Hot Springs Subbasin	4,100,000
Total	**39,200,000**

Source: DWR Bulletin 108 (1964)

[1] First 1,000 feet below ground surface. (DWR, 1964)

3.1.2 Groundwater Demand

Groundwater is the principal source of potable supply in the Coachella Valley and CWA obtains groundwater from the East Whitewater River Subbasin of the Coachella Valley Groundwater Basin, which is continually replenished by CVWD. CVWD obtains groundwater from both the Indio and Mission Creek Subbasins of the Coachella Valley Groundwater Basin. CVWD‘s groundwater demand in the Coachella Valley Groundwater Basin for 2017 through 2021 is shown in **Table 3-2**.

Table 3-2: CVWD Groundwater Demand in the Coachella Valley Groundwater Basin

Groundwater Production (AF)	2017	2018	2019	2020	2021
Indio Subbasin	93,798	96,176	93,130	96,661	98,484
Mission Creek Subbasin	2,917	2,786	2,642	3,182	3,062
Total	**96,715**	**98,962**	**95,772**	**99,843**	**101,546**

3.1.3 Groundwater Sustainability

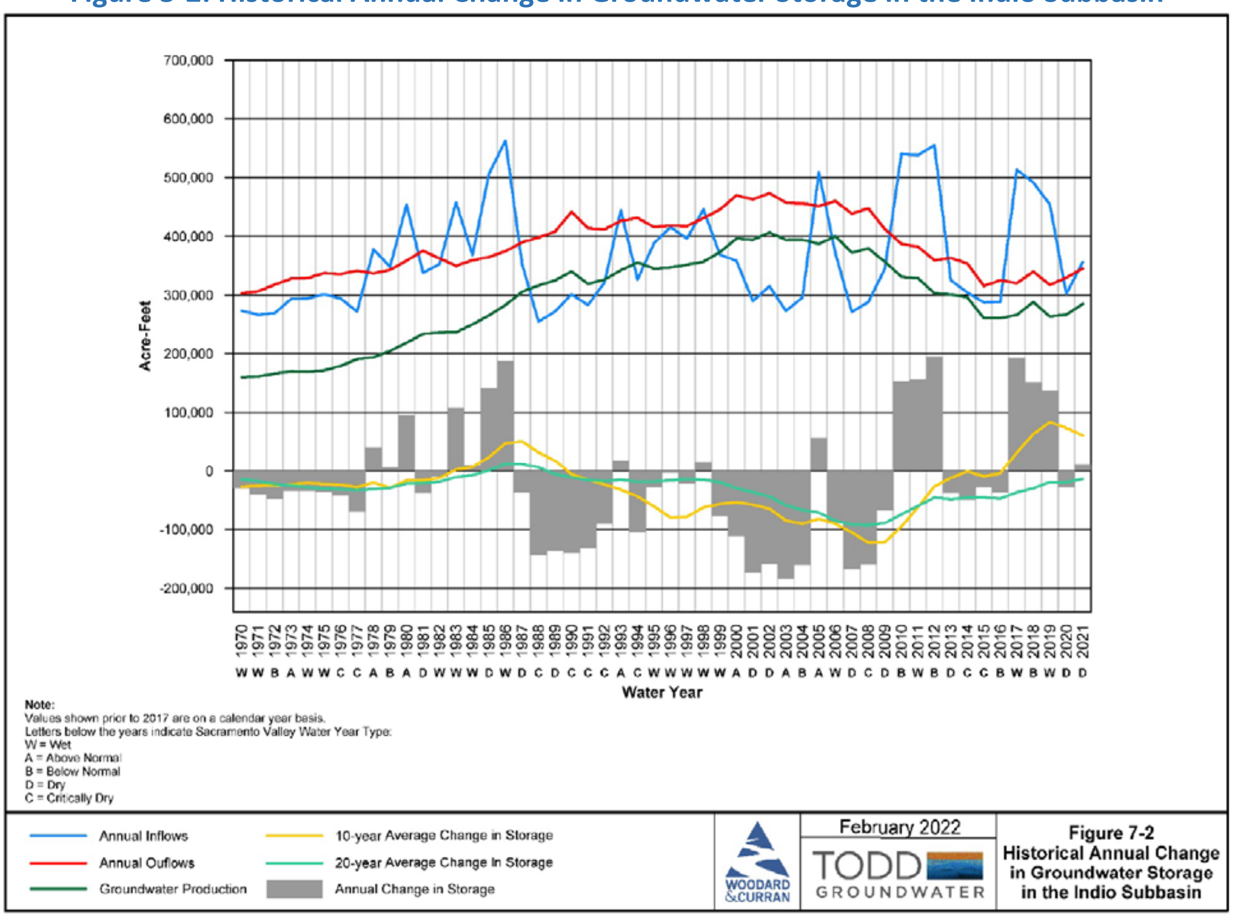
Long-term sustainability is typically assessed based on changes in groundwater storage over a historical period on the order of ten to twenty years that includes wet and dry periods.

3.1.3.1 Indio Subbasin

Figure 3-2 shows the historical annual change in groundwater storage from 1970 through Water Year (WY) 2020-2021 in the Indio Subbasin. The figure also shows annual inflows, outflows, groundwater production, and 10-year and 20-year running-average change in groundwater storage. During periods of high artificial recharge, the change in storage tends to be positive. In dry years or periods of high groundwater pumping, the change in storage is often negative.

As shown in **Figure 3-2**, annual inflows to the Indio Subbasin are highly variable with years of high inflows corresponding to wet years when SWP delivery volumes were greater. Higher inflows in the mid-1980s occurred when the Metropolitan Water District of Southern California (MWD) commenced large-scale advanced water deliveries to the Indio Subbasin. After an extended period of decline, both the 10-year and 20-year running-average change in storage have shown upward trends since 2009, and the 10-year running-average has been positive since 2017.

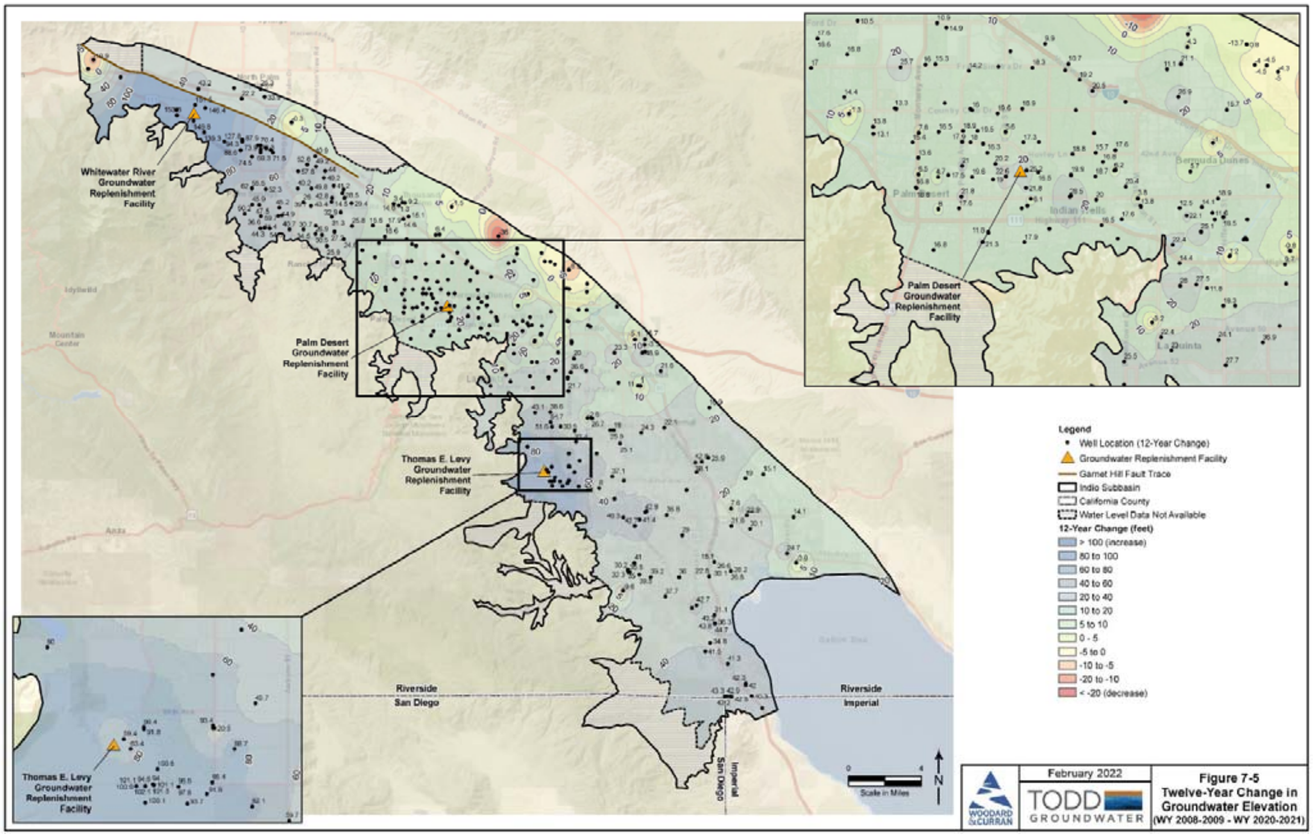
Figure 3-2: Historical Annual Change in Groundwater Storage in the Indio Subbasin



Source: Indio Subbasin Annual Report for Water Year 2020-2021

As shown in **Figure 3-3**, groundwater levels have increased significantly in the Indio Subbasin from WY 2008-2009 to WY 2020-2021. The 2022 Indio Subbasin Alternative Plan Update uses 2009 water levels as a metric of sustainability because historical low groundwater levels occurred in the years around 2009 throughout most of the Indio Subbasin. The Indio Subbasin shows a long-term positive trend in sustainability resulting from implementation of the Alternative Plan.

Figure 3-3: 12-Year Change in Groundwater Elevation from Water Year 2008-2009 through Water Year 2020-2021 in the Indio Subbasin



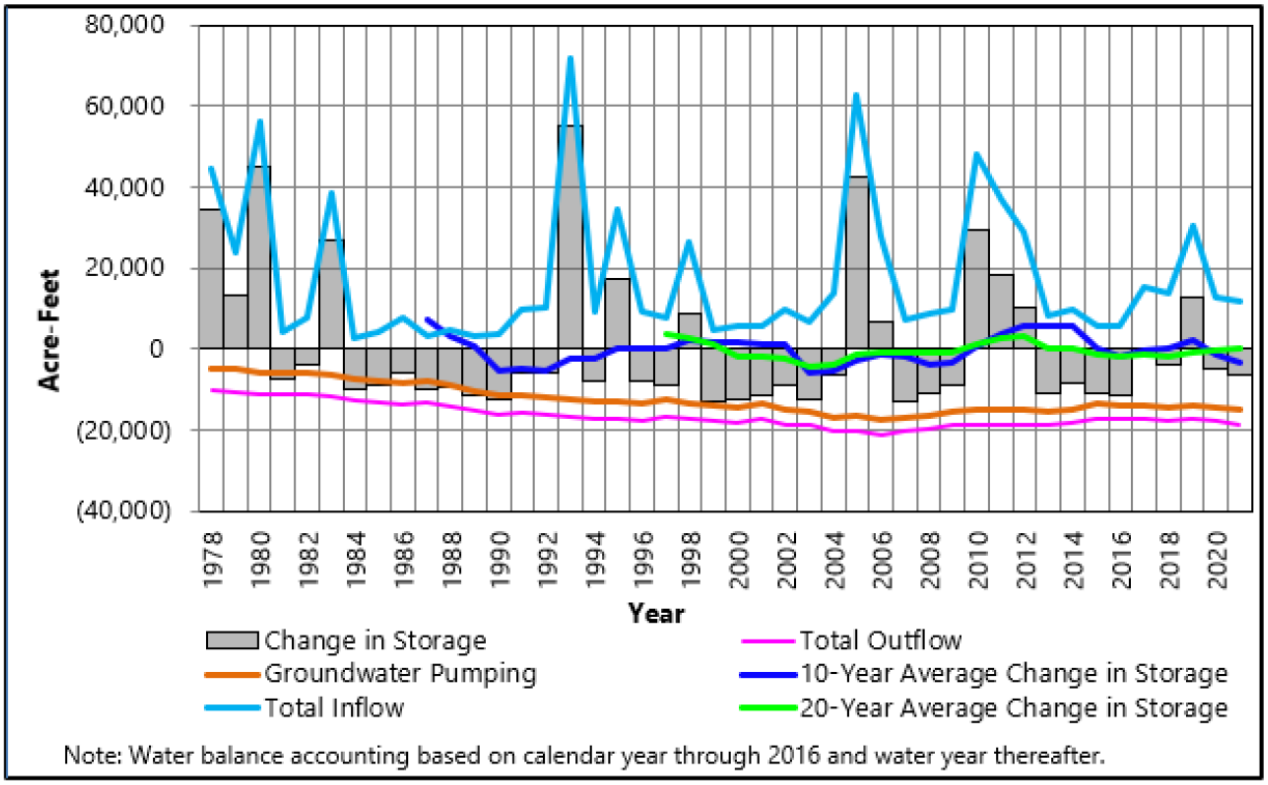
Source: Indio Subbasin Annual Report for Water Year 2020-2021

3.1.3.2 Mission Creek Subbasin

Figure 3-4 shows the historical annual change in groundwater storage from 1978 through WY 2019-2020 in the Mission Creek Subbasin. The figure also shows annual inflows, outflows, groundwater production, and 10-year and 20-year running-average change in groundwater storage. During periods of high artificial recharge, the change in storage tends to be positive. In dry years or periods of high groundwater pumping, the change in storage is often negative.

As shown in **Figure 3-4**, after a period of decline, starting in 2004 both the 10-year and 20-year running-average change in groundwater storage have shown upward trends. Annual inflows to the Mission Creek Subbasin are highly variable with years of high inflows corresponding to years when SWP delivery volumes were greater. The 20-year running-average change in storage shows that the Mission Creek Subbasin has been in balance since 2012.

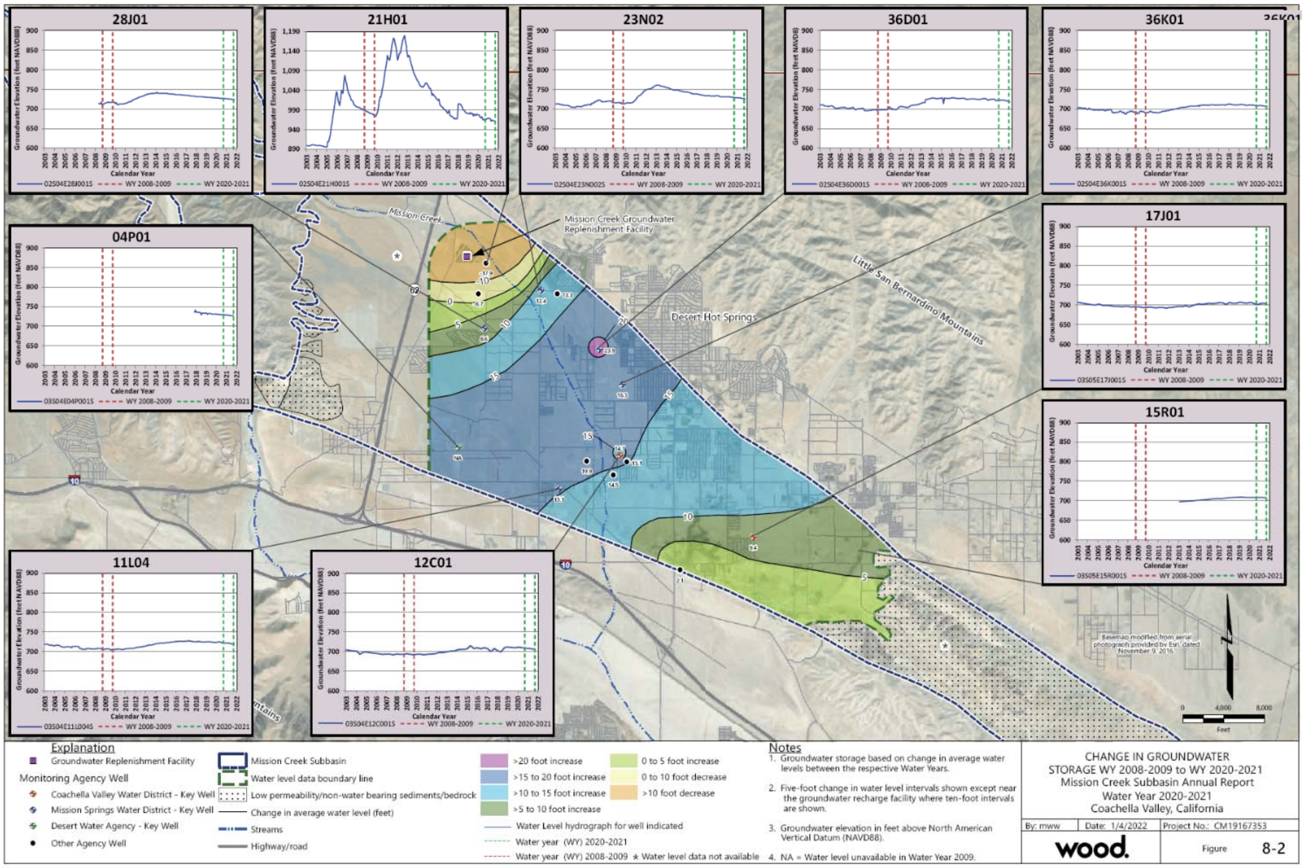
Figure 3-4: Historical Annual Change in Groundwater Storage in the Mission Creek Subbasin



Source: Mission Creek Subbasin Annual Report for Water Year 2020-2021

Groundwater levels have increased significantly in the Mission Creek Subbasin over the past 10 years from WY 2008-2009 to WY 2020-2021 as shown in **Figure 3-5**. The 2022 Mission Creek Subbasin Alternative Plan Update uses 2009 water levels as a metric of sustainability because historical low groundwater levels occurred in the years around 2009 throughout most of the Mission Creek Subbasin. The Mission Creek Subbasin shows a long-term positive trend in sustainability resulting from implementation of the Alternative Plan.

Figure 3-5: 12-Year Change in Groundwater Elevation from Water Year 2010-2011 through Water Year 2020-2021 in the Mission Creek Subbasin



Source: Mission Creek Subbasin Annual Report for Water Year 2020-2021

3.2 Imported Water

The East Whitewater River Subbasin is regionally managed by CVWD, CWA, and IWA. CVWD has statutory authority to replenish local groundwater supplies and collect assessments necessary to support a groundwater replenishment program as provided in the Country Water District Law. CVWD has two sources of imported water available: Colorado River water delivered via the Coachella Canal and SWP water exchanged for Colorado River water delivered through the Colorado River Aqueduct. These imported water sources are used to recharge the groundwater basin and as an alternative to meet non-potable demands from irrigation of agriculture, golf, and urban uses that would have otherwise been met by pumping groundwater. In the future, if urban demand significantly increases, Colorado River water may be treated and delivered directly to customers through CVWD's potable water distribution system.

3.2.1 Colorado River Water

Colorado River water has been a significant water supply source for the Indio Subbasin since the Coachella Canal was completed in 1949. CVWD is the only agency in the Indio Subbasin that receives Colorado River water allocations. The Colorado River is managed and operated in accordance with the Law of the River, a collection of interstate compacts, federal and state legislation, various agreements and contracts, an international treaty, a U.S. Supreme Court decree, and federal administrative actions that govern the rights to use Colorado River water within the seven Colorado River Basin states. The 1922 Colorado River Compact apportioned the waters of the Colorado River Basin between the Upper Colorado River Basin (i.e., Colorado, Wyoming, Utah, and New Mexico) and the Lower Basin (i.e., Nevada, Arizona, and California). The 1922 Colorado River Compact allocates 15 million AFY of Colorado River water as follows: 7.5 million AFY to the Upper Basin and 7.5 million AFY to the Lower Basin, plus up to 1 million AFY of surplus supplies. The Lower Basin's water was further apportioned among the three Lower Basin states by the 1928 Boulder Canyon Project Act and the 1931 Boulder Canyon Project Agreement, typically called the 1931 Seven Party Agreement, which allocates California's apportionment of Colorado River water among Palo Verde Irrigation District, Imperial Irrigation District (IID), CVWD, Metropolitan Water District of Southern California (MWD), City of Los Angeles, City of San Diego, and County of San Diego. The 1964 U.S. Supreme Court decree in Arizona v. California established Arizona's basic annual apportionment at 2.8 million AFY, California's at 4.4 million AFY, and Nevada's at 0.3 million AFY. Mexico is entitled to 1.5 million AFY of the Colorado River under the 1944 United States-Mexico Treaty for Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande. However, this treaty did not specify a required quality for water entering Mexico. In 1973, the United States and Mexico signed Minute No. 242 of the International Boundary and Water Commission requiring certain water quality standards for water entering Mexico. California's Colorado River supply is protected by the 1968 Colorado River Basin Project Act, which provides that in years of insufficient supply on the main stem of the Colorado River, supplies to the Central Arizona Project shall be reduced to zero before California will be reduced below 4.4 million AF in any year. This assures full supplies to the Coachella Valley, except in periods of extreme drought.

The Coachella Canal is a branch of the All-American Canal that brings Colorado River water into the Imperial and Coachella Valleys. Under the 1931 Seven Party Agreement, CVWD receives

330,000 AFY of Priority 3A Colorado River water diverted from the All-American Canal at the Imperial Dam. The Coachella Canal originates at Drop 1 on the All-American Canal and extends approximately 123 miles, terminating in CVWD's Lake Cahuilla. The service area for Colorado River water delivery under CVWD's contract with the U.S. Bureau of Reclamation (USBR) is defined as Improvement District No. 1 (ID-1), which encompasses 136,400 acres covering most of the East Valley and a portion of the West Valley north of Interstate 10. Under the 1931 Seven Party Agreement, CVWD has water rights to Colorado River water as part of the first 3.85 million AFY allocated to California. CVWD is in the third priority position along with IID.

In 2003, CVWD, IID, and MWD successfully negotiated the 2003 Quantification Settlement Agreement (2003 QSA), which quantifies Colorado River allocations through 2077 and supports the transfer of water between agencies. Under the 2003 QSA, CVWD has a base entitlement of 330,000 AFY. CVWD negotiated water transfer agreements with MWD and IID that increased CVWD supplies by an additional 123,000 AFY. CVWD's net QSA supply will increase to 424,000

AFY by 2026 and remain at that level until 2047, decreasing to 421,000 AFY until 2077, when the agreement terminates. As of 2021, CVWD's available Colorado River water diversions at Imperial Dam under the QSA were 399,000 AFY. This includes the base entitlement of 330,000 AFY, the MWD/IID Transfer of 20,000 AFY, IID/CVWD First Transfer of 50,000 AFY, and IID/CVWD Second Transfer of 28,000 AFY. CVWD's QSA diversions also deducts the -26,000 AFY transferred to San Diego County Water Authority (SDCWA) as part of the Coachella Canal Lining Project and the -3,000 AFY transfer to Indian Present Perfected Rights. Additionally, under the 2003 QSA, MWD transferred 35,000 AFY of its State Water Project (SWP) Table A Amount to CVWD. This SWP water is exchanged for Colorado River water and can be delivered at Imperial Dam for delivery via the Coachella Canal to the eastern portion of the Indio Subbasin or at Lake Havasu for delivery via the Colorado River Aqueduct to the western portion of the Indio Subbasin at the Whitewater River Groundwater Replenishment Facility (WWR-GRF). The 2019 Second Amendment guaranteed delivery of the 35,000 AFY from 2019 to 2026, for a total of 280,000 AFY of water to the WWR-GRF during that timeframe. MWD can deliver the water through CVWD's Whitewater Service Connections (for recharge at WWR-GRF) or via the Advance Delivery account.

The MWD/IID Transfer originated in a 1989 agreement with MWD to receive 20,000 AF of its Colorado River supply. The 2019 Amended and Restated Agreement for Exchange and Advance Delivery of Water defined the exchange and delivery terms between MWD, CVWD, and DWA. The 2019 Second Amendment to Delivery and Exchange Agreement reduced CVWD's annual delivery of the MWD/IID Transfer to 15,000 AFY, for a total of 105,000 AF, if taken at the Whitewater Service Connections (for recharge at WWR-GRF) between 2020 and 2026. For those seven years, MWD keeps the remaining 5,000 AFY, after which CVWD's allocation increases back up to 20,000 AFY. CVWD's total allocations under the QSA, including MWD's transfer of 35,000 AFY and the MWD/IID Transfer, will increase from 424,000 AFY in 2020 to 459,000 AFY by 2026 and remain at that level for the remainder of the 75-year term of the QSA. **Table 3-3** lists total Colorado River entitlements under existing agreements.

Table 3-3: CVWD Colorado River Entitlements (AFY)

Diversion	2020	2025	2030	2035	2040	2045
Base Entitlement	330,000	330,000	330,000	330,000	330,000	330,000
1988 MWD/IID Approval Agreement	20,000	20,000	20,000	20,000	20,000	20,000
IID/CVWD First Transfer	50,000	50,000	50,000	50,000	50,000	50,000
IID/CVWD Second Transfer[1]	23,000	48,000	53,000	53,000	53,000	53,000
Coachella Canal Lining	-26,000	-26,000	-26,000	-26,000	-26,000	-26,000
Indian Present Perfected Rights Transfer	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000
QSA Diversions	**394,000**	**419,000**	**424,000**	**424,000**	**424,000**	**424,000**
MWD SWP Transfer[2]	35,000	35,000	35,000	35,000	35,000	35,000
Total Diversions	**429,000**	**454,000**	**459,000**	**459,000**	**459,000**	**459,000**
Assumed Conveyance Losses (5%)	-21,200	-22,700	-22,950	-22,950	-22,950	-22,950
MWD/IID Approval Agreement Transfer[3]	-5,000	-5,000	0	0	0	0
Total Available Deliveries	**402,800**	**426,300**	**436,050**	**436,050**	**436,050**	**436,050**

Source: 2022 Alternative Plan Update for the Indio Subbasin

[1] The Second IID/CVWD Transfer began in 2018 with 13,000 AF of water. This amount increases annually by 5,000 AFY for a total of 53,000 AFY in 2026.

[2] The 35,000 AFY MWD/CVWD SWP Transfer may be delivered at either Imperial Dam or Whitewater River and is not subject to SWP or Colorado River reliability.

[3] Accounts for -5,000 AFY reduction in MWD/IID Approval Agreement deliveries from 2020-2026 per the 2019 Amendments with MWD.

The Colorado River deliveries to CVWD at the Imperial Dam/Coachella Canal from 2017 through 2021 are shown in **Table 3-4.**

Table 3-4: Colorado River Deliveries to CVWD at the Imperial Dam/Coachella Canal

Diversions (AF)	2017	2018	2019	2020	2021
Imperial Dam/Coachella Canal	335,321	338,035	343,971	350,618	357,543

Source: U.S. Bureau of Reclamation, Lower Colorado Region, Colorado River Accounting and Water Use Reports for Arizona, California, and Nevada. 2021 data is provisional.

CVWD's recharge volumes of Colorado River water from 2017 through 2021 are shown in **Table 3-5**.

Table 3-5: CVWD Groundwater Recharge of Colorado River Water

Groundwater Recharge (AF)	2017	2018	2019	2020	2021
Thomas E. Levy GRF	34,614	33,348	36,143	37,536	37,971
Palm Desert GRF	0	0	7,757	9,700	10,633
Total	**34,614**	**33,348**	**43,900**	**47,236**	**48,604**

Source: 2022-2023 CVWD Annual Engineer's Reports on Water Supply and Replenishment Assessment

3.2.2 State Water Project

The SWP is managed by DWR and includes 705 miles of aqueduct and conveyance facilities extending from Lake Oroville in Northern California to Lake Perris in Southern California. The SWP has contracts to deliver 4.172 million AFY to the State Water Contractors. The State Water Contractors consist of 29 public entities with long-term contracts with DWR for all, or a portion of, their water supply needs. In 1962 and 1963, DWA and CVWD, respectively, entered contracts with the State of California for a total of 61,200 AFY of SWP water. SWP water has been an important component of the region's water supply mix since CVWD and DWA began receiving and recharging SWP exchange water at the WWR-GRF. Starting in 1973, CVWD and DWA began exchanging their SWP water with MWD for Colorado River water delivered via MWD's Colorado River Aqueduct. Because CVWD and DWA do not have a physical connection to SWP conveyance facilities, MWD takes delivery of CVWD's and DWA's SWP water, and in exchange, delivers an equal amount of Colorado River water to the Whitewater Service Connections (for recharge at WWR-GRF and Mission Creek Groundwater Replenishment Facility). The exchange agreement was most recently re-established in the 2019 Amended and Restated Agreement for Exchange and Advance Delivery of Water.

Each SWP contract contains a "Table A" exhibit that defines the maximum annual amount of water each contractor can receive excluding certain interruptible deliveries. DWR uses Table A amounts to allocate available SWP supplies and some SWP project costs among the contractors. Each year, DWR determines the amount of water available for delivery to SWP contractors based on hydrology, reservoir storage, the requirements of water rights licenses and permits, water quality, and environmental requirements for protected species in the Sacramento-San Joaquin River Delta (Delta). The available supply is then allocated according to each SWP contractor's Table A amount.

CVWD's and DWA's collective increments of Table A water are listed in Table **3-6**. Original Table A SWP water allocations for CVWD and DWA were 23,100 AFY and 38,100 AFY, respectively, for a combined amount of 61,200 AFY. CVWD and DWA obtained a combined 100,000 AFY transfer from MWD under the 2003 Exchange Agreement. In 2004, CVWD purchased an additional 9,900 AFY of SWP Table A water from the Tulare Lake Basin Water Storage District (Tulare Lake Basin) in Kings County. In 2007, CVWD and DWA made a second purchase of Table A SWP water from Tulare Lake Basin totaling 7,000 AFY. In 2007, CVWD and DWA also completed the transfer of 16,000 AFY of Table A Amounts from the Berrenda Mesa Water District in Kern County. These latter two transfers became effective in January 2010. With these additional transfers, the total SWP Table A Amount for CVWD and DWA is 194,100 AFY. **Table 3-7** shows the recharge of SWP Exchange Water from 2017 through 2021.

Table 3-6: State Water Project Table A Allocations

	Original SWP Table A (AFY)	Tulare Lake Basin 2004 Transfer (AFY)	Metropolitan Water District 2003 Transfer (AFY)	Tulare Lake Basin 2007 Transfer (AFY)	Berrenda Mesa 2007 Transfer (AFY)	Total (AFY)
CVWD	23,100	9,900	88,100	5,250	12,000	138,350
DWA	38,100	0	11,900	1,750	4,000	55,750
Total	**61,200**	**9,900**	**100,000**	**7,000**	**16,000**	**194,100**

Source: 2020 Coachella Valley Regional Urban Water Management Plan

Table 3-7: CVWD and DWA Groundwater Recharge of State Water Project Exchange Water

Groundwater Recharge (AF)	2017	2018	2019	2020	2021
Whitewater River GRF	385,994	129,725	235,600	126,487	15,006
Mission Creek GRF	9,248	2,027	3,688	1,768	0
Total	**395,242**	**131,752**	**239,288**	**128,255**	**15,006**

Source: CVWD 2022-2023 Annual Engineer's Reports on Water Supply and Replenishment Assessment

3.2.3 Other SWP Water

There are other types of SWP water that can be purchased, such as individual water purchase opportunities and transfers/exchanges. These may be conveyed to CVWD and DWA as available, but no commitments exist.

In 2008, CVWD and DWA entered into separate agreements with DWR for the purchase and conveyance of supplemental SWP water under the Yuba River Accord Dry Year Water Purchase Program (Yuba Accord). This program provides dry year supplies through a water purchase agreement between DWR and Yuba County Water Agency, which settled long-standing operational and environmental issues over instream flow requirements for the lower Yuba River. The amount of water available for purchase varies annually and is allocated among participating SWP contractors based on their Table A amounts. CVWD and DWA may purchase up to 1.72 percent and 0.69 percent, respectively, of available Yuba Accord water, in years it is made available. Yuba Accord deliveries have varied from zero in multiple years to a total of 2,664 AFY to CVWD and DWA in 2013.

Article 21 water (described in Article 21 of the SWP water contracts), “Interruptible Water,” is water that State Water Contractors may receive on a short-term basis in addition to their Table A water if they request it in years when it is available. Article 21 water is used by many contractors to help meet demands in low allocation years. Article 21 water is not available every year, amounts vary when it is available, and is proportionately allocated among participating Contractors. The availability and delivery of Article 21 water cannot interfere with normal SWP operations and cannot be carried over for delivery in a subsequent year.

3.3 Surface Water

CWA does not use self-supplied surface water as part of its water supply. However, that could change in the future and will be further evaluated at that time. CVWD does not currently use or intend to use any local surface water as part of its urban potable water supply. Local runoff is captured and used for groundwater recharge.

3.3.1 River/Stream Diversion

Surface water supplies come from several local rivers and streams including the Whitewater River, Snow Creek, Falls Creek, and Chino Creek, as well as a number of smaller creeks and washes. Because surface water supplies are affected by variations in annual precipitation, the annual supply is highly variable. The 50-year hydrologic period from 1970 to 2019 had an annual average watershed runoff of 52,506 AFY, with approximately 43,300 AFY in natural infiltration. Runoff during the 25-year period from 1995 to 2019 was below average, with 39,196 AFY in watershed runoff and 29,200 AFY in natural infiltration. Neither CWA nor CVWD currently use or intend to use any local surface water as part of its urban potable water supply. Local runoff is captured and used for groundwater recharge.

3.3.2 Stormwater Capture

The Coachella Valley drainage area is approximately 65 percent mountainous and 35 percent typical desert valley with alluvial fan topography buffering the valley floor from the steep mountain slopes. The mean annual precipitation ranges from 30 inches or more in the San Bernardino Mountains to less than 3 inches at the Salton Sea. Three types of storms produce precipitation in the drainage area: general winter storms, general thunderstorms, and local thunderstorms. Longer duration, lower intensity rainfall events tend to have higher recharge rates, but runoff from flash flooding can result from all three types of storms. Otherwise, there is little to no flow in most of the streams in the drainage area.

Significant amounts of local runoff are currently captured at the Whitewater River GRF and in the debris basins and unlined channels of the western Coachella Valley. Additional stormwater will be captured when the Thousand Palms Flood Control Project is completed and when flood control is constructed in the Oasis area. However, limited data exists to estimate the amount of additional stormwater that could be captured by new facilities in the Coachella Valley. Nonetheless, large-scale stormwater capture is not expected to yield sufficient water to be worth the investment as a single purpose project. Small-scale stormwater retention systems located in areas of suitable geology to allow percolation could capture small intensity storms as well as street runoff. The potential yield of these system is not known at this time, but stormwater capture should are considered in conjunction with projects that construct stormwater and flood control facilities.

3.4 Wastewater and Recycled Water

Wastewater that has been highly treated and disinfected can be reused for landscape irrigation and other purposes. Recycled wastewater has historically been used for irrigation of golf courses and municipal landscaping in the Coachella Valley since as early as the 1960s. As growth occurs in the eastern Coachella Valley, the supply of recycled water is expected to increase, creating an additional opportunity to maximize local water supply.

The City of Coachella manages the Coachella Sanitary District that operates a 4.5 MGD secondary treatment wastewater facility. In addition, the City also plans to develop a recycled water system in the future and is currently participating in a recycled water feasibility study spearheaded by the Coachella Valley Regional Water Management Group (CVRWMG) as part of the Coachella Valley Integrated Regional Water Management (IRWM) Plan. The Coachella Water Reclamation Facility has a 4.5 MGD capacity and current average daily discharge of 2.7 MGD. The plant is a full secondary treatment facility with oxidation ditches for denitrification. Waste activated sludge is sent to drying beds for dewatering and then hauled away to landfill for alternate daily cover material.

Additionally, CVWD operates five water reclamation plants (WRPs), two of them (WRP-7 and WRP-10) generate recycled water for irrigation of golf courses and large landscaped areas. WRP-4 became operational in 1986 and serves the communities from La Quinta to Mecca. WRP-4 effluent is not currently recycled, however, it will be in the future when the demand for recycled water is developed, and tertiary treatment is constructed. The other two WRPs serve communities near the Salton Sea. A sixth WRP (WRP-9) was decommissioned in July 2015. The wastewater treated by CVWD from 2016 through 2020 is shown in **Table 3-8**. **Table 3-9** shows the recycled water produced by CVWD from 2016 through 2020. CVWD will continue to expand its recycled water program by connecting additional recycled water customers to meet the non-potable water demands in the western and eastern portions of the Coachella Valley.

Table 3-8: Wastewater Treated by CVWD

Wastewater (AF)	2017	2018	2019	2020	2021
WRP-1	19	19	16	18	24
WRP-2	13	12	16	13	15
WRP-4	5,695	5,900	6,065	6,353	6,452
WRP-7	3,124	3,275	3,246	3,236	3,287
WRP-10	9,710	10,124	9,663	9,238	8,980
Total	**18,561**	**19,330**	**19,006**	**18,858**	**18,758**

Table 3-9: Recycled Water Produced by CVWD

Recycled Water (AF)	2017	2018	2019	2020	2021
WRP-7	1,267	2,246	1,657	1,936	2,136
WRP-10	4,702	7,857	7,100	7,521	7,285
Total	**5,969**	**10,103**	**8,757**	**9,457**	**9,421**

3.5 Conservation

Water conservation, and the reduced groundwater production associated with water conservation, benefits the groundwater basin and is an important element of the Alternative Plans and the 2015 CWA UWMP.

CWA participates in several ongoing water conservation measures, basin-wide recharge plan with CVWD through replenishment assessment charge (RAC) and has a water shortage contingency plan to put into action as appropriate to reduce the demand during critical drought years. CWA has many programs to maximize the water resources available to CWA, including but not limited to recharge of the basin using Colorado River and SWP supplies, direct use and recharge of recycled water, desalinated agricultural drain water, conversion of groundwater uses to Canal water. CWA also implements comprehensive water conservation practices such as tiered water rates, landscaping ordinances, outreach, and education.

3.6 Landscape Ordinance

The City of Coachella worked with the Coachella Valley Association of Governments and adopted the Coachella Valley "Model Landscape Ordinance" as a policy document. The CVWD Valley-wide Landscape Ordinance 1302.5 requires a series of reduction methods, including requirements that new developments install weather-based irrigation controllers that automatically adjust watering. Additional requirements include setbacks of spray emitters from impervious surfaces, as well as use of porous rock and gravel buffers between grass and curbs to eliminate run-off onto streets. With the exception of turf, all landscaping including groundcover and shrubbery must be irrigated with a drip system. Also, the maximum water allowance for landscaped areas through the CVWD service area has been reduced. This reduction goal requires that developers maximize the use of native and other drought-tolerant landscape materials and minimize use of more water-intensive landscape features, including turf and fountains.

3.7 Water Shortage Contingency Planning

Based on the experiences from the 2013-2015 drought, CVWD's domestic Water Shortage Contingency Plan provides the shortage levels summarized in **Table 4-9**. The trigger levels used to determine the water shortage level depend on the local water situation or applicable State mandates. CVWD has a diverse mix of water supplies and benefits from a large groundwater basin providing storage. CVWD's groundwater replenishment program replenishes the basin to increase groundwater storage during wet years and that supply is available for use during dry years.

Table 3-10: Urban Water Shortage Contingency Plan Shortage Levels

Shortage Level	Shortage Range	Water Supply Condition
1	Up to 10%	Normal water supplies
2	Up to 20%	Slightly limited water supplies
3	Up to 30%	Moderately limited water supplies
4	Up to 40%	Limited water supplies
5	Up to 50%	Significantly limited water supplies
6	Up to 60%	Severe shortage or catastrophic incident

Source: 2020 CVWD Water Shortage Contingency Plan

4 Public Water System – Projected Supply and Demand

Coachella Water Authority (CWA) projects that water use for the City will generally increase at a similar rate to that of the projected population increase within the City and its sphere of influence (SOI). Coachella Valley Water District (CVWD) projects that a majority of its urban potable water uses will continue to be supplied from local groundwater. In addition to groundwater, CVWD has secured imported water supplies from the State Water Project (SWP) and the Colorado River, and recycled water from water reclamation plants. These imported and recycled water supplies are used to meet CVWD's non-potable water demands and to replenish the groundwater basin.

4.1 Projected Urban Demand and Supply

The following table from the 2015 CWA's Urban Water Management Plan (UWMP) provides the CWA's future water demand projections by water use sector over the next 20 years. 2015 Urban Water Management Plan (UWMP) provide CWA's projected water supplies and demands. Potable water demand projections for the CWA service area are summarized in **Table 4-1**.

Table 4-1: CWA Projected Demands for Potable and Raw Water

	Projected Water Use			
Use Type	**2020**	**2025**	**2030**	**2035**
Single Family	2,335	2,983	3,812	4,871
Multi-Family	399	510	652	833
Commercial	565	722	923	1,180
Industrial	6	8	10	13
Landscape	341	435	556	711
Other	40	51	65	83
Losses	386	494	631	806
Total	**4,072**	**5,203**	**6,649**	**8,496**
NOTES: Units are Million Gallons (MG)				

Source: 2015 Coachella Water Authority Urban Water Management Plan

The following tables from the 2020 Regional Urban Water Management Plan (Regional UWMP) provide the CVWD's projected water supplies and demands. Potable water demand projections for the CVWD service area are summarized in **Table 4-2**.

Table 4-2: CVWD Projected Urban Retail Demands

	Projected Water Use				
Use Type	**2025**	**2030**	**2035**	**2040**	**2045**
Single Family	60,142	63,824	67,331	69,816	71,695
Multi-Family	6,873	7,245	7,742	8,267	9,045
CII	7,060	7,244	7,438	7,709	7,985
Landscape	34,193	36,205	38,226	39,865	41,516
Other	1,457	1,563	1,670	1,755	1,840
Losses	13,736	14,501	15,222	15,670	16,085
Total	**123,461**	**130,582**	**137,629**	**143,081**	**148,166**

Source: 2020 Coachella Valley Regional Urban Water Management Plan

A summary of existing and planned urban water supply volumes by source are presented in **Table 4-3**. It should be noted that the supplies and demands presented in the tables below include recycled water delivered to CVWD's non-potable customers based on the DWR standardized tables and 2020 UWMP Guidebook. DWR requires the supply reliability table to include both potable and recycled water, however, CVWD's recycled water is not a potable water supply and is not delivered to CVWD's potable water customers. Instead, recycled water is used to offset the groundwater pumping of private well owners (mainly for golf course and landscape irrigation) to eliminate overdraft.

These projections were based on 2010 U.S. Census Data, DWR's Population Tool, the Southern California Association of Governments' (SCAG) 2020 Connect SoCal Regional Transportation Plan, and seasonal occupancy data from the Greater Palm Springs Convention and Visitors Bureau.

Table 4-3: CVWD Projected Urban Water Supplies

# Water Supply	Projected Water Supply (AFY)				
	2025	2030	2035	2040	2045
Groundwater	123,461	130,582	137,629	143,081	148,166
Recycled Water	13,600	14,400	15,100	15,900	16,800
Total	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**

Source: 2020 Coachella Valley Regional Urban Water Management Plan

4.2 Normal, Single-Dry, Multiple-Dry Year Comparison

The following tables from the 2020 Regional UWMP provide CVWD's projected water supplies and demands in a normal year, single-dry year, and multiple-dry years.

During normal years, CVWD will be able to meet current and future urban water demand needs projected in the 2020 Regional UWMP through groundwater pumping and recycled water as shown in **Table 4-4**.

Table 4-4: Normal Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
Groundwater	123,461	130,582	137,629	143,081	148,166
Recycled Water	13,600	14,400	15,100	15,900	16,800
Demand Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
Potable Water Demand	123,461	130,582	137,629	143,081	148,166
Recycled Water Demand	13,600	14,400	15,100	15,900	16,800
Difference	**0**	**0**	**0**	**0**	**0**

Source: 2020 Regional Urban Water Management Plan
Note: CVWD and the other Regional UWMP agencies collaborate on groundwater management plans for long-term sustainability. During a normal year, single-dry year, or five-dry year period, the agencies could produce additional groundwater if demands exceeded the estimates shown here.

During single-dry years, CVWD will be able to meet current and future urban water demand needs through groundwater pumping and recycled water as shown in **Table 4-5**. Water supplies during the single-dry year are 100 percent reliable. CVWD's groundwater replenishment program replenishes the basin to increase groundwater storage during wet years and that supply is available for use during dry years. Thus, the supply and demand comparison for the single-dry year is the same as the normal year.

Table 4-5: Single-Dry Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
Groundwater	123,461	130,582	137,629	143,081	148,166
Recycled Water	13,600	14,400	15,100	15,900	16,800
Demand Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
Potable Water Demand	123,461	130,582	137,629	143,081	148,166
Recycled Water Demand	13,600	14,400	15,100	15,900	16,800
Difference	**0**	**0**	**0**	**0**	**0**

Source: 2020 Regional Urban Water Management Plan
Note: CVWD and the other Regional UWMP agencies collaborate on groundwater management plans for long-term sustainability. During a normal year, single-dry year, or five-dry year period, the agencies could produce additional groundwater if demands exceeded the estimates shown here.

During multiple-dry years, CVWD will be able to meet current and future urban water demand needs through groundwater pumping and recycled water as shown in **Table 4-6**. Similar to the single-dry year, the multiple-dry year water supply reliability is 100 percent. Thus, the supply and demand comparison for the multiple-dry years is the same as the normal year. CVWD and the other Regional UWMP agencies collaborate on groundwater management plans for long-term sustainability. During a normal year, single-dry year, or five-dry year period, the agencies could produce additional groundwater if demands exceeded the estimates shown here.

Table 4-6: Multiple-Dry Years Supply and Demand Comparison

		2025	2030	2035	2040	2045
First Year	**Supply Totals (AFY)**	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Groundwater	123,461	130,582	137,629	143,081	148,166
	Recycled Water	13,600	14,400	15,100	15,900	16,800
	Demand Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Potable Water Demand	123,461	130,582	137,629	143,081	148,166
	Recycled Water Demand	13,600	14,400	15,100	15,900	16,800
	Difference	**0**	**0**	**0**	**0**	**0**
Second Year	**Supply Totals (AFY)**	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Groundwater	123,461	130,582	137,629	143,081	148,166
	Recycled Water	13,600	14,400	15,100	15,900	16,800
	Demand Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Potable Water Demand	123,461	130,582	137,629	143,081	148,166
	Recycled Water Demand	13,600	14,400	15,100	15,900	16,800
	Difference	**0**	**0**	**0**	**0**	**0**
Third Year	**Supply Totals (AFY)**	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Groundwater	123,461	130,582	137,629	143,081	148,166
	Recycled Water	13,600	14,400	15,100	15,900	16,800
	Demand Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Potable Water Demand	123,461	130,582	137,629	143,081	148,166
	Recycled Water Demand	13,600	14,400	15,100	15,900	16,800
	Difference	**0**	**0**	**0**	**0**	**0**
Fourth Year	**Supply Totals (AFY)**	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Groundwater	123,461	130,582	137,629	143,081	148,166
	Recycled Water	13,600	14,400	15,100	15,900	16,800
	Demand Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Potable Water Demand	123,461	130,582	137,629	143,081	148,166
	Recycled Water Demand	13,600	14,400	15,100	15,900	16,800
	Difference	**0**	**0**	**0**	**0**	**0**
Fifth Year	**Supply Totals (AFY)**	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Groundwater	123,461	130,582	137,629	143,081	148,166
	Recycled Water	13,600	14,400	15,100	15,900	16,800
	Demand Totals (AFY)	**137,061**	**144,982**	**152,729**	**158,981**	**164,966**
	Potable Water Demand	123,461	130,582	137,629	143,081	148,166
	Recycled Water Demand	13,600	14,400	15,100	15,900	16,800
	Difference	**0**	**0**	**0**	**0**	**0**

Source: 2020 Regional Urban Water Management Plan

Note: CVWD and the other Regional UWMP agencies collaborate on groundwater management plans for long-term sustainability. During a normal year, single-dry year, or five-dry year period, the agencies could produce additional groundwater if demands exceeded the estimates shown here.

CVWD’s total current urban water demand was 110,967 acre-feet (AF) for 2021, including 101,546 AF of groundwater and 9,421 AF of recycled water.

5 Project Description

The Coachella Airport Business Park Project (Project) is located in the eastern portion of the Coachella Valley within the incorporated limits of the City of Coachella, Riverside County as shown in **Figure 5-1: Project Regional Location Map**. The Project will be accessible from the southwestern frontage along Airport Boulevard and is bounded by an undeveloped property owned by CVWD to the north, SR-86 to the east, a mobile home park to the south, and the Coachella Valley Stormwater Channel to the west, as shown in **Figure 5-2: Project Vicinity Map**. The Project proposes to develop approximately 42.36 acres of vacant land in the Coachella Valley to include Large Warehouse, Large Warehouse with Cannabis Cultivation, Small Warehouse, Small Business, Brick Yard, Self-Storage, and Retail comprised of a Service Station/Mini Mart and Drive-Thru Fast Food Restaurant as shown in **Figure 5-3: Project Site Plan** and **Table 5-1: Project Land Use Summary**.

Figure 5-1: Project Regional Location Map

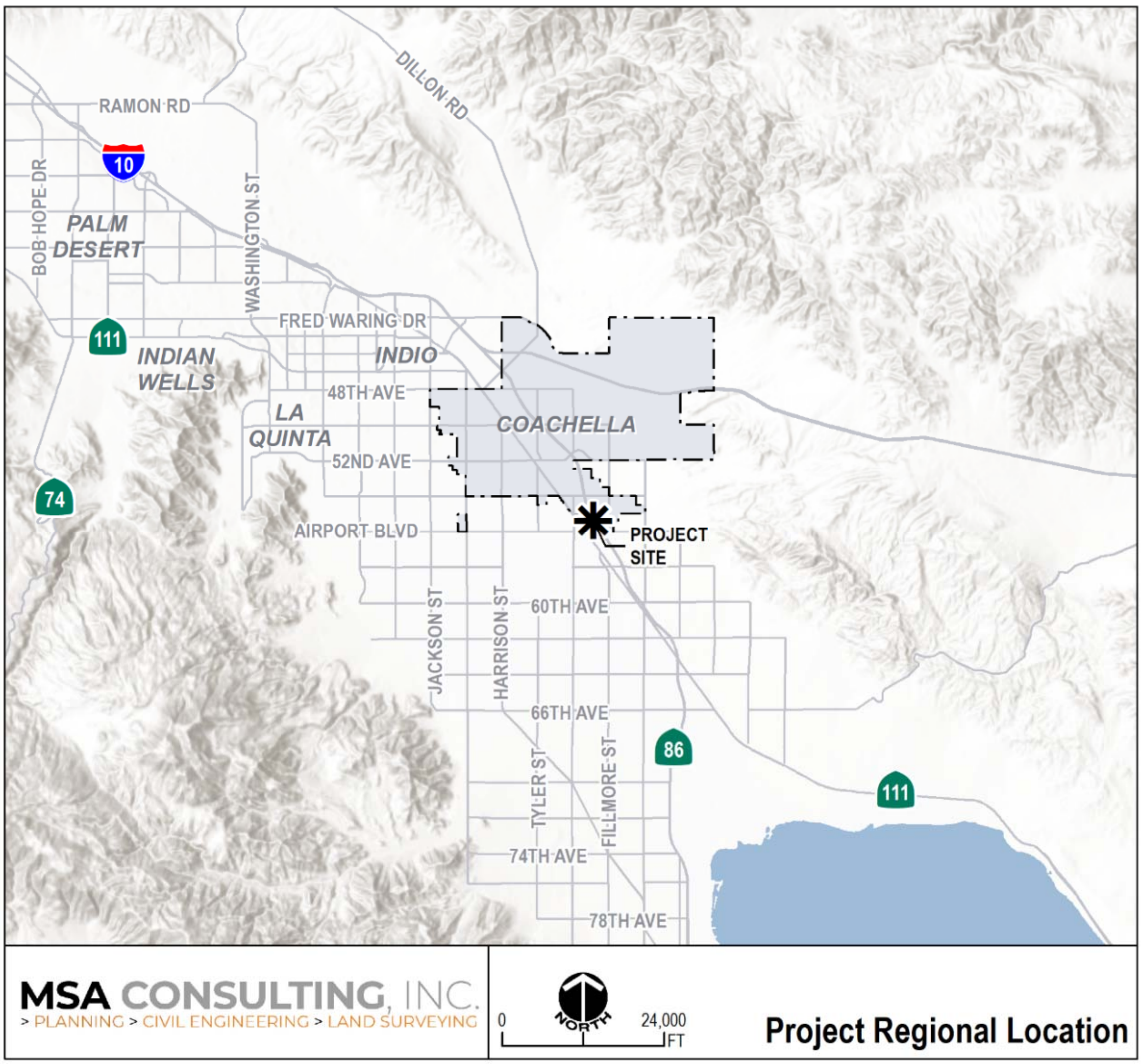


Figure 5-2: Project Vicinity Map

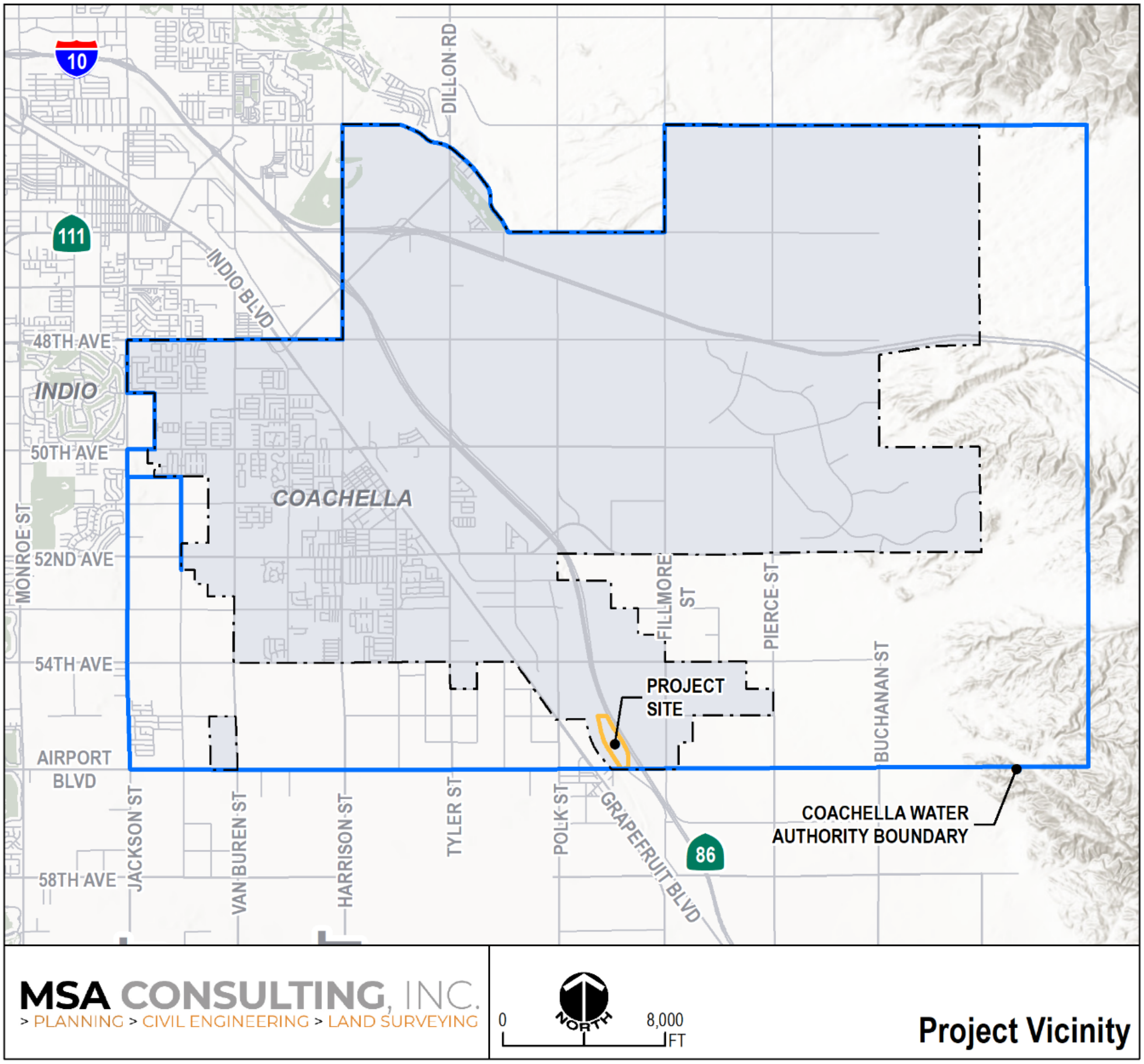


Figure 5-3: Project Site Plan

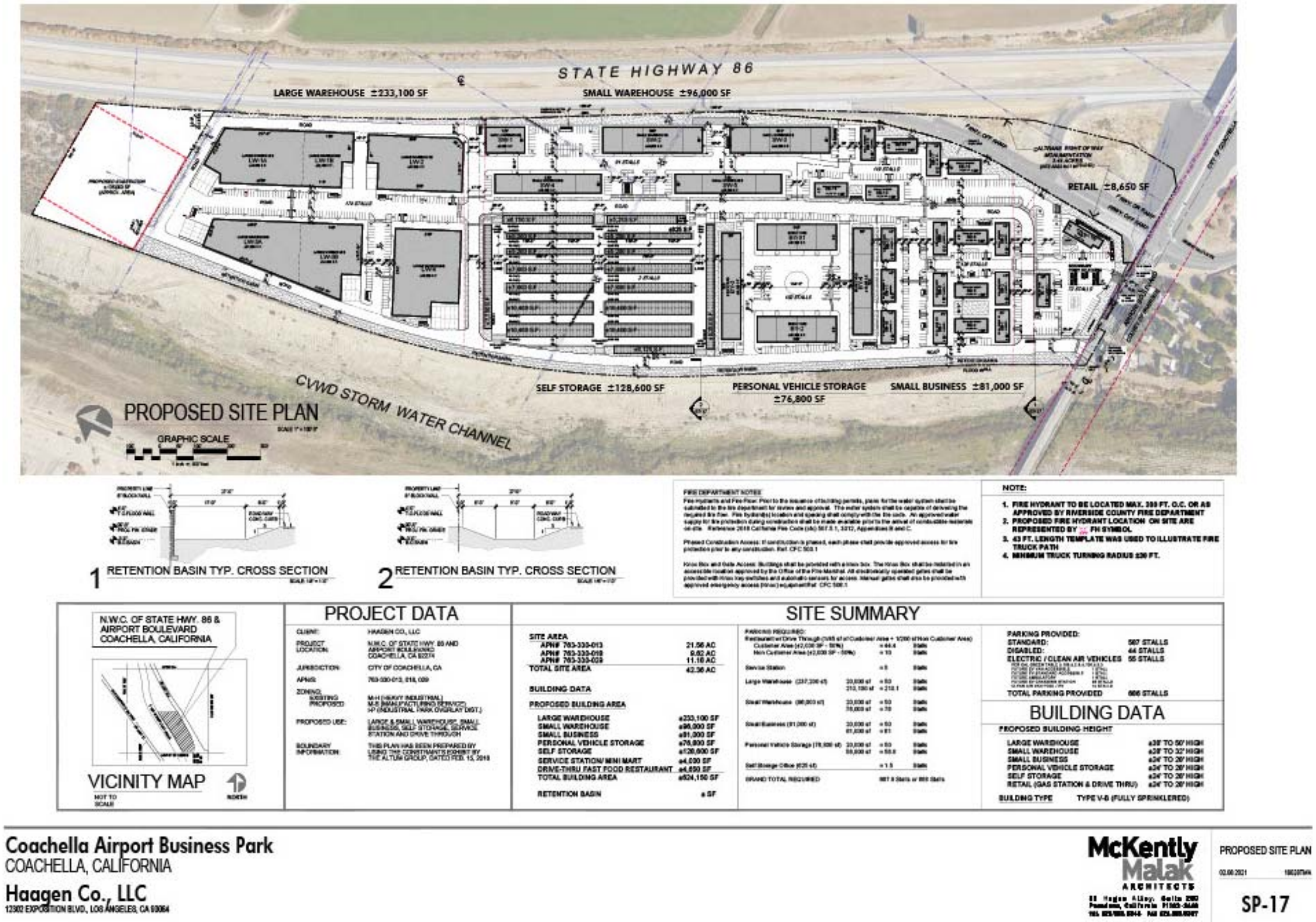


Table 5-1: Project Land Use Summary

Specific Plan/Land Use Designation	Land Area (Acres)	Non-Residential Building Area (ft²)
Large Warehouse (Non-Cannabis)	3.11	135,340
Large Warehouse (Cannabis Cultivation)	2.24	97,760
Small Warehouse	2.20	96,000
Small Business	1.85	81,000
Brick Yard	1.76	76,800
Self-Storage	3.07	133,900
Service Station/Mini Mart	0.09	4,000
Drive-Thru Fast Food Restaurant	0.10	4,650
Outdoor Landscaping – Overall	5.63	332,136
Impervious Surfaces – Driveway, parking, medians, etc.	22.31	971,824
Total	**42.36**	**1,846,548**

6 Project Water Demands

The Coachella Airport Business Park Project (Project) proposes to develop approximately 42.36 acres of vacant land in the Coachella Valley to include Large Warehouse (135,340 SF), Large Warehouse with Cannabis Cultivation (97,760 SF), Small Warehouse (96,000 SF), Small Business (81,000 SF), Brick Yard (76,800 SF), Self-Storage (133,900 SF), and Retail comprised of a Service Station/Mini Mart (4,000 SF) and Drive-Thru Fast Food Restaurant (4,650 SF). In total, the Project will have 332,136 square feet of outdoor landscaping, 971,824 square feet of impervious surfaces (driveways, parking, medians, etc.), 300,350 square feet of commercial uses, and 329,100 square feet of industrial uses.

6.1 Projected Indoor Residential Water Demand

The Project does not propose residential uses, so the indoor residential water usage for this Water Supply Assessment/Water Supply Verification (WSA/WSV) is 0.

6.2 Projected Indoor Commercial and Industrial Water Demand

The projected indoor commercial and industrial unit usage for this WSA/WSV are based on the American Water Works Association Research Foundations (AWWARF's) Commercial and Industrial End Uses of Water. The projected indoor commercial and industrial water demand for the Project totals 82.92 AFY as shown in **Table 6-2** below.

Table 6-1: Projected Indoor Commercial and Industrial Water Demand

Planning Area	Indoor Area (ft^2)	Water Demand Factor [1] (gal/sf/year)	Water Demand (gpd)	Water Demand [2] (AFY)
Office Buildings				
Large Warehouse (Non-Cannabis Uses)	135,340	35	12,977.81	14.54
Large Warehouse (Cannabis Cultivation)	97,760	35	8,134.17	10.50
Small Warehouse	96,000	35	9,205.48	10.31
Small Business	81,000	35	7,767.12	8.70
Brick Yard (Personal Vehicle Storage)	76,800	35	505.00	8.25
Self-Storage	133,900	35	880.44	14.38
Restaurants				
Drive-Thru Fast Food Restaurant	4,650	331	4,216.85	4.72
Supermarkets				
Service Station/Mini Mart	4,000	64	876.71	0.79
Cooling Tower				
Large Warehouse (Cooling Tower – Non-Cannabis Use)	135,340	15	5,561.92	6.23
Large Warehouse (Cooling Tower – Cannabis Use)	97,760	15	4,017.53	4.50
Total	**862,550**		**74,026.44**	**82.92**

[1] AWWARF Commercial and Industrial End Uses of Water, 2000.

[2] One AFY = 892.742 gallons per day; Conversion used above.

6.3 Projected Outdoor Irrigation Water Demand

The projected outdoor irrigation water usage is based on the assumption that 18% of the total outdoor acreage of the Project will be outdoor landscaped area. The projected outdoor irrigation water demand for the Project is 21.75 AFY as shown in **Table 6-3** below.

Table 6-2: Projected Outdoor Irrigation Water Demand

Planning Area	Total Outdoor Acreage (AC)	Max of Outdoor Landscaped Area (%)	Outdoor Landscaped Area (ft^2)	Total Outdoor Annual Consumption (AFY)
Outdoor Landscaping – Overall	42.36	18.0	332,136	21.75

6.4 Projected Outdoor Water Features Demand

The Project does not propose outdoor recreational water feature usage, so the projected outdoor water features demand for the Project is 0.

6.5 Projected Total Water Demand

The total projected water demand for the Project is 104.67 AFY, or 2.47 acre-feet per acre, as shown in **Table 6-5** below.

Table 6-3: Projected Total Water Demand

Planning Area	Land Area (Acres)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Total Water Demand (AFY)
Large Warehouse	3.11	14.54	-	14.54
Large Warehouse (Cannabis Cultivation)	2.24	10.50	-	10.50
Small Warehouse	2.20	10.31	-	10.31
Small Business	1.85	8.70	-	8.70
Brick Yard (Personal Vehicle Storage)	1.76	8.25	-	8.25
Self-Storage	3.07	14.38	-	14.38
Drive-Thru Fast Food Restaurant	0.10	4.72	-	4.72
Service Station/Mini Mart	0.09	0.79	-	0.79
Large Warehouse (Cooling Tower – Non-Cannabis Use)	N/A	6.23	-	6.23
Large Warehouse (Cooling Tower – Cannabis Use)	N/A	4.50	-	4.50
Outdoor Landscaping – Overall	5.63	N/A	21.75	21.75
Impervious Surfaces	22.31	N/A	0.0	0.0
Total	**42.36**	**82.92**	**21.75**	**104.67**

6.6 Projected Water Sources

The Project is anticipated to utilize the CWA Domestic System to provide water service to the Project site, as shown on **Table 6-6.**

Table 6-4: Projected Water Sources

Planning Area	Land Area (Acres)	Water Source
Large Warehouse	5.35	CWA Domestic System
Small Warehouse	2.20	CWA Domestic System
Small Business	1.85	CWA Domestic System
Brick Yard (Personal Vehicle Storage)	1.76	CWA Domestic System
Self-Storage	3.07	CWA Domestic System
Service Station/Mini Mart	0.09	CWA Domestic System
Drive-Thru Fast Food Restaurant	0.10	CWA Domestic System
Outdoor Landscaping – Overall	5.63	CWA Domestic System

6.7 Conservation Measures

The following section describes the water conservation measures to be implemented by the proposed Project.

6.7.1 Desert Landscaping & Drought Tolerant Plants

The need for progressive water conservation and control of landscape maintenance costs has prompted the greater use of native and non-native drought-tolerant planting materials within the Project. The Coachella Valley and CWA have been a leader in the promotion of these desert landscape materials and design themes, most notably in CVWD Landscape Ordinance 1302.4. As a result, thoughtful and conservative management and use of water resources have guided development of this Project landscape plan.

6.7.2 Project Specific Water Conservation Measures

A broad range of design components and mitigation measures will be implemented to address the Project's potential impacts on water resources. A reverse osmosis (RO) water purification treatment system is proposed for operation of cannabis cultivation for the proposed Project. RO water purification systems use a semipermeable membrane and high pressure to remove ions, molecules, and larger particles from water. Irrigation water infused with fertilizers are sent through the RO system to remove fertilizers in order to be re-used again for cannabis irrigation. The bi-product result of this process is the accumulation of concentrated levels of total dissolved solids (TDS) and brine solutions in filter, which can be hazardous to the groundwater supply if not treated and disposed of properly by a third party licensed hazardous waste hauler. As such, a third party licensed hazardous waste hauler will be responsible for removing all hazardous wastewater and solid waste generated from all cannabis cultivation operations.

Project developers will be required to implement the following measures in order to assure the most efficient use of water resources and to meet and maintain the 2010 CVWMP Update goals throughout the life of the Project:

1. To the greatest extent practicable, native plant materials and other drought-tolerant plants shall be used in all non-turf areas of Project landscaping. Large expanses of lawn and other water-intensive landscaped areas shall be kept to the minimum necessary and consistent with the functional and aesthetic needs of the Project, while providing soil stability to resist erosion.

2. In the event recycled water becomes available to the Project, the potential use of tertiary treated water will be reviewed to determine feasibility of its use for on-site landscaped areas to reduce the use of groundwater for irrigation.

3. The installation and maintenance of efficient on-site irrigation systems will minimize runoff and evaporation and maximize effective watering of plant roots. Drip irrigation and moisture detectors will be used to the greatest extent practicable to increase irrigation efficiency.

4. The use of low-flush toilets and water-conserving showerheads and faucets shall be required in conformance with Section 17921.3 of the Health and Safety Code, Title 20, California Code of Regulations Section 1601(b), and applicable sections of Title 24 of the State Code.

7 Assessment and Verification – Availability of Sufficient Supplies

7.1 Water Supply Assessment

Based on the analysis in this Water Supply Assessment/Water Supply Verification (WSA/WSV), the projected total water demand for the Coachella Airport Business Park (Project) will be 104.67 acre-feet per year (AFY), or 2.47 acre-feet per acre. CVWD's long-term water management planning ensures that adequate water supplies are available to meet existing and future water needs within its service area. CVWD's current urban water demand was 101,546 acre-feet (AF) for 2021, and the projected urban water demand by 2045 is 148,166 AF. This Project's water demand of 104.67 AFY accounts for approximately 0.07 percent of the total planned increases in demand of 48,323 AF by 2045.

This WSA/WSV provides an assessment and verification of the availability of sufficient water supplies during normal, single-dry, and multiple-dry years over a 20-year projection to meet the projected demands of the Project, in addition to existing and planned future water demands of CWA and CVWD, as required by Senate Bill 610 (SB 610), SB 221, and SB 1262. This WSA/WSV also includes identification of existing water supply entitlements, water rights, water service contracts, and agreements relevant to the identified water supply for the Project and quantities of water received in prior years pursuant to those entitlements, rights, contracts, and agreements.

This WSA/WSV has been prepared in compliance with the requirements of SB 610, SB 221, and SB 1262 by MSA Consulting, Inc. in consultation with CWA and the City of Coachella. This WSA/WSV does not relieve the Project from complying with all applicable state, county, city, and local ordinances or regulations including the CVWD Landscape Ordinance, and indoor water use performance standards provided in the CWC.

This WSA/WSV will be reviewed every five years, or in the event that the water planning assumptions have changed, until the Project completes construction to ensure it remains accurate and no significant changes to either the Project or available water supply has occurred. The Project applicant shall notify CWA when construction begins. If neither the Project applicant nor the Lead Agency contacts CWA within five years of approval of this WSA/WSV, it will be assumed that the Project no longer exists and the WSA/WSV provided by this document will become invalid.

7.2 Water Supply Verification

A WSA/WSV has been prepared for the Project pursuant to the requirements of Senate Bill 221 (SB 221) because it includes a Tentative Parcel Map. This document provides verification that adequate water supply for the Project is available, as required by California Government Code Section 66473.7.

8 References

American Water Works Association Research Foundation, *Commercial and Institutional End Uses of Water*, 2000

California Department of Water Resources, *Final State Water Project Delivery Capability Report 2019*, August 2020

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Coachella Valley Water District, *2022-2023 Engineer's Report on Water Supply and Replenishment Assessment*, Wildermuth Environmental Inc., April 2022

Coachella Valley Water District, *Landscape Ordinance 1302.5*, July 2020

Coachella Valley Water District, Coachella Water Authority, Desert Water Agency, and Indio Water Authority, *Indio Subbasin Annual Report for Water Year 2020-2021*, Todd Groundwater Inc., February 2022

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United States Bureau of Reclamation, *Colorado River Accounting and Water Use Reports for Arizona, California, and Nevada*

Appendix A

Project Estimated Landscape Water Budget

HERMANN DESIGN GROUP
LANDSCAPE ARCHITECTURE | PLANNING | PROJECT MANAGEMENT

Landscape Water Budget

Date: 6/30/20

			Acreage
Project Name: Haagen	Total Irrigated Landscape Square Footage:	245,274	5.63
	Total Non-Irrigated Landscape Square Footage:		

Project Area: Overall

CVWD Eto Zone 4

Maximum Annual Water Applied	**MAWA**	**Estimated Annual Water Applied**	**EAWA - Low**	**EAWA - Mod**	**EAWA - High**	
			Shrub / GC	Shrub / GC	Turf	
Irrigated Landscape Area (LA)	245,274	Irrigated Landscape Area (LA)	141,691	102,783	800	
Irrigation Efficiency (IE)	NA	Irrigation Efficiency (IE)	64.00	0.90	0.75	
Evopotranspiration (ET)	76	Evopotranspiration (ET)	76	76	76	
ETAF Adjustment Factor (.45)	0.45	Plant Factor (KC)	0.20	0.50	0.70	
Conversion Factor (.62)	0.62	Conversion Factor (.62)	0.62	0.62	0.62	
ET x .62 x (ETAF x LA)		ET x LA x (KC x .62) / IE				Total Usage
Total Gallons Per Year	5,200,790	Total Gallons Per Year	20,864	2,690,631	35,183	2,746,677

Estimated Water Use Calculation is based on CVWD Ordinance 1302_1 Rev 4_12_09

Appendix B

City Will Serve Letter

CITY OF COACHELLA

1515 SIXTH STREET, COACHELLA, CALIFORNIA 92236

PHONE (760) 398-3502 • FAX (760) 398-8117 • WWW.COACHELLA.ORG

June 29, 2020

Mr. Chris Fahey
Haagen Co., LLC
12302 Exposition Blvd
Los Angeles, CA 90064

RE: Water and Sewer Availability for Coachella Airport Business Park (APN 763-330-013; 018 and 029)

Dear Mr. Fahey:

The City of Coachella Water Authority and Sanitary District has reviewed your request to allow the Coachella Valley Water District (CVWD) to provide water and sewer services to the subject property located within the City's water and sewer boundary as described in the January 9th, 2008 agreement entered into between the City of Coachella and CVWD.

At this time it is infeasible for the subject property to be serviced by our utilities without significant infrastructure improvements and we understand that it may also be infeasible for CVWD without the installation of infrastructure across the railroad and the Whitewater Storm Channel. It is important for the City of Coachella to make this crossing in conjunction with CVWD infrastructure. If the project site parcels will be sold to different owners the proposed water line on site may be public (e.g. CVWD maintained) and will require a minimum 20' wide easement. The City of Coachella will require a "three party developer agreement" between The City of Coachella, CVWD and the Developer to further define our roles and responsibilities, describing how upon a later request by the City, CVWD will transfer to the City customer accounts, as well as any infrastructure, easements, capacity fees, or supplemental import water rights, purchased by or on behalf of the customer accounts which are not otherwise retained by CVWD by agreement.

Please note this condition of approval will require the applicant to submit as-built plans to the City of Coachella Engineering Department.

Terms and conditions of this letter will be subject to review and revision if the construction for the project has not begun within 36 months of the issuance of this letter.

If you have any questions, please contact me at (760)501-8113.

Sincerely,

Cástulo Estrada

Appendix C

CVWD Will Serve Letter

COACHELLA VALLEY WATER DISTRICT
Established in 1918 as a public agency

GENERAL MANAGER
Jim Barrett

CLERK OF THE BOARD
Sylvia Bermudez

ASSISTANT GENERAL MANAGER
Robert Cheng

ASSISTANT GENERAL MANAGER
Dan Charlton

July 21, 2020

Luis Lopez
Department of Building and Planning
City of Coachella
1515 Sixth Street
Coachella, CA 92236

Dear Mr. Lopez:

Subject: Pre-Application Review 19-04, Coachella Airport Business Park,
APN 763-330-013, 760-330-017 and 763-330-018

This letter supersedes the previous Coachella Valley Water District's (CVWD) letter dated April 12, 2019.

Regional stormwater flows within this area are conveyed by the Coachella Valley Stormwater Channel. However, this does not guarantee that the land area or the properties will be free from flooding or flood damage.

This area is designated Zone AE on Federal Flood Insurance rate maps, which are in effect at this time by the Federal Emergency Management Agency (FEMA).

Flood protection measures for local drainage and regional flood shall comply with California Drainage Law and provide that stormwater flows are received onto and discharged from this property in a manner that is reasonably compatible with predevelopment conditions.

Prior to issuance of grading permits, CVWD requests the City of Coachella (City) require the developer to:

- Obtain a Conditional Letter of Map Revision (CLOMR) through the Federal Emergency Management Agency.
- Execute an agreement with CVWD, which shall include provisions outlined in CVWD Ordinance No. 1234.1. A copy of the Ordinance No. 1234.1 is enclosed for your convenience.
- Submit to CVWD a Flood Control Facility Operations and Maintenance Manual for review and approval.
- Grant flooding easements over the flood control facilities in a form and content reasonably acceptable to CVWD.

- Submit final construction plans for the proposed flood control facilities and a detailed hydrological and hydraulic design report for review and approval.

Prior to occupancy, CVWD requests the City require the developer to:

- Obtain a Letter of Map Revision (LOMR) through the Federal Emergency Management Agency, which removes the development from the special flood hazard area.
- At the completion of the construction of the flood control facilities, submit "as-built" topography, construction drawings and engineering analysis for CVWD review to verify that the design capacity is adequate.

There may be erosion of the banks of the Coachella Valley Stormwater Channel during periods of unusual rainfall and discharge. Concrete slope protection is required on the banks and levees of stormwater facilities where any development is proposed within 300 feet of the stormwater facilities, is at risk from inundation or erosion from failure of the facilities, or as directed by CVWD.

Prior to occupancy, CVWD requests the City require the developer to:

- Complete construction of concrete slope protection along the bank(s) of the Coachella Valley Stormwater Channel.
- Grant easements through the property for CVWD access to the Coachella Valley Stormwater Channel in a form and content reasonably acceptable to the CVWD.
- Deed to CVWD ownership and maintenance of the constructed slope protection along the bank(s) of the Coachella Valley Stormwater Channel. The developer should contact CVWD to obtain the standard acceptance documents.

The City shall require mitigation measures to be incorporated into the development to prevent flooding of the site or downstream properties. These measures shall require 100 percent on-site retention of the incremental increase of runoff from the 100-year storm.

The developer shall participate in the funding of regional flood control facilities, as said requirements and contributions may be imposed by CVWD, or any other applicable agency.

Senate Bill 610 and Senate Bill 221 amended state law, effective January 1, 2002, to improve communication between local water suppliers and land use planning agencies with regard to water supply availability for development proposals. Under SB610, Water Supply Assessments (WSA) must be furnished to a city or county for inclusion in any environmental documentation for large development proposals (as defined in Water Code 10912 [a]) subject to the California Environmental Quality Act (CEQA). Under SB 221, approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. CVWD has determined that an approved Water Supply Assessment (WSA) and/or Water Supply Verification (WSV) is required for this project. The developer shall contact CVWD to receive information regarding the development and costs of preparation of the WSA/WSV, as applicable. The City is required to withhold approvals for this project until the WSA/WSV has been approved by CVWD and then duly considered by the City/County in connection with the applicable CEQA process.

The project is located within the service area of the City for the provision of domestic water and sanitation service. City's letter dated June 29, 2020, (copy enclosed) states that is infeasible for the subject property to be serviced by City. Per the service boundary Agreement dated January 9, 2008, between the City and CVWD, CVWD can provide domestic service and sanitation service to the project. The initiation of said service to this area by CVWD will be subject to the satisfaction of terms and conditions established by CVWD and imposed from time to time, including but not limited to fees and charges, water conservation measures, etc.

CVWD may need additional facilities to provide for the orderly expansion of its domestic water and sanitation systems. These facilities may include pipelines, wells, reservoirs, booster pumping stations, lift stations, treatment plants and other facilities. The developer may be required to construct/install these facilities and then convey said facilities to CVWD along with the land and/or easements on which these facilities will be located. The terms and conditions for the planning, design, construction/installation, and conveyance of property interests shall be determined by CVWD pursuant to its rules and regulations as said requirements may be revised from time to time. These sites shall be shown on the parcel map as lots and/or easements to be deeded to CVWD for "CVWD public services" purposes.

This notice of domestic water and sanitation service availability only applies to the specific property for which it was issued and shall expire three (3) years from date of issuance. Unless or until all requirements for the initiation of service are met, the developer shall not be deemed to have any vested right or other commitment to receive water and/or sanitation service. In the event all of the terms, conditions, fees and charges are not satisfied on or before the expiration date, this notice shall expire. Upon expiration, the developer will be required to submit a new application and otherwise comply with any and all new or amended requirements for the provision of service as may be determined by CVWD pursuant to its rules and regulations.

Domestic water service remains at all times subject to changes in regulations adopted by CVWD's Board of Directors including reductions in, or suspensions of, service.

There are existing United States Bureau of Reclamation (USBR) facilities not shown on the development plans. There may be conflicts with these facilities. The City shall withhold issuance of grading permits until CVWD has reviewed the proposed development and related impacts to the USBR facilities and associated right-of-way and provided City with written confirmation that there is no interference. The USBR conflicts include but are not limited to Irrigation Lateral 101.3-2.3

This area is underlain with agricultural drainage lines. There are CVWD/Private facilities not shown on the development plans. There may be conflicts with these facilities. The City shall withhold issuance of grading permits until CVWD has reviewed the proposed development and related impacts to the CVWD/Private facilities and associated right-of-way and provided City with written confirmation that there is no interference. The CVWD/Private conflicts include but are not limited to drawing numbers 1146, 1339, 37935-939, TD521, TD239.

Your property is in a region of the Coachella Valley overlying shallow clays and silts where semiperched, shallow groundwater is found with elevated salinity levels. The groundwater in this semiperched region rises in response to return water received from irrigated agriculture. Rising groundwater conditions in this semiperched region are controlled by CVWD's Irrigated Agriculture Drainage System (System). This System is designed to drain semiperched, shallow groundwater to protect irrigated agriculture. CVWD will entertain connections to this System from subsurface tile lines that are located on your property and designed to intercept rising groundwater and protect irrigated agriculture.

The project lies within the East Whitewater River Subbasin Area of Benefit. Groundwater production within the area of benefit is subject to a replenishment assessment in accordance with the State Water Code.

All water wells owned or operated by an entity producing more than 25 acre-feet of water during any year must be equipped with a water-measuring device. A CVWD Water Production Metering Agreement is required to provide CVWD staff with the authority to regularly read and maintain this water-measuring device.

This development lies within the study area of the 2010 Water Management Plan Update. The groundwater basin in the Coachella Valley is in a state of overdraft. Each new development contributes incrementally to the overdraft. CVWD has a Water Management Plan in place to reduce the overdraft to the groundwater basin. The elements of the Water Management Plan include supplemental imported water, source substitution and water conservation. The plan lists specific actions for reducing overdraft. The elements and actions described in the plan shall be incorporated into the design of this development to reduce its negative impact on the Coachella Valley groundwater basin.

If the development is served domestic water from the City instead of CVWD, the following would apply:

- CVWD and the City have signed a Memorandum of Understanding (MOU) to work together to provide sufficient water supplies for new development. The MOU outlines ways that the City will participate in funding CVWD's acquisition of supplemental water supplies sufficient to offset the impacts of new water demands resulting from development within the City. The amount paid for supplemental water supplies shall not exceed CVWD's Supplemental Water Supply Charge for similar development types and water requirements in effect at the time paid.

- The MOU also ensures that the two agencies coordinate on the review and approval of a Water Supply Assessment (WSA) for this development. The City is responsible for preparing and approving the WSA and shall submit the draft WSA to CVWD for review prior to approval. CVWD's review will ensure that the WSA incorporates the goals and objectives of the 2010 Coachella Valley Water Management Plan Update.

If you have any questions, please call Tommy Fowlkes, Development Services Supervisor, extension 3535.

Sincerely,

Carrie Oliphant

Carrie Oliphant
Director of Engineering

Enclosure/1/as

cc: Mark Abbott
Supervising Environmental Health Specialist
Riverside County Department of Environmental Health
Environmental Protection and Oversight Division
47-950 Arabia Street, Suite A
Indio, CA 92201

Empire Airport LLC (by Haagen Company)
Christopher Fahey
12302 Exposition Boulevard
Los Angeles, CA 90064

RM: ms\Eng\Dev Srvs\2020\July\DRL PZ 19-9847 Airport Business Park
File: 0163.1, 0421.1, 0721.1
Geo. 06-08-15-3 and 06-08-15-4
PZ 19-9847

Appendix J

Traffic Impact Analysis

Coachella Airport Business Park
Traffic Impact Analysis

Prepared for:

HAAGEN COMPANY

12302 Exposition Blvd.
Los Angeles, CA 90064

Prepared by:

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

23905 Clinton Keith 114-280
Wildomar, CA 92595

March 2021

EXECUTIVE SUMMARY

Purpose of the Report

The purpose of this traffic impact analysis (TIA) report is to identify and document potential traffic deficiencies related to the proposed Coachella Airport Business Park in the City of Coachella. This technical report will also recommend transportation improvements to address potential project deficiencies to local and regional transportation facilities.

Project Overview

The project is proposed to be developed in three phases on a vacant site located at the northwest quadrant of State Route 86 (SR-86) and Airport Boulevard interchange. Access to the project site will be provided via a newly constructed driveway along the western end of the property on Airport Boulevard which will be signalized at Phase III of the project. Additionally, a secondary access east of the primary access on Airport Boulevard will be provided for emergency access use only.

The following land uses are proposed as part of the industrial park project which will be developed through three different Phases:

Phase I

- Large Warehouse – 112,100 square feet (sf)
- Small Warehouse – 33,600 sf
- Small Business – 31,500 sf
- Brick Yard – 38,400 sf
- Self-storage – 72,825 sf
- Fast Food Restaurant with Drive Through – 4,650 sf
- Service Station with Convenience Store – 10 vehicle fueling positions and 4,000 sf Convenience Store

Phase II

- Large Warehouse – 48,800 sf
- Small Warehouse – 43,200 sf
- Small Business – 22,500 sf
- Brick Yard – 38,400 sf

Phase III

- Large Warehouse – 76,300 sf
- Small Warehouse – 19,200 sf
- Small Business – 27,000 sf
- Self-storage – 60,450 sf

The project trip generation was calculated using the ITE Trip Generation Manual (10^{th} Edition). It is estimated that the project will generate 4,786 total daily trips, 500 AM peak hour trips and 464 PM peak hour trips. Project trip distribution and assignment were developed, in coordination with City staff, based on the land use characteristics of the proposed project and surrounding area, existing travel patterns within the study area, anticipated travel patterns to and from the project site, and approved projects located in the vicinity of the project site. Project scenarios and study area were then established in coordination with City staff to determine the potential project impacts on the transportation network. Refer to **Appendix A** for approved scoping agreement.

Project Scenarios:

- Existing Year (2020)
  - Existing Year 2020 Baseline Conditions: Represents the traffic conditions of the existing street network.
- Opening Year (2025)
  - Opening Year 2025 Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place by Year 2025 (existing counts plus ambient growth).
  - Opening Year 2025 Plus Project Conditions: Represents the Opening Year 2025 Baseline traffic conditions with the addition of Phase I of the proposed project
- Opening Year (2030)
  - Opening Year 2030 Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place by Year 2030 (existing counts plus ambient growth plus Phase I of the propose project)
  - Opening Year 2030 Plus Project Conditions: Represents the Opening Year 2030 Baseline traffic conditions with the addition of Phase II of the proposed project
- Buildout Year (2035)
  - Buildout Year 2035 Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place by Year 2035 (Community Buildout plus Phase I & II of the proposed project)
  - Buildout Year 2035 Plus Project Conditions: Represents the Buildout Year 2035 Baseline traffic conditions with the addition of Phase III of the proposed project

Study Area Intersections:

1. Airport Boulevard and Pierce Street
2. Airport Boulevard and Filmore Street
3. Airport Boulevard and SR-86 Northbound Ramps
4. Airport Boulevard and SR-86 Southbound Ramps
5. Airport Boulevard and Palm Street
6. Airport Boulevard and Polk Street
7. Airport Boulevard and Tyler Street
8. Airport Boulevard and Harrison Street
9. Airport Boulevard and Project Driveway

Study Area Roadway Segments:

1. Airport Boulevard between Palm Street and Project Driveway
2. Airport Boulevard between Project Driveway and SR-86 Southbound Ramps
3. Airport Boulevard between SR-86 Southbound Ramps and SR-86 Northbound Ramps

Analysis Results and Recommendations

<u>Existing Year (2020) Scenario</u>

All study area intersections and roadway segments operate at acceptable level of service (LOS) under Existing Year 2020 scenario.

Opening Year (2025) Scenario

All study area intersections operate at acceptable LOS under Opening Year 2025 Baseline Conditions. All study area intersections operate at acceptable LOS under Opening Year 2025 Plus Project Conditions except for the following intersection:

- Airport Boulevard and Tyler Street

The following identified improvements will address intersection operation deficiencies at this location:

- Airport Boulevard and Tyler Street – Signalize the intersection. Project fee payment toward County of Riverside Development Impact Fee (DIF) and Transportation Uniform Mitigation Fee (TUMF) programs.

All study area roadway segments operate at acceptable LOS under Opening Year 2025 scenario.

Opening Year (2030) Scenario

All study area intersections operate at acceptable LOS under Opening Year 2030 Baseline Conditions except for the following intersections:

- Airport Boulevard and Filmore Street
- Airport Boulevard and Tyler Street

The above intersection locations will continue to be deficient under Opening Year 2030 Plus Project Conditions. The following identified improvements will address intersection operation deficiencies at these locations:

- Airport Boulevard and Filmore Street – Signalize the intersection. Project fee payment toward the City of Coachella and County of Riverside DIF programs.
- Airport Boulevard and Tyler Street – Signalize the intersection. Project fee payment toward the County of Riverside DIF and TUMF programs.

All study area roadway segments operate at acceptable LOS under Opening Year 2030 scenario.

Buildout Year (2035) Scenario

All study area intersections operate at acceptable LOS under Buildout Year 2035 Baseline Conditions except for the following intersections:

- Airport Boulevard and Pierce Street
- Airport Boulevard and Filmore Street
- Airport Boulevard and SR-86 NB Ramps
- Airport Boulevard and SR-86 SB Ramps
- Airport Boulevard and Tyler Street
- Airport Boulevard and Harrison Street
- Airport Boulevard and Project Driveway

The above intersection locations will continue to be deficient under Buildout Year 2035 Plus Project Conditions. The following identified improvements will address intersection operation deficiencies at these locations:

- Airport Boulevard and Pierce Street – Convert intersection to all-way stop control and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane, 1 through lane and 1 shared through-right turn lane in the northbound direction; 1 exclusive left turn lane, 1 through lane and 1 shared through-right turn lane in the southbound direction; 1 exclusive left turn lane and 1 shared through-right turn lane in the eastbound direction; and 1 exclusive left turn lane and 1 shared through-right turn lane in the westbound direction. Project fee payment toward the County of Riverside DIF and TUMF programs.
- Airport Boulevard and Filmore Street – Signalize the intersection and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane and 1 shared through-right turn lane in the northbound direction; 1 shared through-left turn lane and 1 exclusive right turn lane in the southbound direction; and 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction. Project fee payment toward the City of Coachella and County of Riverside DIF programs.
- Airport Boulevard and SR-86 NB Ramps – Widening of Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps and add 1 exclusive right turn lane in the eastbound direction. Project fee payment toward the City of Coachella DIF Program, County of Riverside DIF Program and TUMF program.
- Airport Boulevard and SR-86 SB Ramps – Add 1 exclusive left turn lane in the southbound direction and widen Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps. Project fee payment toward the City of Coachella DIF Program, County of Riverside DIF Program and TUMF program.
- Airport Boulevard and Tyler Street – Signalize the intersection and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane and 1 shared through-right turn lane in the southbound direction; 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction; and 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the westbound direction. Project fee payment toward the County of Riverside DIF Program and TUMF program.
- Airport Boulevard and Harrison Street - Widen or reconfigure intersection approaches to add 1 through lane in the northbound direction; add 1 exclusive left turn lane and 1 through lane in the southbound direction; provide 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction; and add 1 exclusive left turn lane and 1 through lane in the westbound direction. Project fee payment toward the City of Coachella DIF Program, County of Riverside DIF Program, Tribal Transportation Program and TUMF Program.
- Airport Boulevard and Project Driveway – The project will signalize the intersection.

The proposed project would not have any roadway segments with traffic related deficiencies within the study area.

Table of Contents

EXECUTIVE SUMMARY i
Purpose of the Report .... *i*
Project Overview .... *i*
Analysis Results and Recommendations .... *ii*

1.0 PROJECT INTRODUCTION 1

PROJECT DESCRIPTION 1
STUDY AREA 1
Study Area Intersections *2*
Study Area Roadway Segment *2*
PROJECT TRIP GENERATION 2
PROJECT TRIP DISTRIBUTION AND ASSIGNMENT 6
PROJECT ACCESS 6
PARKING 6

2.0 METHODOLOGIES 15

STUDY SCENARIOS 15
STUDY TIME PERIODS 15
ANALYSIS METHODOLOGIES 15
Intersection Capacity Analysis *16*
Signalized Intersections 16
All-way Stop-controlled (AWSC) Intersections 17
Two-way Stop-controlled (TWSC) Intersections 17
Roadway Segments *18*
Traffic Signal Warrant Analysis *18*
Coachella General Plan Compliance *19*

3.0 EXISTING YEAR (2020) SCENARIO 20

ROADWAY NETWORK 20
TRANSIT SYSTEM 20
ACTIVE TRANSPORTATION SYSTEM 20
TRAFFIC VOLUMES 20
ANALYSIS RESULTS 21
TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS 22

4.0 OPENING YEAR (2025) SCENARIO 26

ANALYSIS RESULTS 26
TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS 27

5.0 OPENING YEAR CONDITIONS (2030) 31

ANALYSIS RESULTS 31
TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS 32

6.0 BUILDOUT CONDITIONS (2035) 36

ANALYSIS RESULTS 36
TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS 37

7.0 RECOMMENDED IMPROVEMENTS 42

8.0 VEHICLE MILES TRAVELED 44

SB 743 44

VMT Analysis Guidelines....44

List of Figures

Figure 1-1 – Project Site Plan 7
Figure 1-2 – Project Study Area 8
Figure 1-3 – Project Trip Distribution – Industrial Park Component (Passenger Vehicles) 9
Figure 1-4 – Project Trip Distribution – Commercial/Retail Component/Self Storage Component 10
Figure 1-5 – Project Trip Distribution – Industrial Park Component (Trucks) 11
Figure 1-6 – Project AM/PM Peak Hour Intersection Volumes – Phase I....12
Figure 1-7 – Project AM/PM Peak Hour Intersection Volumes – Phases II 13
Figure 1-8 – Project AM/PM Peak Hour Intersection Volumes – Phases III 14
Figure 3-1 – City of Coachella Circulation Network 23
Figure 3-2 – City of Coachella Roadway Cross-Section 24
Figure 3-3 – Existing Year (2020) AM/PM Peak Hour Intersection Volumes 25
Figure 4-1 – Opening Year 2025 Baseline AM/PM Peak Hour Intersection Volumes....29
Figure 4-2 – Opening Year (2025) With Project AM/PM Peak Hour Intersection Volumes....30
Figure 5-1 – Opening Year 2030 Baseline AM/PM Peak Hour Intersection Volumes....34
Figure 5-2 – Opening Year 2030 With Project AM/PM Peak Hour Intersection Volumes 35
Figure 6-1 – Buildout Year 2035 Baseline AM/PM Peak Hour Intersection Volumes 40
Figure 6-2 – Buildout Year 2035 With Project AM/PM Peak Hour Intersection Volumes....41

List of Tables

Table 1-1 Project Trip Generation Rate 3
Table 1-2 Project Trip Generation – Phase I 3
Table 1-3 Project Trip Generation – Phases I & II 4
Table 1-4 Project Trip Generation – Phases I, II & III....5
Table 2-1 Vehicular Level of Service Definitions 16
Table 2-2 Signalized Intersection Level of Service HCM Operational Analysis Method....17
Table 2-3 Level of Service Criteria for Stop Controlled Unsignalized Intersections....18
Table 2-4 Roadway Segment Capacity Thresholds....18
Table 3-1 Existing Year 2020 Scenario Intersection Operation Analysis 21
Table 3-2 Existing Year 2020 Scenario Roadway Segment Capacity Analysis....22
Table 4-1 Opening Year 2025 Scenario Intersection Operation Analysis 26
Table 4-2 Opening Year 2025 With Project Intersection Queue Analysis....27
Table 4-3 Opening Year 2025 Scenario Roadway Segment Capacity Analysis 28
Table 5-1 Opening Year 2030 Scenario Intersection Operation Analysis 31
Table 5-2 Opening Year 2030 With Project Intersection Queue Analysis....32
Table 5-3 Opening Year 2030 Scenario Roadway Segment Capacity Analysis 33
Table 6-1 Buildout 2035 Scenario Intersection Operation Analysis....36
Table 6-2 Buildout 2035 With Project Intersection Queue Analysis....38
Table 6-3 Buildout 2035 Scenario Roadway Segment Capacity Analysis....39
Table 7-1 Recommended Improvements 43

Appendices

APPENDIX A - SCOPING AGREEMENT
APPENDIX B - TRAFFIC COUNT DATA
APPENDIX C - EXISTING CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX D - OPENING YEAR (2025) PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX E - OPENING YEAR (2025) WITH PHASE I PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX F - OPENING YEAR (2030) WITH PHASE I PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX G - OPENING YEAR (2030) WITH PHASE I & II PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX H - BUILDOUT (2035) WITH PHASE I & II PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX I - BUILDOUT (2035) WITH PHASE I, II & III PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX J - INTERSECTION QUEUE ANALYSIS WORKSHEETS
APPENDIX K - RECOMMENDED IMPROVEMENTS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
APPENDIX L - SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX M - VEHICLE MILES TRAVELED

1.0 PROJECT INTRODUCTION

This traffic impact analysis (TIA) report has been prepared for Coachella Airport Business Park. The project is proposed to be developed in three phases on a vacant site located at the northwest quadrant of State Route 86 (SR-86) and Airport Boulevard interchange. Access to the project site will be provided via a newly constructed driveway along the western end of the property on Airport Boulevard which will be signalized at Phase III of the project. Additionally, a secondary access east of the primary access on Airport Boulevard will be provided for emergency access use only.

PROJECT DESCRIPTION

The following land uses are proposed as part of the industrial park project and will be developed through three different phases:

Phase I

- Large Warehouse – 112,100 sf
- Small Warehouse – 33,600 sf
- Small Business – 31,500 sf
- Brick Yard – 38,400 sf
- Self-storage – 72,825 sf
- Fast Food Restaurant with Drive Through – 4,650 sf
- Service Station with Convenience Store – 10 vehicle fueling positions and 4,000 sf Convenience Store

Phase II

- Large Warehouse – 48,800 sf
- Small Warehouse – 43,200 sf
- Small Business – 22,500 sf
- Brick Yard – 38,400 sf

Phase III

- Large Warehouse – 76,300 sf
- Small Warehouse – 19,200 sf
- Small Business – 27,000 sf
- Self-storage – 60,450 sf

Figure 1-1 shows the project site plan.

STUDY AREA

The study area for this project was developed consistent with the Riverside County TIA Preparation Guide, including all intersections of "Collector" or higher classification streets with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips. IEG prepared a project traffic study scoping agreement defining the study area, which was reviewed and approved by City staff prior to the preparation of this technical report. Refer to **Appendix A** for approved scoping agreement.

Figure 1-2 presents the study area that includes the following key locations:

Study Area Intersections

1. Airport Boulevard and Pierce Street
2. Airport Boulevard and Filmore Street
3. Airport Boulevard and SR-86 Northbound Ramps
4. Airport Boulevard and SR-86 Southbound Ramps
5. Airport Boulevard and Palm Street
6. Airport Boulevard and Polk Street
7. Airport Boulevard and Tyler Street
8. Airport Boulevard and Harrison Street
9. Airport Boulevard and Project Driveway

Study Area Roadway Segment

1. Airport Boulevard between Palm Street and Project Driveway
2. Airport Boulevard between Project Driveway and SR-86 Southbound Ramps
3. Airport Boulevard between SR-86 Southbound Ramps and SR-86 Northbound Ramps

Due to the COVID-19 pandemic, traffic patterns are currently disrupted and not typical; therefore, IEG, in coordination with City staff, County of Riverside, and County consultants, has collected the most recent count data available in the area. Counts from La Entrada Specific Plan report, County of Riverside Whitewater River Bridge Widening assessment, and Thermal Motorsport Park Project were used in the development of Year 2020 intersection peak hour turning movement volumes and corresponding roadway segment daily volumes. Per discussion with City staff, the proposed project should be analyzed consistent with the City of Coachella General Plan. A copy of the City of Coachella traffic forecast model plots was obtained from Fehr and Peers who prepared the General Plan and created the City of Coachella traffic model, which is a sub-area model created specifically for the City of Coachella using the Riverside County Traffic Analysis Model (RivTAM). A comparison of the base year model (2011) and future year (2035) will reflect the anticipated area-wide growth. Based on this comparison, annual growth factors were determined for each intersection approach and used for the development of Existing Year 2020, Opening Years 2025 and 2030 volume forecasts. Annual growth factors and volume forecasts are shown in **Appendix B**.

Buildout Year 2035 Baseline Conditions forecast volumes will use the Buildout plus Project forecast volumes from La Entrada Specific Plan. Project trips will then be added to develop the Buildout with project volumes.

PROJECT TRIP GENERATION

The trip generation is a measure or forecast of the number of trips that begin or end at the project site. These trips will result in some traffic increases on the streets where they occur. The rates used in this analysis were determined using *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE) that is widely used in Southern California. Project ITE average trip generation rates are presented in **Table 1-1**.

Table 1-1
Project Trip Generation Rate

Land Use[1]	Units[1]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Industrial Park	TSF	130	0.324	0.076	0.4	0.084	0.316	0.4	3.37
Self-Storage	TSF	151	0.06	0.04	0.1	0.08	0.09	0.17	1.51
Service Station/Mini Mart	VFP	960	14.04	14.04	28.08	11.48	11.48	22.96	230.52
Fast Food Restaurant w/ Drive Through	TSF	934	20.50	19.69	40.19	16.99	15.68	32.67	470.95

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017)
[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

Tables 1-2 through **1-4** summarizes the calculated trip generation based on the floor areas or dwelling units associated with Phases I, II, and III of the proposed Project. As shown on Table 1-4, the proposed development is anticipated to generate approximately 4,078 total daily trips, 500 AM peak hour trips and 464 PM peak hour trips.

Table 1-2
Project Trip Generation – Phase I

Land Use	Intensity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Phase I									
Industrial Park[3]	215.6	TSF	70	16	86	18	68	86	727
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			48	11	59	14	53	67	493
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			5	1	6	1	4	5	59
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			9	2	11	2	6	8	97
4+-Axle Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			40	9	49	7	28	35	439
Subtotal			***102***	***23***	***125***	***24***	***91***	***115***	***1,087***
Self-Storage	72.83	TSF	**4**	**3**	**7**	**6**	**7**	**13**	**110**
Service Station/Mini Mart	10	VFP	140	140	280	115	115	230	2,305
Pass-by Reduction (62% AM Peak Hour, 56% PM Peak Hour)[2]			87	87	174	*64*	*64*	*128*	*1,291*
Subtotal			*53*	*53*	*106*	*51*	*51*	*102*	*1,014*
Fast Food Restaurant W/ Drive Through	4.7	TSF	95	92	187	79	73	152	2,190
Pass-by Reduction (49% AM Peak Hour, 50% PM Peak Hour)[2]			47	45	92	39	36	75	1,095
Subtotal			***48***	***47***	***95***	***40***	***37***	***77***	***1,095***
Total (Phase I)			***207***	***126***	***333***	***121***	***186***	***307***	***3,307***

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017)
[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions
[2] Pass-by reduction percentage is based on the ITE methodology per Table E of ITE Trip Generation Handbook (3rd Edition, 2017)
[3] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, SANBAG PCE Rates

Table 1-3
Project Trip Generation – Phases I & II

Land Use	Intensity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Phase 1									
Industrial Park[3]	215.6	TSF	70	16	86	18	68	86	727
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			48	11	59	14	53	67	493
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			5	1	6	1	4	5	59
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			9	2	11	2	6	8	97
4+-Axle Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			40	9	49	7	28	35	439
Subtotal			***102***	***23***	***125***	***24***	***91***	***115***	***1,087***
Self-Storage	72.83	TSF	**4**	**3**	**7**	**6**	**7**	**13**	**110**
Service Station/Mini Mart	10	VFP	140	140	280	115	115	230	2,305
Pass-by Reduction (62% AM Peak Hour, 56% PM Peak Hour)[2]			87	87	174	*64*	*64*	*128*	*1,291*
Subtotal			*53*	*53*	*106*	*51*	*51*	*102*	*1,014*
Fast Food Restaurant W/ Drive Through	4.7	TSF	95	92	187	79	73	152	2,190
Pass-by Reduction (49% AM Peak Hour, 50% PM Peak Hour)[2]			47	45	92	39	36	75	1,095
Subtotal			***48***	***47***	***95***	***40***	***37***	***77***	***1,095***
Total (Phase I)			***207***	***126***	***333***	***121***	***186***	***307***	***3,307***
Phase II									
Industrial Park[3]	152.9	TSF	50	12	62	13	48	61	515
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			34	8	42	10	38	48	349
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			4	1	5	1	3	4	42
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			6	1	7	1	4	5	69
4+-Axle Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			29	7	36	5	20	25	311
Total (Phase II)			***73***	***17***	***90***	***17***	***65***	***82***	***771***
Total (Phases I & II)			***280***	***143***	***423***	***138***	***251***	***389***	***4,078***

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017)
[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Station
[2] Pass-by reduction percentage is based on the ITE methodology per Table E of ITE Trip Generation Handbook (3rd Edition, 2017)
[3] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, SANBAG PCE Rates

Table 1-4
Project Trip Generation – Phases I, II & III

Land Use	Intensity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Phase 1									
Industrial Park[3]	215.6	TSF	70	16	86	18	68	86	727
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			48	11	59	14	53	67	493
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			5	1	6	1	4	5	59
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			9	2	11	2	6	8	97
4+-Axle Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			40	9	49	7	28	35	439
Subtotal			***102***	***23***	***125***	***24***	***91***	***115***	***1,087***
Self-Storage	72.83	TSF	**4**	**3**	**7**	**6**	**7**	**13**	**110**
Service Station/Mini Mart	10	VFP	140	140	280	115	115	230	2,305
Pass-by Reduction (62% AM Peak Hour, 56% PM Peak Hour)[2]			87	87	174	*64*	*64*	*128*	*1,291*
Subtotal			*53*	*53*	*106*	*51*	*51*	*102*	*1,014*
Fast Food Restaurant W/ Drive Through	4.7	TSF	95	92	187	79	73	152	2,190
Pass-by Reduction (49% AM Peak Hour, 50% PM Peak Hour)[2]			47	45	92	39	36	75	1,095
Subtotal			***48***	***47***	***95***	***40***	***37***	***77***	***1,095***
Total			***207***	***126***	***333***	***121***	***186***	***307***	***3,307***
Phases II									
Industrial Park[3]	152.9	TSF	50	12	62	13	48	61	515
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			34	8	42	10	38	48	349
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			4	1	5	1	3	4	42
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			6	1	7	1	4	5	69
4+-Axle Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			29	7	36	5	20	25	311
Total (Phase II)			***73***	***17***	***90***	***17***	***65***	***82***	***771***
Phase III									
Industrial Park[3]	122.5	TSF	40	9	49	10	39	49	413
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			27	6	33	8	30	38	280
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			3	1	4	1	2	3	33
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			5	1	6	1	3	4	55
4+-Axle Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			23	5	28	4	16	20	249
Subtotal			***58***	***13***	***71***	***14***	***51***	***65***	***617***
Self-Storage	60.45	TSF	**4**	**2**	**6**	**5**	**5**	**10**	**91**
Total (Phase III)			***62***	***15***	***77***	***19***	***56***	***75***	***708***
TOTAL (Phases I, II & III)			**342**	**158**	**500**	**157**	**307**	**464**	**4,786**

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017)
[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions
[2] Pass-by reduction percentage is based on the ITE methodology per Table E of ITE Trip Generation Handbook (3rd Edition, 2017)
[3] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, SANBAG PCE Rates

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution and assignment is the process of identifying the probable destinations, directions and traffic routes that project related traffic will affect. Trip distribution and assignment information can be estimated from observed traffic patterns, experience or through use of a computerized travel forecast model. Once the proposed development's trips have been estimated, they are assigned to the study area network. For this development, the project trip distribution and assignment were developed, in coordination with City staff, based on the land use characteristics of the proposed project and surrounding area, existing travel patterns within the study area, anticipated travel patterns to and from the project site, and approved projects located in the vicinity of the project site.

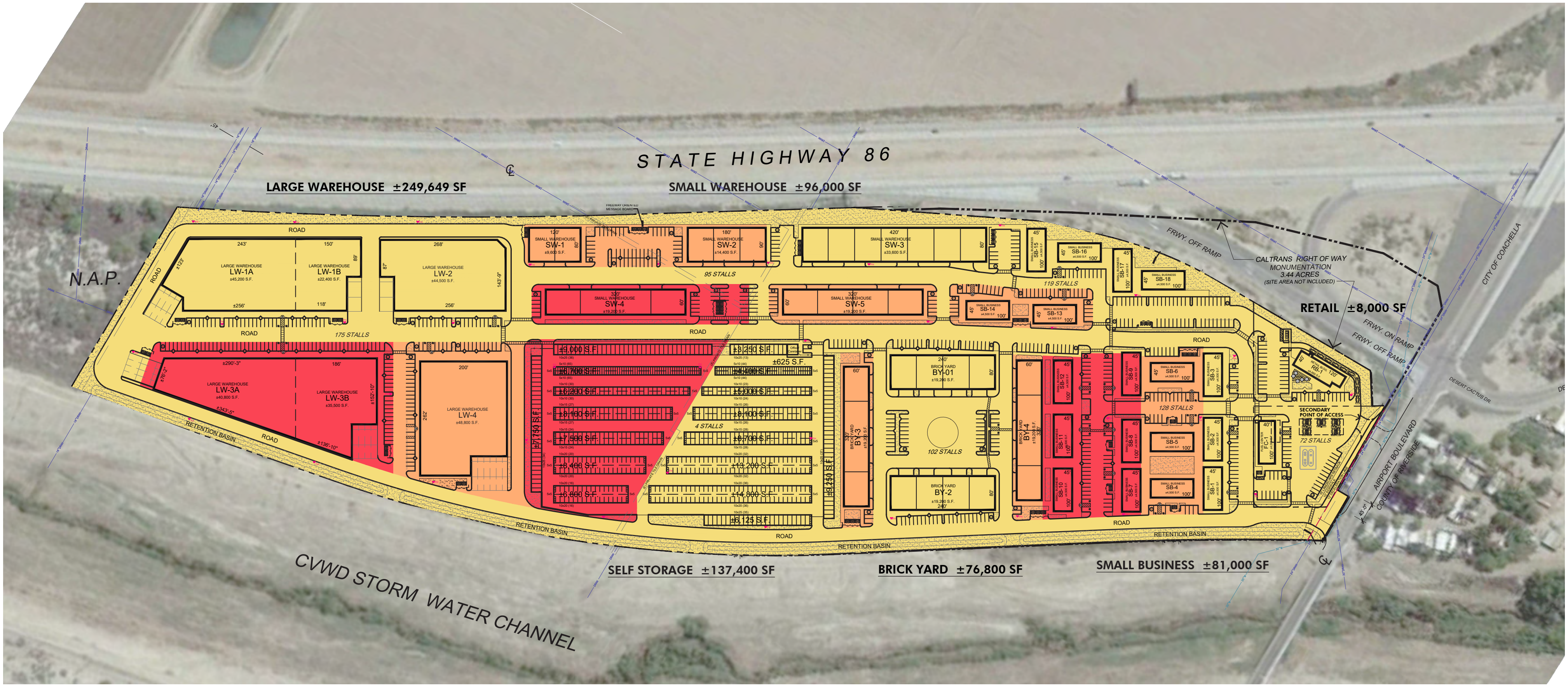
Figures 1-1 through 1-8 show project site plan, study area, trip distribution/assignment and intersection turning movement volumes.

PROJECT ACCESS

The proposed site will be accessed via a newly constructed driveway along the western end of the property on Airport Boulevard which will be signalized at Phase III of the project. The project will provide a secondary access east of the primary access on Airport Boulevard for emergency access use only. Regional access to the project is provided by SR-86 just east of the project site. Airport Boulevard is a major arterial that connects the project to the surrounding local roadway network and regional freeway system.

PARKING

The proposed development will be required to provide on-site parking spaces consistent with City of Coachella parking requirement.



PROPOSED SITE PLAN

SCALE: 1" = 100'-0"

GRAPHIC SCALE

1 inch = 100' feet

	PHASE 1	1-5 YEARS
	PHASE 2	5-10 YEARS
	PHASE 3	10-20 YEARS

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Project Site Plan
Figure 1-1

LEGEND

Intersections   # Project Driveway

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Study Area
Figure 1-2

LEGEND

Intersections
Project Driveway

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Industrial Park component (Passenger Cars)
Project Distribution
Figure 1-3

LEGEND

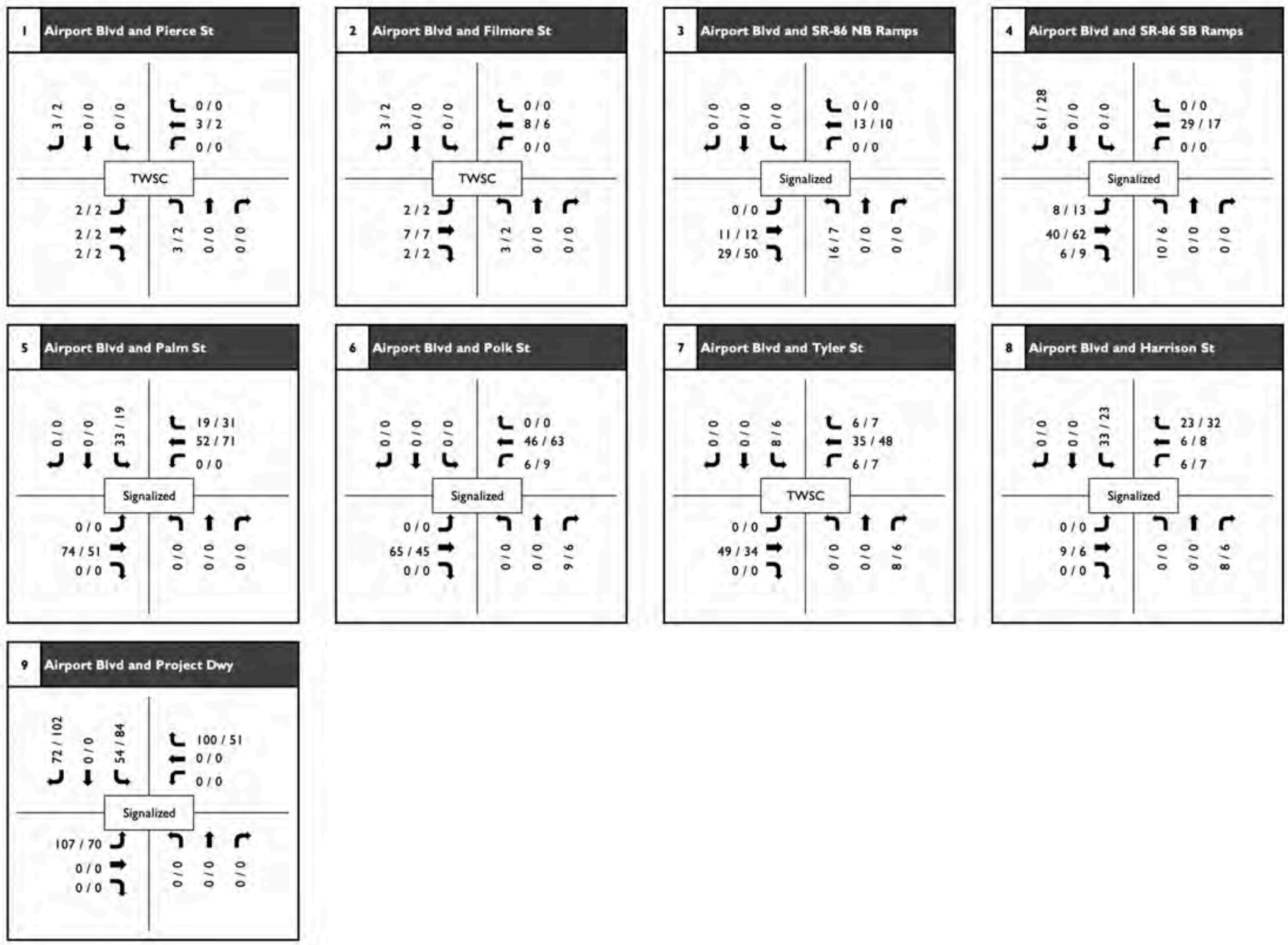
\# Intersections

\# Project Driveway

Coachella Airport Business Park
Commercial/Retail/Self-Storage Component
Project Distribution
Figure 1-4

LEGEND

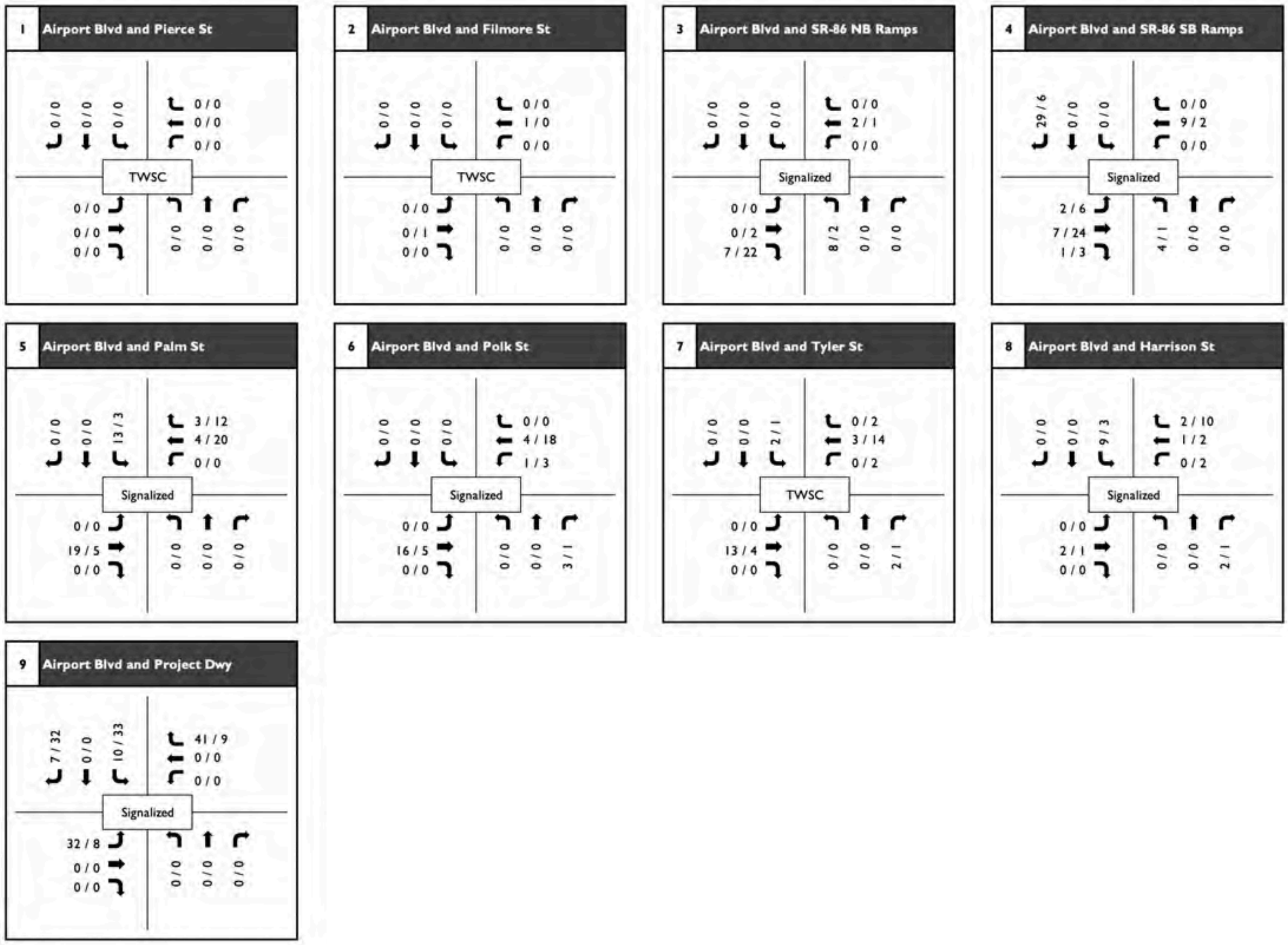
Intersections — Project Driveway



LEGEND
0/0 = (AM/PM) Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Project AM/PM Peak Hour Intersection Volumes – Phase I
Figure 1-6

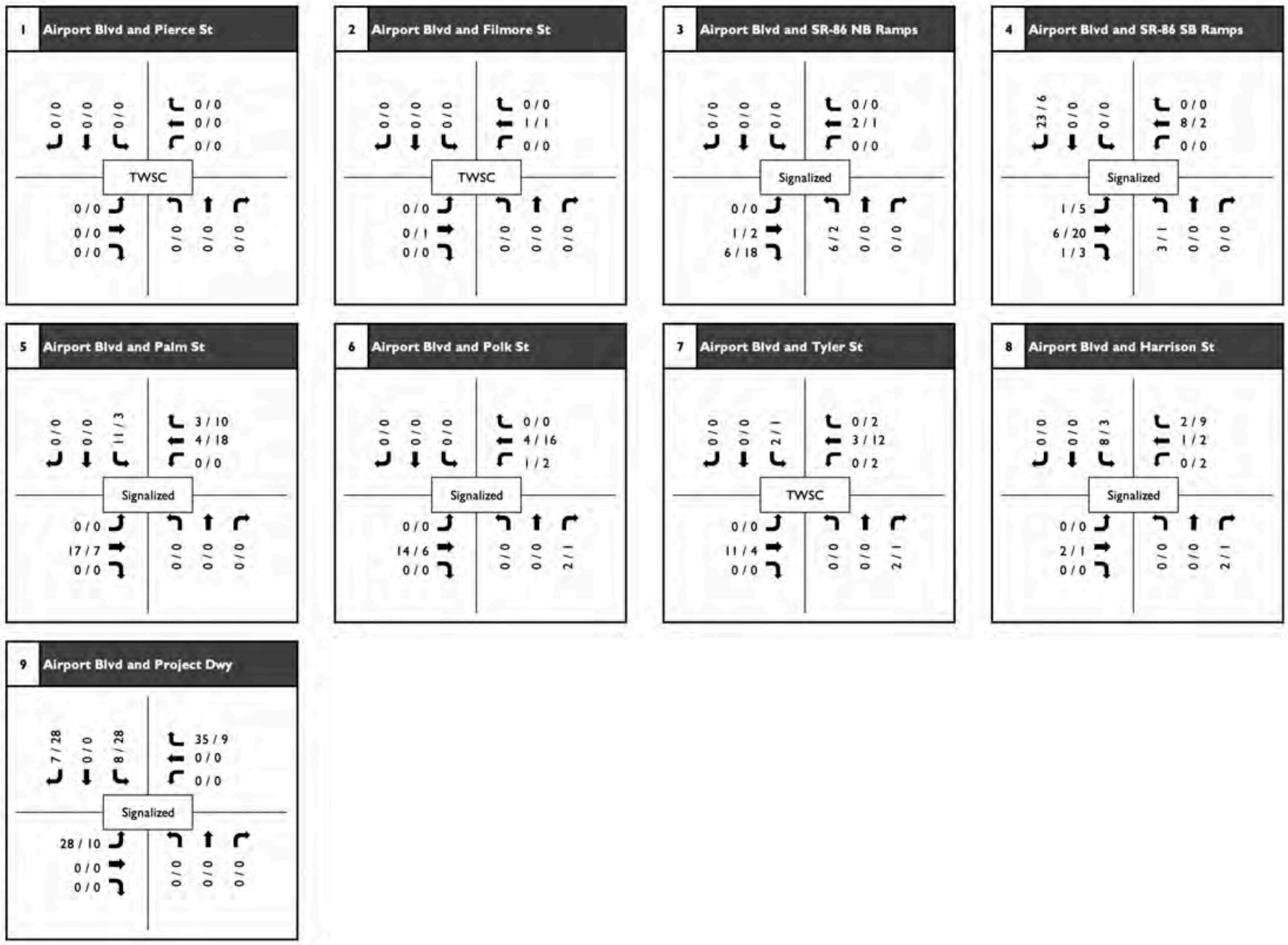


LEGEND

0/0 = (AM/PM) Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Project AM/PM Peak Hour Intersection Volumes – Phases II
Figure 1-7



LEGEND

0/0 = (AM/PM) Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Project AM/PM Peak Hour Intersection Volumes – Phases III
Figure 1-8

2.0 METHODOLOGIES

This section documents the methodologies and assumptions used to conduct the circulation impact analysis for the proposed project. This section contains the following background information:

- Study scenarios
- Study time periods
- Analysis methodologies

Refer to **Appendix A** for approved scoping agreement.

STUDY SCENARIOS

This report presents an analysis of the intersections and roadway segments operating conditions which were selected for the following anticipated timeframe scenarios:

- Existing Year (2020)
  - Existing Year 2020 Baseline Conditions: Represents the traffic conditions of the existing street network.
- Opening Year (2025)
  - Opening Year 2025 Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place by Year 2025 (existing counts plus ambient growth).
  - Opening Year 2025 Plus Project Conditions: Represents the Opening Year 2025 Baseline traffic conditions with the addition of Phase I of the proposed project
- Opening Year (2030)
  - Opening Year 2030 Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place by Year 2030 (existing counts plus ambient growth plus Phase I of the propose project)
  - Opening Year 2030 Plus Project Conditions: Represents the Opening Year 2030 Baseline traffic conditions with the addition of Phase II of the proposed project
- Buildout (2035)
  - Buildout Year 2035 Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place by Year 2035 (Community Buildout plus Phase I & II of the proposed project)
  - Buildout Year 2035 Plus Project Conditions: Represents the Buildout Year 2030 Baseline traffic conditions with the addition of Phase III of the proposed project

STUDY TIME PERIODS

The City selected the following peak hours for analysis:

- Weekday AM (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM (peak hour between 4:00 PM and 6:00 PM)

ANALYSIS METHODOLOGIES

Street system operating conditions are typically described in terms of “level of service.” Level of service is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. Level of service (LOS) ranges from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). **Table 2-1** describes generalized definitions of auto LOS A through F.

Table 2-1
Vehicular Level of Service Definitions

LOS	Characteristics
A	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E	Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections have a volume-to-capacity ratio greater than 1.0.

Source: Highway Capacity Manual, Transportation Research Board (2010)

Intersection Capacity Analysis

The analysis of peak hour intersection performance was conducted using the Synchro 10 software program, which uses methodologies defined in the 2010 Highway Capacity Manual (HCM) to calculate LOS. Level of service (LOS) for intersections is determined by control delay. Control delay is defined as the total elapsed time from when a vehicle stops at the end of a queue to the time the vehicle departs from the stop line. The total elapsed time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

Signalized Intersections

The HCM analysis methodology for evaluating signalized intersections is based on the “operational analysis” procedure. This technique uses 1,900 passenger cars per hour of green per lane (pcphpl) as the maximum saturation flow of a single lane at an intersection. Average control delay is calculated by taking a volume-weighted average of all the delays for all vehicles entering the intersection. **Table 2-2** summarizes the level of service criteria for signalized intersections.

Table 2-2
Signalized Intersection Level of Service HCM Operational Analysis Method

Average Control Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
<10.0	*LOS A* occurs when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1 – 20.0	*LOS B* occurs when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
20.1 – 35.0	*LOS C* occurs when progression is favorable or the cycle length is moderate. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
35.1 – 55.0	*LOS D* occurs when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
55.1 – 80.0	*LOS E* occurs when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
>80.0	*LOS F* occurs when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, Transportation Research Board (2010)

All-way Stop-controlled (AWSC) Intersections

The HCM analysis methodology for evaluating all-way Stop-controlled intersections is based on the degree of conflict for each independent approach created by the opposing approach and each conflicting approach. Level of Service for AWSC intersections is also based on the average control delay. However, AWSC intersections have different threshold values than those applied to signalized intersections. This is based on the rationale that drivers expect AWSC intersections to carry lower traffic volumes than at signalized intersections. Therefore, a higher level of delay is acceptable at a signalized intersection for the same LOS.

Two-way Stop-controlled (TWSC) Intersections

The HCM analysis methodology for evaluating two-way Stop-controlled (TWSC) intersections is based on gap acceptance and conflicting traffic for vehicles stopped on the minor-street approaches. The critical gap (minimum gap that would be acceptable) is defined as the minimum time interval in the major-street traffic stream that allows intersection entry for one minor-street vehicle. Average control delay and LOS for the "worst approach" are reported. Level of service is not defined for the intersection as a whole. **Table 2-3** summarizes the level of service criteria for unsignalized intersections.

Table 2-3
Level of Service Criteria for Stop Controlled Unsignalized Intersections

Average Control Delay (sec/veh)	Level of Service (LOS)
<u><</u>10.0	A
10.1 – 15.0	B
15.1 – 25.0	C
25.1 – 35.0	D
35.1 – 50.0	E
>50.0	F

Source: Highway Capacity Manual, Transportation Research Board (2010)

Roadway Segments

The weekday average daily traffic (ADT) volumes for all scenarios included in this report were determined based on the following equation, which utilizes the forecasted intersection PM peak hour turning movement counts: PM Peak Hour (Approach Volume + Exit Volume) x 12 = ADT Leg Volume

Roadway segment operations were evaluated by comparing the forecasted traffic volumes to the maximum two-way daily traffic volumes based on the 1999 Modified Highway Capacity Manual Level of Service Tables as defined in the Riverside County Congestion Management Program. **Table 2-4** shows roadway classifications with volume capacities used for this study area.

Table 2-4
Roadway Segment Capacity Thresholds

Roadway Classification	Maximum Two-Way Traffic Volume (ADT)		
	LOS C	LOS D	LOS E
2-lane Arterial	14,400	16,200	18,000
6-lane Urban Arterial	43,100	48,500	53,900

Source: County of Riverside General Plan Circulation Element Figure C-3 (2008)

Traffic Signal Warrant Analysis

The Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), amended with California MUTCD 2014 Edition, presents warrant criteria for the justifying the installation of a traffic signal at an unsignalized intersection. The criteria include studying traffic conditions, pedestrian characteristics, and physical characteristics of the intersection location. The MUTCD indicates that satisfaction of one or more of the traffic signal warrants does not in itself require the installation of a traffic control signal.

This study uses the Peak Hour Volume Warrant 3 to assess the need of a traffic signal at the unsignalized intersection locations shown below:

- Airport Boulevard and Tyler Street/Higgins Drive
- Airport Boulevard and Filmore Street
- Airport Boulevard and Project Driveway

For all other scenarios that include forecasted traffic volumes, this study uses MUTCD Figure 4C-103 (CA) for new intersections where it is not reasonable to count actual traffic volumes.

Coachella General Plan Compliance

In coordination with City staff, the traffic impact analysis will identify LOS deficiencies for compliance with City of Coachella General Plan goals subsequent to July 1, 2020 but will not be defined as significant environmental impacts. Instead, deficiencies and improvements may be incorporated into project conditions of approval as deemed satisfactory to the City Engineer. The City of Coachella has established LOS "D" as the minimum allowable level of service at intersections. Therefore, any intersection operating at LOS "E" or worse will be considered deficient for the purposes of this analysis.

Transportation Uniform Mitigation Fee & Development Impact Fee

New development projects within the City of Coachella are required to provide needed infrastructure improvements to meet the demand created by the development and provide off-site improvements designed to ensure construction of the local and regional transportation networks to their ultimate classifications. These improvements could be funded through development fee payment toward several adopted funding mechanisms such as Transportation Uniform Mitigation Fee (TUMF), City of Coachella Development Impact Fee (DIF), County of Riverside DIF, and Tribal Transportation Program. If the "funded" improvements can provide the target LOS, payment into the fee program will be provided in cases where this study identifies that the Project would contribute additional traffic volumes to cumulative traffic deficiencies.

3.0 EXISTING YEAR (2020) SCENARIO

This section documents the circulation system conditions within the study area of the project under Existing Year 2020 project scenario. The Existing Year 2020 Baseline Conditions traffic volumes were developed by applying the annual growth factors per intersection approach (shown in Appendix B) to La Entrada Specific Plan 2012 counts for 8 years. For intersections 3 and 4, peak hour intersection volumes counted on February 27, 2020 were used. This section also documents operational deficiencies on the existing local and regional circulation networks. No network improvements are assumed under Existing Year 2020 project scenario.

ROADWAY NETWORK

Locally significant roadway located within the study area of the proposed project is discussed below.

Airport Boulevard from Harrison Street to Pierce Street functions as a 2-lane major arterial that is currently under County of Riverside jurisdiction, within the City of Coachella sphere of influence. The posted speed limit on Airport Boulevard is 45 miles per hour (mph) between Polk Street and Fillmore Street and 55 mph east and west of this segment. Per the City of Coachella General Plan and the County of Riverside General Plan, the buildout classification for this segment of Airport Boulevard is a 6-lane major arterial.

TRANSIT SYSTEM

The SunLine Transit Agency is the main transit agency servicing the City of Coachella. Currently, SunLine operates buses on two routes within the vicinity of the project including Routes 91 and 95. Route 91 operates seven days a week and connects Coachella to Indio, Thermal, Oasis and Mecca. Weekday service frequency is 60 minutes and weekend service frequency is 80 minutes. Bus stops for Route 91 is currently located west of the project at the intersection of Airport Boulevard and Palm Street. Pedestrian accessibility and connectivity from the project site to this bus stop is provided along the south side of Airport Blvd. Route 95 operates seven days a week and connects Coachella to North Shore. Weekday and weekend service frequency is 180 minutes. Bus stops for Route 95 are currently located along the project frontage on Airport Boulevard.

ACTIVE TRANSPORTATION SYSTEM

Active transportation facilities including pedestrian and bicycle facilities within the study area of the project are limited. Pedestrian crosswalks are generally provided at sign intersections along Airport Boulevard. Neither bicycle facilities nor sidewalks currently exist along the project frontage on Airport Boulevard. However, Pedestrian crosswalks and sidewalks are provided along the south side of Airport Boulevard. Bicycle facilities do not currently exist along Airport Boulevard. Project is proposing to provide half width right-of-way improvements along the property frontage including vehicular travel lane, bike lanes, curb, gutter and sidewalk.

TRAFFIC VOLUMES

Due to the COVID-19 pandemic, traffic patterns are currently disrupted and not typical; therefore, IEG, in coordination with City staff, County of Riverside, and County consultants, has collected the most recent count data available in the area. Counts from La Entrada Specific Plan report, County of Riverside Whitewater River Bridge Widening assessment, and Thermal Motorsport Park Project were used in the development of Year 2020 intersection peak hour turning movement volumes and corresponding roadway segment daily volumes. A copy of the City of Coachella traffic forecast model plots were obtained from Fehr and Peers who prepared the General Plan and created the City of Coachella traffic model, which is a sub-area model created specifically for the City of Coachella using the Riverside County Traffic Analysis Model (RivTAM). A comparison of the base year model (2011) and future year (2035) will reflect the anticipated area-wide growth. Based on this comparison, a annual growth factors by intersection approach were determined and used for the development of Year 2020 forecasts shown in Appendix B. For intersections 3 and 4, peak hour intersection volumes counted on February 27, 2020 were used.

ANALYSIS RESULTS

Tables 3-1 through 3-3 show Existing Conditions intersection operation, intersection queuing and roadway segment analysis results.

Figures 3-1 through 3-4 show City of Coachella circulation network, City of Coachella roadway cross-sections, and intersection turning movement volumes under Existing Year 2020 scenario.

Table 3-1
Existing Year 2020 Scenario Intersection Operation Analysis

Intersection	Existing Year 2020	
	Delay (a)	LOS (b)
AM Peak/PM Peak		
1. Airport Boulevard and Pierce Street	8.9/9.4	A/A
2. Airport Boulevard and Filmore Street	11.4/15.9	B/C
3. Airport Boulevard and SR-86 Northbound Ramps	13.5/7.7	B/A
4. Airport Boulevard and SR-86 Southbound Ramps	21.1/19.2	C/B
5. Airport Boulevard and Palm Street	7.8/8.9	A/A
6. Airport Boulevard and Polk Street	11.9/11.4	B/B
7. Airport Boulevard and Tyler Street	20.6/12.6	C/B
8. Airport Boulevard and Harrison Street	16.3/16.4	B/B
9. Airport Boulevard and Project Driveway	Does not exist	

Per the analysis results shown in **Table 3-1**, all analyzed intersections are operating at an acceptable LOS under Existing scenario.

Table 3-2
Existing Year 2020 Scenario Roadway Segment Capacity Analysis

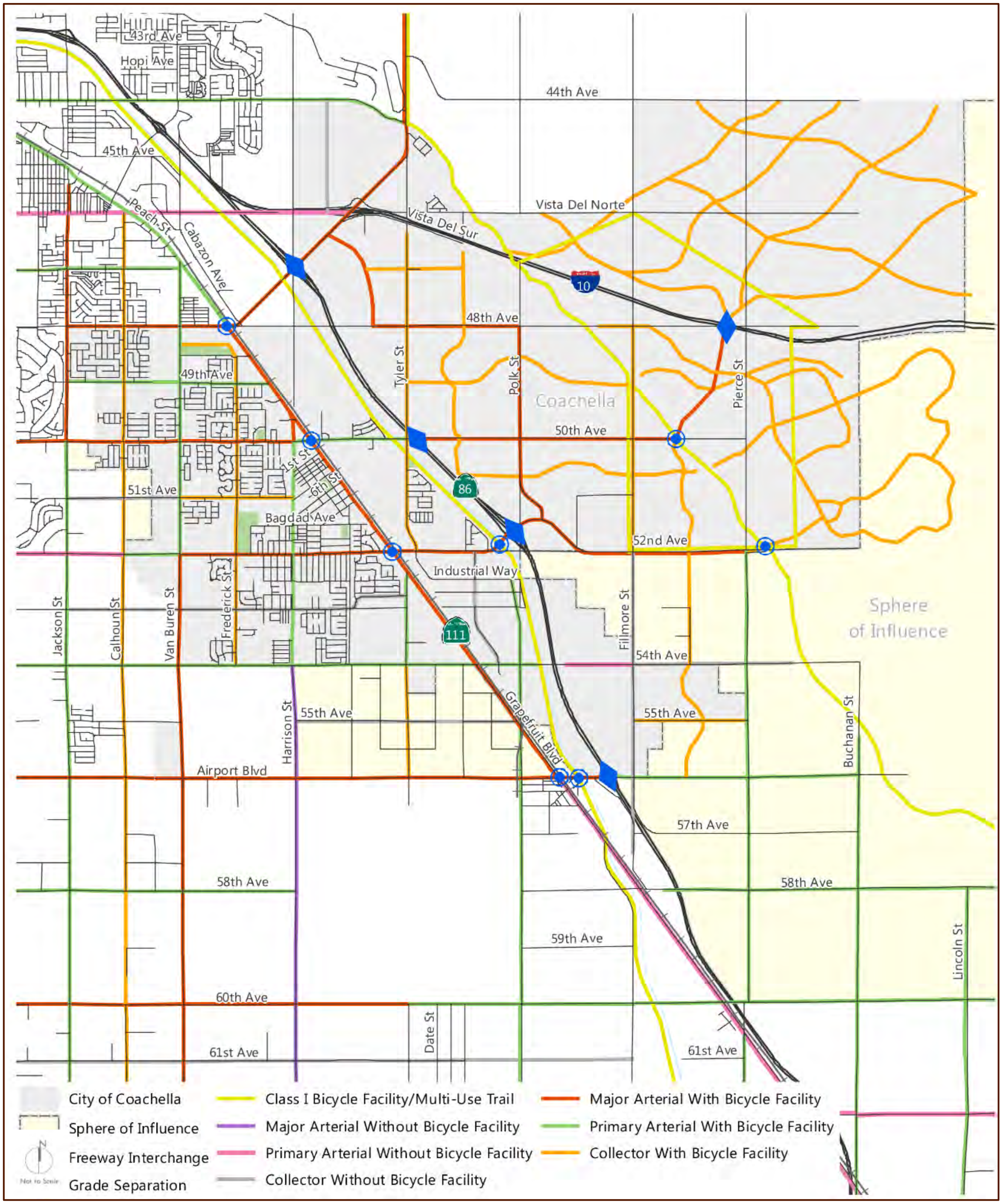
Roadway Segment	Classification	LOS E Capacity	Existing Year 2020		
			ADT	v/c ratio	LOS
Airport Boulevard					
Palm Street to Project Driveway	2-lane Arterial	18,000	7,970	0.442	< C
Project Driveway to SR-86 SB Ramps	2-lane Arterial	18,000	6,290	0.349	< C
SR-86 SB Ramps to SR-86 NB Ramps	2-lane Arterial	18,000	5,410	0.301	< C

Per the analysis results shown in **Table 3-2**, all analyzed roadway segments are operating at an acceptable LOS under Existing 2020 Conditions.

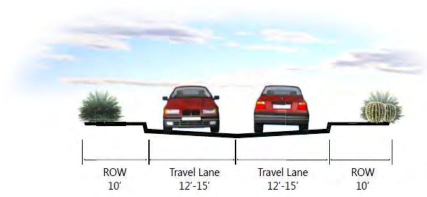
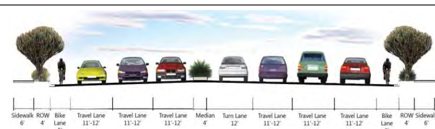
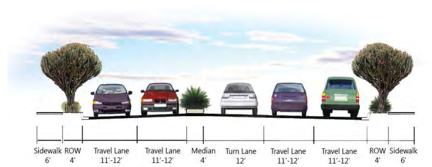
TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The proposed project would not have any intersection operation or roadway segment capacity deficiencies under Existing Conditions, as shown in **Tables 3-1** and **3-2**.

Existing Conditions peak hour analysis worksheets are provided in **Appendix C**.



City of Coachella Circulation Network
Figure 3-1

STREET TYPE	DESCRIPTION	CROSS-SECTION	ROW	TRAVEL LANE WIDTH	SIDEWALK WIDTH	BIKE LANE WIDTH	PRIORITIZED			
							PED	BIKE	BUS	AUTO
COUNTRY ROAD	Two-lane roadways designed to carry traffic through rural areas of the City. It is designed for higher speeds and a variety of vehicles including cars, large trucks, and agricultural equipment as necessary. Limited bicycle and pedestrian usage is anticipated.		50 feet	12 to 15 feet	Not Present	Not Present	N	N	N	Y
MAJOR ARTERIAL	These facilities provide for all modes of travel, but they acknowledge that the arterial is a primary link in the City's vehicular transportation system. Major arterials have six travel lanes and can have ROW up to 120 feet. Travel lanes can vary from 11 to 12 feet.		108 feet	11 to 12 feet	6 feet or more	Not Present	N	N	Y	Y
MAJOR ARTERIAL WITH ENHANCED BICYCLE FACILITIES	These facilities provide for all modes of travel, but they acknowledge that the arterial is a primary link in the City's vehicular transportation system. Major arterials have six travel lanes and can have ROW up to 132 feet. Travel lanes can vary from 11 to 12 feet.		118 feet	11 to 12 feet	6 feet or more	5 feet or more	Y	Y	Y	Y
PRIMARY ARTERIAL	These facilities provide for all modes of travel, but they acknowledge that the arterial is a primary link in the City's vehicular transportation system. Major arterials have four travel lanes and can have ROW up to 110 feet. Travel lanes can vary from 11 to 12 feet.		84 feet	11 to 12 feet	6 feet or more	Not present	N	N	Y	Y
PRIMARY ARTERIAL WITH ENHANCED BICYCLE FACILITIES	These facilities provide superior accommodations for bicyclists as compared to regular arterials. In-street Bicycle lanes (Class II) facilities are provided. The bicycle lanes can vary from 5 to 6 feet. The travel lanes can vary from 11 to 12 feet.		94 feet	11 to 12 feet	6 feet or more	5 feet or more	Y	Y	Y	Y

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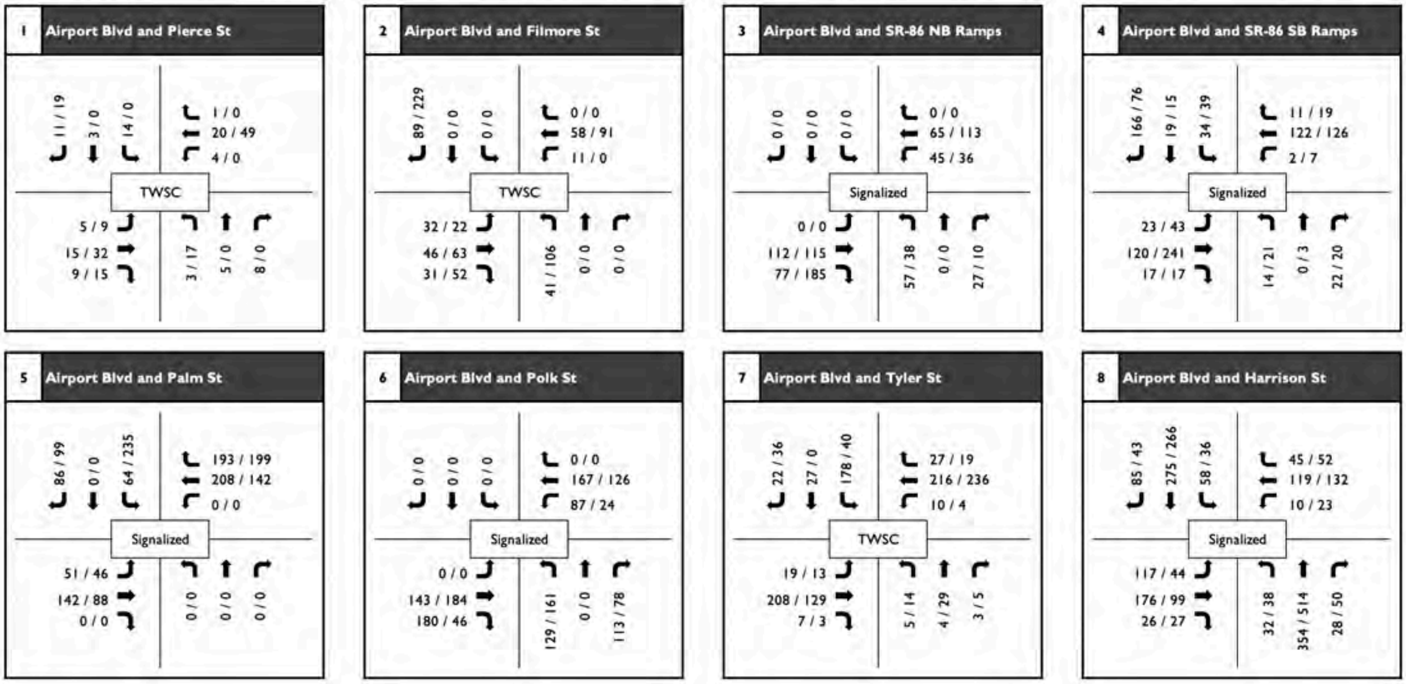
Coachella Airport Business Park
City of Coachella General Plan Roadway Cross-Section
Figure 3-2



LEGEND
0/0 = (AM/PM) Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Existing Year (2020) AM/PM Peak Hour
Intersection Volumes
Figure 3-3

4.0 OPENING YEAR (2025) SCENARIO

This section documents the circulation system conditions within the study area of the project under Opening Year 2025 project scenarios. The Opening Year 2025 Baseline Conditions traffic volumes were developed by applying the annual growth factors per intersection approach (shown in Appendix B) to La Entrada Specific Plan 2012 counts for 13 years. For intersections 3 and 4, annual growth factors per intersection approach were applied to 2020 counts for 5 years. Phase I Project traffic volumes are then added to the Opening Year 2025 Baseline Conditions traffic volumes to develop Opening Year 2025 with Project Phase I Conditions traffic volumes. This section also documents potential operational deficiencies on the existing local and regional circulation networks. No network improvements are assumed under Opening Year 2025 scenario.

ANALYSIS RESULTS

Tables 4-1 through **4-3** show Opening Year Conditions (2025) intersection operation, intersection queuing and roadway segment analysis results.

Figures 4-1 and **4-2** show intersection turning movement volumes under Opening Year 2025 scenario.

Table 4-1
Opening Year 2025 Scenario Intersection Operation Analysis

Intersection	Opening Year 2025 Baseline		Opening Year 2025 With Project		Opening Year 2025 With Improvement		Δ Delay (c)
	Delay (a)	LOS (b)	Delay (a)	LOS (b)	Delay (a)	LOS (b)	
AM Peak/PM Peak							
1. Airport Boulevard and Pierce Street	9.0/9.5	A/A	9.1/9.6	A/A			
2. Airport Boulevard and Filmore Street	12.3/27.4	B/D	12.7/29.4	B/D			
3. Airport Boulevard and SR-Northbound Ramps	24.3/8.0	C/A	17.4/7.7	B/A			
4. Airport Boulevard and SR-Southbound Ramps	28.0/19.9	C/B	28.6/21.8	C/C			
5. Airport Boulevard and Palm Street	8.1/9.7	A/A	8.6/10.0	A/B			
6. Airport Boulevard and Polk Street	13.5/12.6	B/B	13.9/12.7	B/B			
7. Airport Boulevard and Tyler Street	24.2/13.2	C/B	35.9/15.0	**E**/C	18.2/13.2	B/B	-6.0/ 0.0
8. Airport Boulevard and Harrison Street	19.4/19.0	B/B	21.5/22.6	C/C			
9. Airport Boulevard and Project Driveway	Does not exist		14.6/14.6	B/B			

Notes:
***Bold** values indicate intersections operating at LOS E or F.*
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At unsignalized intersection, delay refers to the worst movement.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10
(c) Change in delay between Opening Year 2025 With Improvement and Opening Year 2025 Baseline

Per the analysis results shown in **Table 4-1**, all analyzed intersections are operating at an acceptable LOS under Opening Year 2025 scenario except for the following:

- Airport Boulevard and Tyler Street during AM peak (LOS E)

TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The proposed project would have an intersection operation deficiency under Opening Year 2025 with Project Conditions at the following intersection, as shown in **Table 4-1**:

- Airport Boulevard and Tyler Street

The following transportation improvement is recommended at the identified deficient location:

- Airport Boulevard and Tyler Street – Signalize the intersection

Table 4-1 displays the analysis results after the implementation of the improvements described above. As shown, the deficient location will be improved with the implementation of the proposed transportation improvement. This intersection of Airport Boulevard and Tyler Street warrants a traffic signal under Opening Year 2025 scenario. Traffic signal warrant worksheets are provided in **Appendix L**.

Opening Year 2025 Baseline and Opening Year 2025 with Project peak hour analysis worksheets are provided in **Appendices D** and **E**, respectively. Intersection with improvement peak hour analysis worksheets are provided in **Appendix K**.

Table 4-2
Opening Year 2025 With Project Intersection Queue Analysis

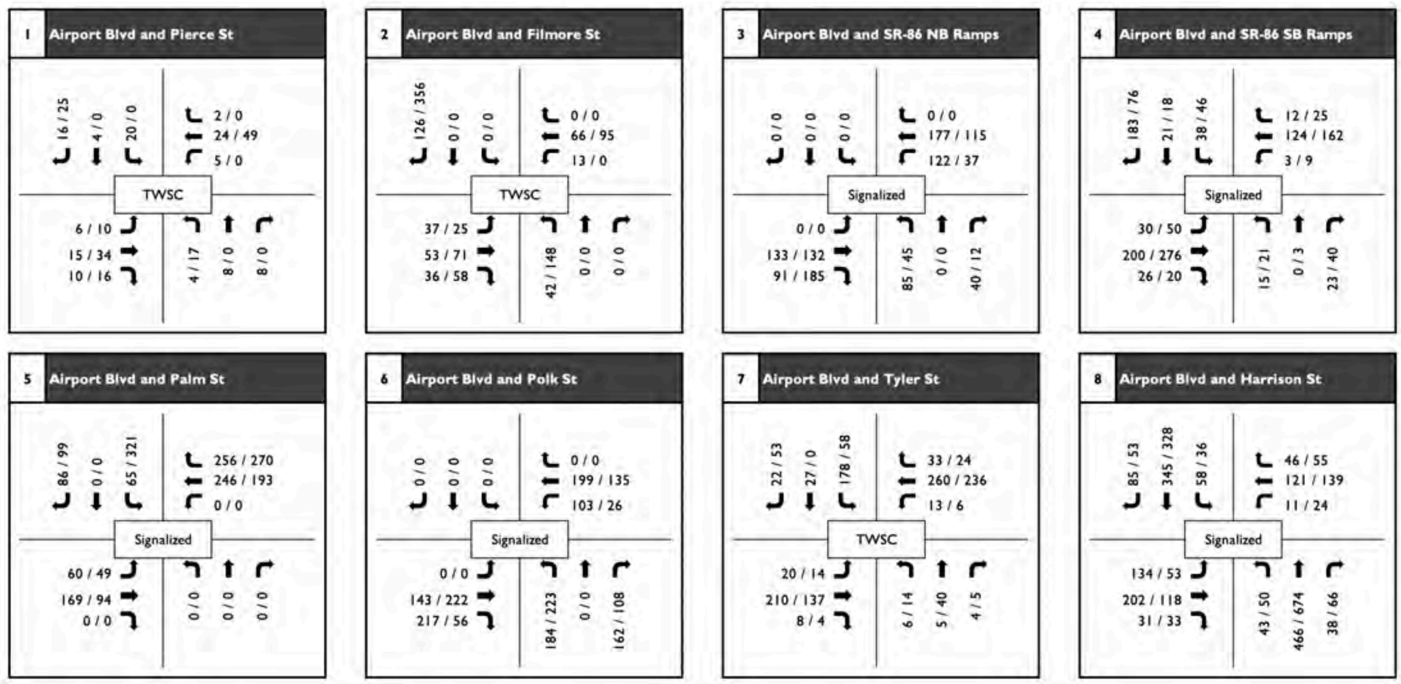
Intersection	Movement	Stacking Distance (ft)	Queue (ft)		Excess Demand	
			AM	PM	AM	PM
3. Airport Boulevard and SR-86 Northbound Ramps	NBL	1000	126	73	--	--
	NBR	575	40	23	--	--
4. Airport Boulevard and SR-86 Southbound Ramps	SBL/SBT	1300	60	76	--	--
	SBR	700	87	51	--	--
	WBL	500	0	29	--	--
	EBL	170	45	72	--	--
9. Airport Boulevard and Project Driveway	SBL	400	50	82	--	--
	WBR	325	10	7	--	--

Per the analysis results shown in **Table 4-2**, there will be no excess queue demand as the anticipated vehicular queues do not exceed the stacking area available at any of the analyzed locations. Vehicular queue worksheets are provided in **Appendix J**.

Table 4-3
Opening Year 2025 Scenario Roadway Segment Capacity Analysis

Roadway Segment	Classification	LOS E Capacity	Opening Year 2025 Baseline			Opening Year 2025 With Project		
			ADT	v/c ratio	LOS	ADT	v/c ratio	LOS
Airport Boulevard								
Palm Street to Project Driveway	2-lane Arterial	18,000	10,540	0.586	< C	12,600	0.700	< C
Project Driveway to SR-86 SB Ramps	2-lane Arterial	18,000	7,260	0.403	< C	8,880	0.493	< C
SR-86 SB Ramps to SR-86 NB Ramps	2-lane Arterial	18,000	5,720	0.318	< C	6,670	0.371	< C

Per the analysis results shown in **Table 4-3**, all analyzed roadway segments are operating at an acceptable LOS under Opening Year 2025 scenario.



LEGEND
0/0 = (AM/PM) Peak Hour Volumes

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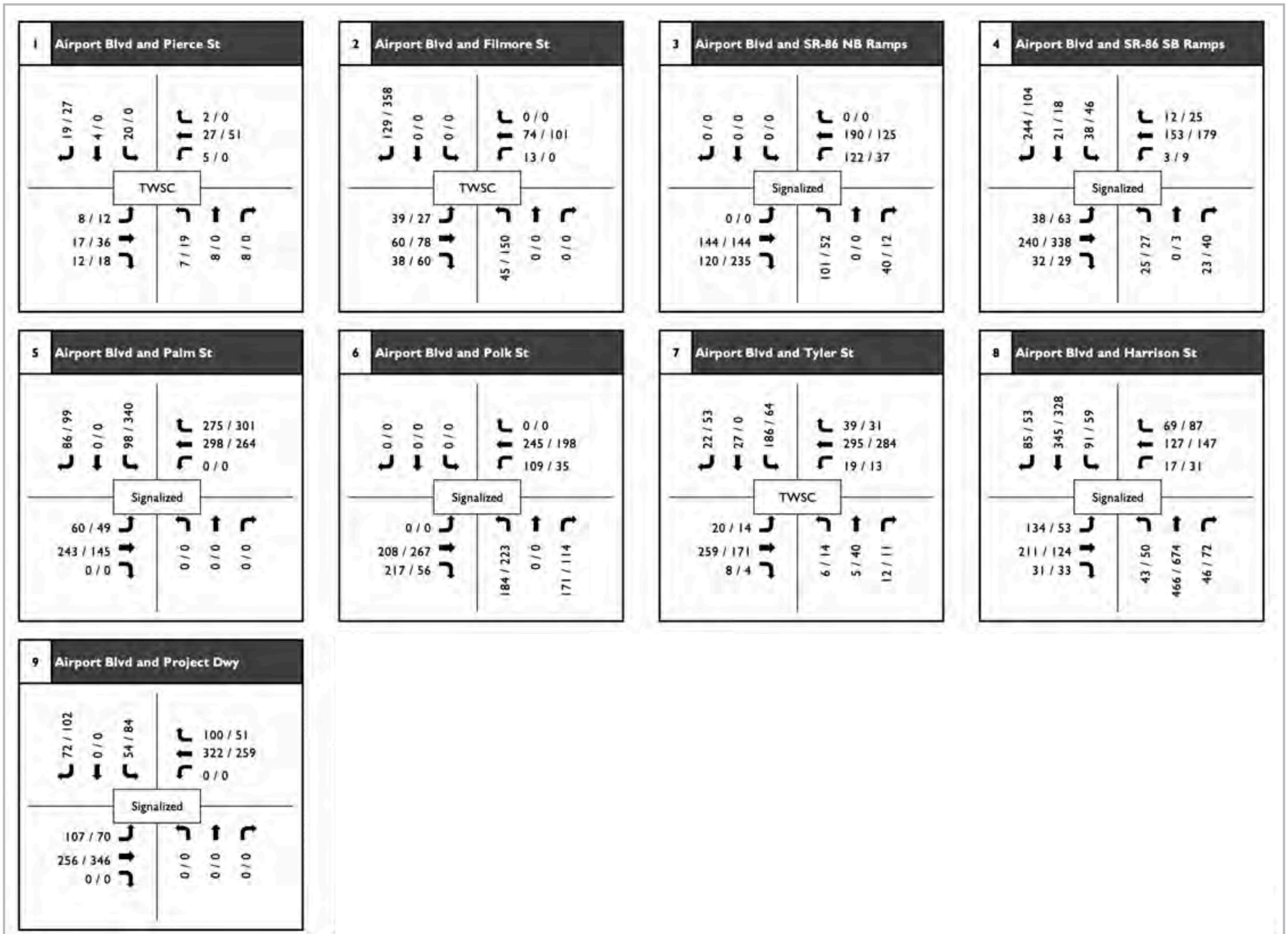
Coachella Airport Business Park
Opening Year (2025) Baseline AM/PM
Peak Hour Intersection Volumes
Figure 4-1



LEGEND

0/0 = (AM/PM) Peak Hour Volumes

5.0 OPENING YEAR CONDITIONS (2030)

This section documents the circulation system conditions within the study area of the project under Opening Year 2030 project scenarios. The Opening Year 2030 Baseline Conditions traffic volumes were developed by applying the annual growth factors per intersection approach (shown in Appendix B) to La Entrada Specific Plan 2012 counts for 18 years, in addition to Phase I of the proposed project. For intersections 3 and 4, annual growth factors per intersection approach were applied to 2020 counts for 10 years, in addition to Phase I of the project. Phase II Project traffic volumes are then added to the Opening Year 2030 Baseline Conditions traffic volumes to develop Opening Year 2030 with Project Conditions traffic volumes. This section also documents potential operational deficiencies on the existing local and regional circulation networks. No network improvements are assumed under Opening Year 2030 scenario.

ANALYSIS RESULTS

Tables 5-1 through **5-3** show Opening Year Conditions (2030) intersection operation, intersection queuing and roadway segment analysis results.

Figures 5-1 and **5-2** show Opening Year Conditions (2030) intersection turning movement volumes and roadway segment ADT.

Intersection Analysis

Table 5-1
Opening Year 2030 Scenario Intersection Operation Analysis

Intersection	Opening Year 2030 Baseline		Opening Year 2030 With Project		Opening Year 2030 With Improvement		Δ Delay (c)
	Delay (a)	LOS (b)	Delay (a)	LOS (b)	Delay (a)	LOS (b)	
AM Peak/PM Peak							
1. Airport Boulevard and Pierce Street	9.2/9.7	A/A	9.2/9.7	A/A			
2. Airport Boulevard and Filmore Street	13.9/109.7	B/**F**	13.9/109.7	B/**F**	11.7/16.6	B/B	-2.2/ -93.1
3. Airport Boulevard and SR-Northbound Ramps	40.0/8.6	D/A	39.7/8.4	D/A			
4. Airport Boulevard and SR-Southbound Ramps	29.6/23.0	C/C	33.4/23.6	C/C			
5. Airport Boulevard and Palm Street	8.6/11.8	A/B	8.7/12.0	A/B			
6. Airport Boulevard and Polk Street	16.1/14.0	B/B	16.3/14.0	B/B			
7. Airport Boulevard and Tyler Street	37.1/16.7	**E**/C	40.4/17.5	**E**/C	18.8/14.2	B/B	-18.3/ -2.5
8. Airport Boulevard and Harrison Street	29.2/32.3	C/C	30.7/34.1	C/C			
9. Airport Boulevard and Project Driveway	16.1/15.9	C/C	18.6/18.3	C/C			

Notes:
***Bold** values indicate intersections operating at LOS E or F.*
(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle. At unsignalized intersection, delay refers to the worst movement.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10
(c) Change in delay between Opening Year 2030 With Improvement and Opening Year 2030 Baseline

Per the analysis results shown in **Table 5-1**, all analyzed intersections are operating at an acceptable LOS under Opening Year 2030 Baseline Conditions except for the following:

- Airport Boulevard and Filmore Street during AM and PM peaks (LOS F)
- Airport Boulevard and Tyler Street during AM and PM peaks (LOS E)

TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The proposed project would have an intersection operation deficiency under Opening Year 2030 with Project Conditions at the following intersections, as shown in **Table 5-1**:

- Airport Boulevard and Filmore Street during PM peak (LOS F)
- Airport Boulevard and Tyler Street during AM peak (LOS E)

The following transportation improvements are recommended at the identified deficient locations:

- Airport Boulevard and Filmore Street – Intersection signalization
- Airport Boulevard and Tyler Street – Intersection signalization

Table 5-1 displays the analysis results after the implementation of the improvements described above. As shown, all deficient locations will be improved with the implementation of the proposed transportation improvements. In addition to the intersection that warrants a traffic signal under Opening Year 2025 Conditions, the intersection of Airport Boulevard and Filmore Street warrants a traffic signal under Opening Year 2030 Conditions. Traffic signal warrant worksheets are provided in **Appendix L**.

Opening Year 2030 Baseline and Opening Year 2030 With Project peak hour analysis worksheets are provided in **Appendices F** and **G**, respectively. Intersection with improvement peak hour analysis worksheets are provided in **Appendix K.**

Table 5-2
Opening Year 2030 With Project Intersection Queue Analysis

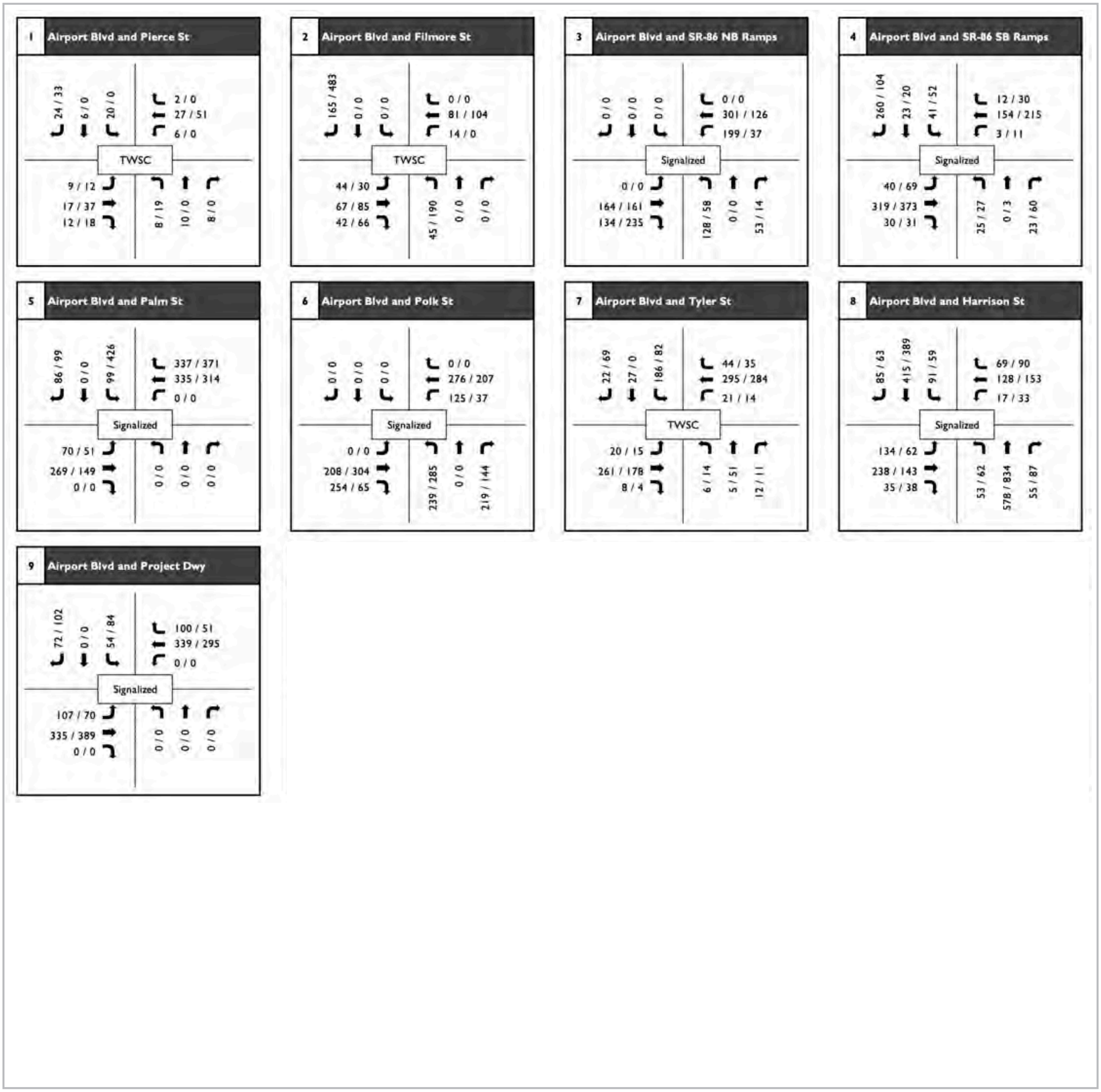
Intersection	Movement	Stacking Distance (ft)	Queue (ft)		Excess Demand	
			AM	PM	AM	PM
3. Airport Boulevard and SR-86 Northbound Ramps	NBL	1000	161	88	--	--
	NBR	575	44	41	--	--
4. Airport Boulevard and SR-86 Southbound Ramps	SBL/T	1300	80	93	--	--
	SBR	700	109	74	--	--
	WBL	500	21	28	--	--
	EBL	170	66	107	--	--
9. Airport Boulevard and Project Driveway	SBL	400	61	79	--	--
	WBR	325	16	15	--	--

Per the analysis results shown in **Table 5-2**, there will be no excess queue demand as the anticipated vehicular queues do not exceed the stacking area available at any of the analyzed locations. Vehicular queue worksheets are provided in **Appendix J**.

Table 5-3
Opening Year 2030 Scenario Roadway Segment Capacity Analysis

Roadway Segment	Classification	LOS E Capacity	Opening Year 2030 Baseline			Opening Year 2030 With Project		
			ADT	v/c ratio	LOS	ADT	v/c ratio	LOS
Airport Boulevard								
Palm Street to Project Driveway	2-lane Arterial	18,000	15,120	0.840	C	15,600	0.867	C
Project Driveway to SR-86 SB Ramps	2-lane Arterial	18,000	9,830	0.546	< C	10,330	0.574	< C
SR-86 SB Ramps to SR-86 NB Ramps	2-lane Arterial	18,000	6,960	0.387	< C	7,280	0.404	< C

Per the analysis results shown in **Table 5-3**, all analyzed roadway segments are operating at an acceptable LOS under Opening Year 2030 scenario.



LEGEND

0/0 = (AM/PM) Peak Hour Volumes

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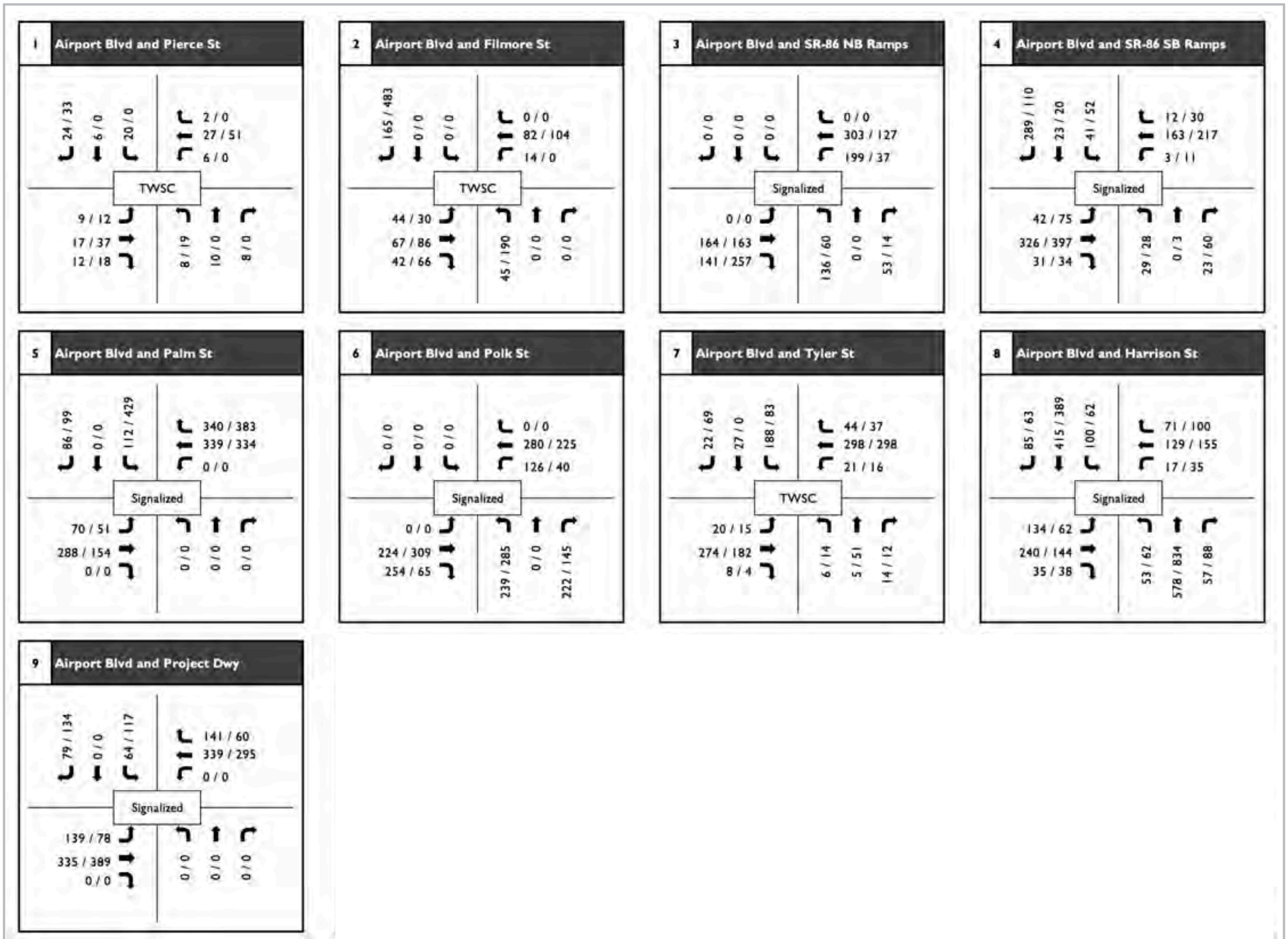
Coachella Airport Business Park
Opening Year (2030) Baseline
AM/PM Peak Hour IntersectionVolumes
Figure 5-1



LEGEND
0/0 = (AM/PM) Peak Hour Volumes

Coachella Airport Business Park
Opening Year (2030) With Project
AM/PM Peak Hour Intersection Volumes
Figure 5-2

6.0 BUILDOUT CONDITIONS (2035)

This section documents the circulation system conditions within the study area of the project under Buildout 2035 scenario. Per coordination with the City, the Buildout 2035 Baseline forecast volumes were developed by adding La Entrada Specific Plan Buildout 2035 with project volumes to Phase I and II of the proposed project traffic volumes. Proposed project Phase III traffic volumes are then added to the Buildout 2030 Baseline traffic volumes to develop Buildout 2035 with Project traffic volumes. No intersection operational improvements are assumed under Buildout 2035 scenarios. However, for the purposed of roadway segment capacity analysis, the buildout classification of 6-lane urban arterial for Airport Boulevard is assumed; consistent with the City of Coachella General Plan.

ANALYSIS RESULTS

Tables 6-1 through **6-3** show Buildout Conditions (2035) intersection operation, intersection queuing and roadway segment capacity analysis results.

Figures 6-1 and **6-2** show Buildout Conditions (2035) intersection turning movement volumes and roadway segment ADTs.

Table 6-1
Buildout 2035 Scenario Intersection Operation Analysis

Intersection	Buildout 2035 Baseline		Buildout 2035 With Project		Buildout 2035 With Improvement		Δ Delay (c)
	Delay (a)	LOS (b)	Delay (a)	LOS (b)	Delay (a)	LOS (b)	
AM Peak/PM Peak							
1. Airport Boulevard and Pierce Street	>300/>300	**F/F**	>300/>300	**F/F**	23.8/50.0	C/E	-276.2/-250.0
2. Airport Boulevard and Filmore Street	>300/>300	**F/F**	>300/>300	**F/F**	57.9/45.7	E/D	-242.1/-254.3
3. Airport Boulevard and SR-Northbound Ramps	68.2/79.2	**E/E**	70.5/83.6	**E/F**	21.2/55.6	C/E	-49.3/-28.0
4. Airport Boulevard and SR-Southbound Ramps	53.8/123.6	D/**F**	56.6/130.4	**E/F**	19.0/40.0	B/D	-25.7/-80.9
5. Airport Boulevard and Palm Street	12.8/24.6	B/C	13.3/25.5	B/C			
6. Airport Boulevard and Polk Street	52.8/37.3	D/D	53.4/37.4	D/D			
7. Airport Boulevard and Tyler Street	>300/>300	**F/F**	>300/>300	**F/F**	27.6/65.4	C/E	-272.4/-234.6
8. Airport Boulevard and Harrison Street	>300/>300	**F/F**	>300/>300	**F/F**	53.9/64.7	D/E	-246.1/-235.3
9. Airport Boulevard and Project Driveway	>300/>300	**F/F**	>300/>300	**F/F**	16.2/25.4	B/C	-287.8/-274.6

Notes:
***Bold** values indicate intersections operating at LOS E or F.*
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At unsignalized intersection, delay refers to the worst movement.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 10
(c) Change in delay between Opening Year 2030 With Improvement and Opening Year 2030 Baseline

Per the analysis results shown in **Table 6-1**, all analyzed intersections are operating at an acceptable LOS under Buildout 2035 Baseline Conditions except for the following:

- Airport Boulevard and Pierce Street during AM and PM peaks (LOS F)
- Airport Boulevard and Filmore Street during AM and PM peaks (LOS F)
- Airport Boulevard and SR-86 Northbound Ramps during AM and PM peaks (LOS E)
- Airport Boulevard and SR-86 Southbound Ramps during PM peak (LOS F)
- Airport Boulevard and Tyler Street during AM and PM peaks (LOS F)
- Airport Boulevard and Harrison Street during AM and PM peaks (LOS F)
- Airport Boulevard and Project Driveway during AM and PM peaks (LOS F)

TRAFFIC RELATED DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The proposed project would have traffic related deficiencies under Buildout 2035 with Project Conditions at the following intersections, as shown in **Table 6-1**:

- Airport Boulevard and Pierce Street during AM and PM peaks (LOS F)
- Airport Boulevard and Filmore Street during AM and PM peaks (LOS F)
- Airport Boulevard and SR-86 Northbound Ramps during AM and PM peaks (LOS E, LOS F)
- Airport Boulevard and SR-86 Southbound Ramps during AM and PM peaks (LOS E, LOS F)
- Airport Boulevard and Tyler Street during AM and PM peaks (LOS F)
- Airport Boulevard and Harrison Street during AM and PM peaks (LOS F)
- Airport Boulevard and Project Driveway during AM and PM peaks (LOS F)

The following transportation improvements are recommended at the identified deficient locations:

- Airport Boulevard and Pierce Street – Convert intersection to all-way stop control and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane, 1 through lane and 1 shared through-right turn lane in the northbound direction; 1 exclusive left turn lane, 1 through lane and 1 shared through-right turn lane in the southbound direction; 1 exclusive left turn lane and 1 shared through-right turn lane in the eastbound direction; and 1 exclusive left turn lane and 1 shared through-right turn lane in the westbound direction.
- Airport Boulevard and Filmore Street – Signalize the intersection and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane and 1 shared through-right turn lane in the northbound direction; 1 shared through-left turn lane and 1 exclusive right turn lane in the southbound direction; and 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction.
- Airport Boulevard and SR-86 NB Ramps – Widening of Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps and add 1 exclusive right turn lane in the eastbound direction.
- Airport Boulevard and Tyler Street – Signalize the intersection Airport Boulevard and SR-86 SB Ramps – Add 1 exclusive left turn lane in the southbound direction and widen Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps.
- and widen or reconfigure intersection approaches to provide 1 exclusive left turn lane and 1 shared through-right turn lane in the southbound direction; 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction; and 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the westbound direction.
- Airport Boulevard and Harrison Street - Widen or reconfigure intersection approaches to add 1 through lane in the northbound direction; add 1 exclusive left turn lane and 1 through lane in the

southbound direction; provide 1 exclusive left turn lane, 1 through lane and 1 exclusive right turn lane in the eastbound direction; and add 1 exclusive left turn lane and 1 through lane in the westbound direction.

- Airport Boulevard and Project Driveway – Signalize the intersection.

Table 7-1 displays the analysis results after the implementation of the improvements described above. As shown, all deficient locations will be improved with the implementation of the proposed transportation improvements. In addition to the intersections that warrant a traffic signal under Opening Year 2025 Conditions or Opening Year 2030 Conditions, the intersection of Airport Boulevard and Project Driveway warrants a traffic signal under Buildout 2035 Baseline Conditions. Traffic signal warrant worksheets are provided in **Appendix L**.

Buildout Year 2035 Baseline and Buildout Year 2035 with Project peak hour analysis worksheets are provided in **Appendices H** and **I**, respectively. Intersection with improvement peak hour analysis worksheets are provided in **Appendix K.**

Table 6-2
Buildout 2035 With Project Intersection Queue Analysis

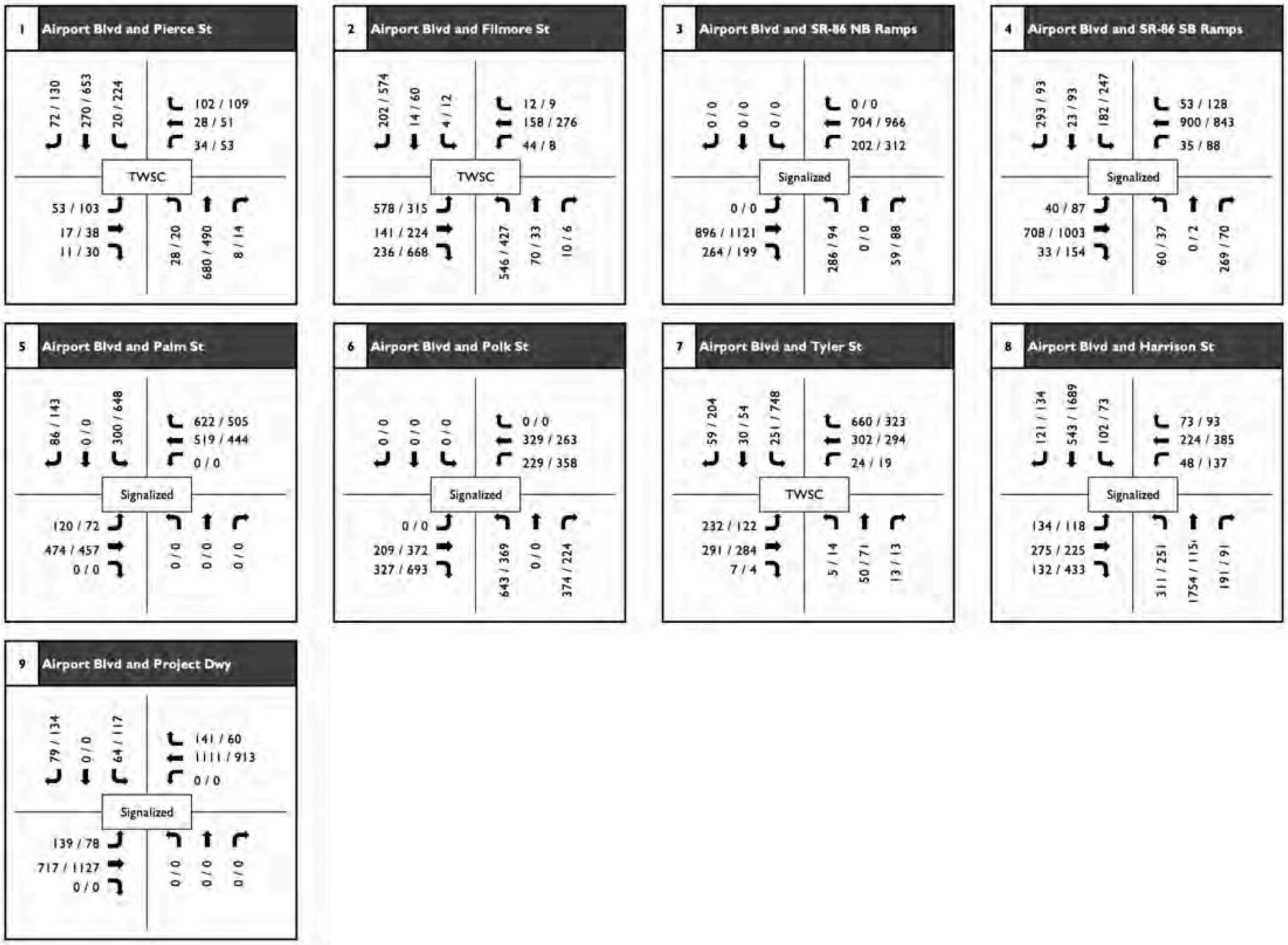
Intersection	Movement	Stacking Distance (ft)	Queue (ft)		Excess Demand	
			AM	PM	AM	PM
3. Airport Boulevard and SR-86 Northbound Ramps	NBL	1000	412	120	--	--
	NBR	575	77	91	--	--
4. Airport Boulevard and SR-86 Southbound Ramps	SBL/T	1300	281	347	--	--
	SBR	700	227	50	--	--
	WBL	500	60	301	--	--
	EBL	170	136	192	--	22
9. Airport Boulevard and Project Driveway	SBL	400	302	467	--	67
	WBT	325	6	7	--	--
	WBR	325	19	7	--	--

Per the analysis results shown in **Table 6-2**, there will be excess queue demand as the anticipated vehicular queues exceed the stacking area available for the eastbound left turn movement at Airport Boulevard and SR-86 Southbound Ramps and the southbound left turn movement at the Project Driveway. The project will extend the existing eastbound left turn pocket at Intersection 4 to 200 feet. The additional 11 feet could be accommodated on-site since the drive aisle extends along the entire length of the western property line. Vehicular queue worksheets are provided in **Appendix J**.

Table 6-3
Buildout 2035 Scenario Roadway Segment Capacity Analysis

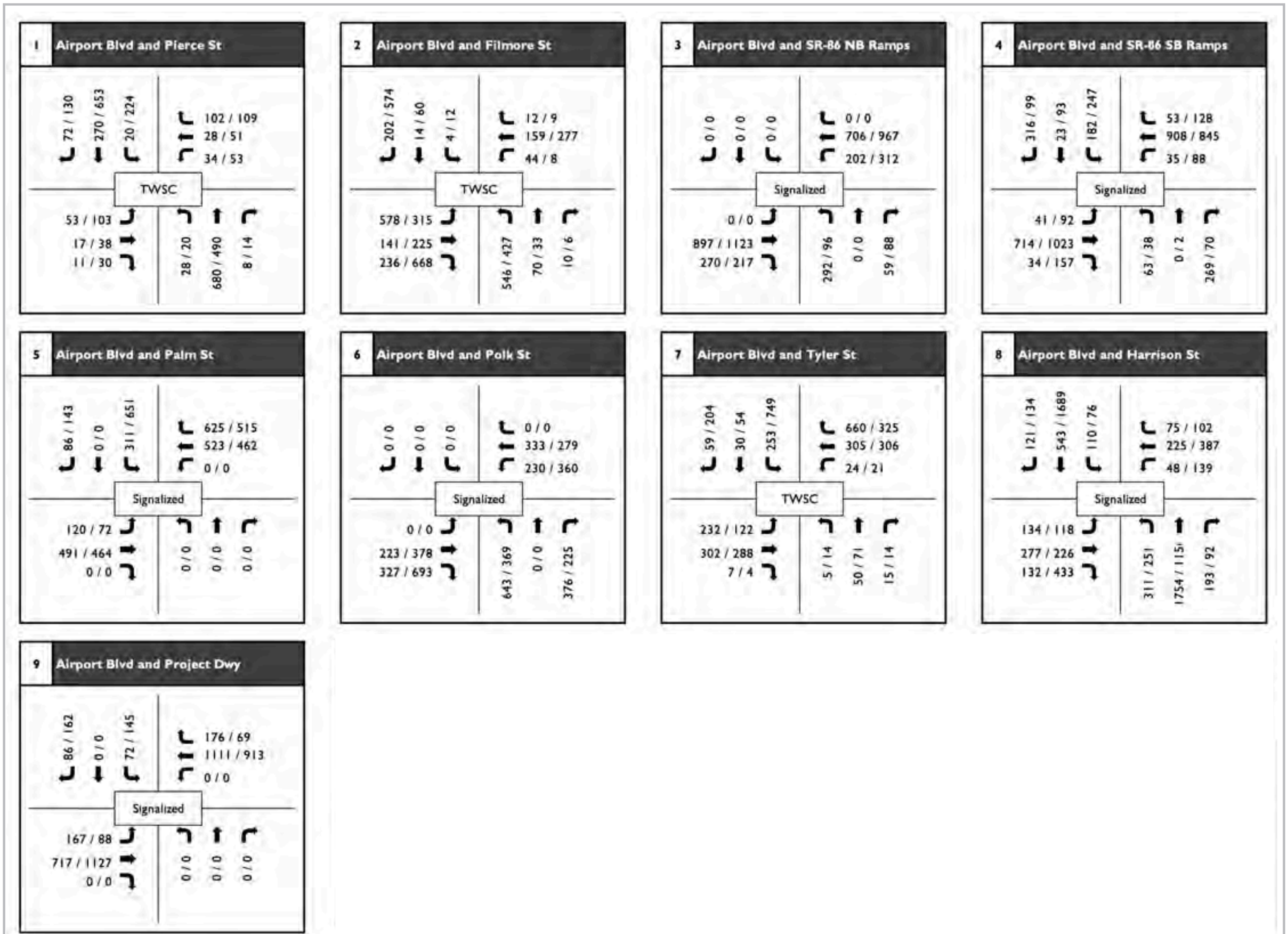
Roadway Segment	Classification	LOS E Capacity	Buildout 2035 With Phases I and II			Buildout 2035 With Phases I, II and III		
			ADT	v/c ratio	LOS	ADT	v/c ratio	LOS
Airport Boulevard								
Palm Street to Project Driveway	6-lane Urban Arterial	53,900	24,650	0.457	< C	25,100	0.466	< C
Project Driveway to SR-86 SB Ramps	6-lane Urban Arterial	53,900	26,600	0.494	< C	27,050	0.502	< C
SR-86 SB Ramps to SR-86 NB Ramps	6-lane Urban Arterial	53,900	28,560	0.530	< C	28,840	0.535	< C

As shown in **Table 6-3**, all analyzed roadway segments are operating at an acceptable LOS under Buildout 2035 Conditions.



LEGEND

0/0 = (AM/PM) Peak Hour Volumes



LEGEND

0/0 = (AM/PM) Peak Hour Volumes

7.0 RECOMMENDED IMPROVEMENTS

This section summarizes the recommended improvements at deficient locations under all analyzed scenarios discussed in this report.

New development projects within the City of Coachella are required to provide needed infrastructure improvements to meet the demand created by the development and provide off-site improvements designed to ensure construction of the local and regional transportation networks to their ultimate classifications. These improvements could be funded through development fee payment toward several adopted funding mechanisms such as Transportation Uniform Mitigation Fee (TUMF), City of Coachella Development Impact Fee (DIF), County of Riverside DIF, and Tribal Transportation Program. If the "funded" improvements can provide the target LOS, payment into the fee program will be provided in cases where this study identifies that the Project would contribute additional traffic volumes to cumulative traffic deficiencies.

Table 7-1 shows recommended transportation improvements needed to address future growth and cumulative traffic deficiencies within the City of Coachella and County of Riverside. This table also highlights regional transportation mitigation fee programs associated with the different recommended improvements identified under all analyzed scenarios.

Table 7-1
Recommended Improvements

Intersection	Recommended Improvements			Improvements in TUMF or DIF?[1]
	Opening Year 2025 with Project	Opening Year 2030 with Project	Buildout 2035 With Project	
1. Airport Boulevard and Pierce Street			Convert to All-way stop control Widen or reconfigure to provide NBL, NBT and NBT/R; SBL, SBT and SBT/R; EBL and EBT/R; and WBL and WBT/R	County of Riverside DIF And TUMF
2. Airport Boulevard and Filmore Street		Signalize	Signalize Widen or reconfigure to provide NBL and NBT/R; SBL/T and SBR; and EBL, EBT and EBR	City of Coachella DIF/County of Riverside DIF
3. Airport Boulevard and SR-Northbound Ramps			Widening of Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps to add EBR	City of Coachella DIF/County of Riverside DIF/TUMF
4. Airport Boulevard and SR-Southbound Ramps			Add SBL and widening of Airport Boulevard to 4 lanes from SR-86 SB Ramps to SR-86 NB Ramps to add WBT	City of Coachella DIF/County of Riverside DIF/TUMF
7. Airport Boulevard and Tyler Street	Signalize	Signalize	Signalize Widen or reconfigure to provide SBL and SBT/R; EBL, EBT and EBR; and WBL, WBT and WBR	County of Riverside DIF/TUMF
8. Airport Boulevard and Harrison Street			Widen or reconfigure to add NBT; add SBL and SBT; provide EBL, EBT and EBR; and add WBL and WBT	Coachella DIF/County of Riverside DIF/Tribal/TUMF
9. Airport Boulevard and Project Driveway			Signalize	Project

[1]If the "funded" improvements can provide the target LOS, payment into the fee program will be provided in cases where this study identifies that the Project would contribute additional traffic volumes to cumulative traffic deficiencies.

Per Table 7-1, the project will be contributing toward the construction of all identifies deficient locations through development fee payments toward adopted funding mechanisms including Transportation Uniform Mitigation Fee (TUMF), City of Coachella Development Impact Fee (DIF), County of Riverside DIF, and Tribal Transportation Program. Project will be conditioned to fully construct and signalize the main access point to the development at the intersection of Airport Boulevard and Project Driveway.

8.0 CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

California Department of Transportation (Caltrans) Local Development-Intergovernmental (LD/IGR) Office has coordinated the review of the project with Caltrans Traffic Operations and Electrical Operations Functional Units. the LD/IGGR has recommended deferring the review of the forecasted volumes which will provide an opportunity to potentially update the traffic impact report and review site drainage and water quality management plans, as well as site grading plans, environmental studies, and other materials for consistency to applicable Caltrans standards at such time that a Caltrans Encroachment Permit application process is submitted for Caltrans review and approval.

The future signalization of the project main access point will trigger the Caltrans Encroachment Permit application process due to proposed entrance location that is approximately 360 feet from the southbound SR-86/Airport Avenue intersection. The minimum spacing requirement between interchange ramps and local road intersections is 400 feet per Highway Design Manual Topic 504.8. The signalization of the main access point will be triggered at Project Phase III occupancy (Year 2035 and beyond). Access alternatives will need to be evaluated considering the change in network conditions that could potentially occur in the next 15 years when the signalization is needed. The alternative evaluation may include, but not limited to, restricted access to right-in/right-out, GPS modems and synchronization/coordination of signal timing as determined appropriate during Caltrans Encroachment Permit review and approval process. Additional analysis could also be required at the time of the signalization is triggered in the next 15 years depending on the outcome of the of forecasted volume review including, but not limited to, freeway merge and diverge analysis and other analysis adjustments that could be required as part of the submittal of the encroachment permit application for Caltrans review and approval.

Project will be conditioned to submit for a Caltrans Encroachment Permit application process prior to the signalization of the main access point on Airport Boulevard for consistency to applicable Caltrans standards and guidelines to the satisfaction of Caltrans Traffic Operations and Electrical Operations Functional Units.

9.0 VEHICLE MILES TRAVELED

The purpose of this section is to evaluate the project's vehicle miles traveled (VMT) analysis requirements and compliance with Senate Bill 743 (SB 743) and the California Environmental Quality Act (CEQA).

SB 743

On September 27, 2013, Senate Bill (SB) 743 was signed into State law and started a process intended to fundamentally change transportation impact analysis as part of the California Environmental Quality Act (CEQA) compliance. The California Natural Resource Agency updated the CEQA transportation analysis guidelines in 2018. In this update automobile delay and level of service (LOS) metrics are no longer to be used in determining transportation impacts. After July 1, 2020, transportation analysis under CEQA must use VMT to determine impacts for land use projects.

VMT ANALYSIS GUIDELINES

The project is within the jurisdiction of the City of Coachella (City). The City, Coachella Valley Association of Government (CVAG) and Riverside County currently do not have guidance on evaluating VMT for transportation impacts under CEQA. In absence of direct guidance from the lead agency, statewide guidance was used as the basis to evaluate VMT for this project.

VMT ANALYSIS

The VMT analysis was conducted by Fehr & Peers who are one of the certified consultants authorized by the County of Riverside to run the RivTAM model which was used to assess the proposed project VMT. The latest version of the RivTAM model was utilized to run the "with project" and "without project" scenarios.

The RIVTAM model inputs are based on population and employment totals. The approximate daily employment for the project was input into the Traffic Analysis Zone (TAZ) that represents the project location in the model. The Project estimates approximately 788 employees each weekday will work on-site. The SED for the project TAZ and surrounding regions used in the analysis is shown in **Table 1**.

Table 1
RIVTAM Model Input Assumptions

	Project TAZ[1]		Coachella		CVAG		Riverside County	
Model Scenario	**Pop**	**Emp**	**Pop**	**Emp**	**Pop**	**Emp**	**Pop**	**Emp**
Base Year No Project	0	248	41,971	8,602	454,979	152,973	2,244,929	616,687
Base Year With Project	0	1,036	41,971	9,390	454,979	153,761	2,244,929	617,475
Future Year No Project	0	374	95,858	14,994	722,044	306,954	3,183,378	1,174,500
Future Year With Project	0	1,162	95,858	15,782	722,044	307,742	3,183,378	1,175,288

Notes:
1. The project is located in TAZ 4844
Source: Riverside Transportation Analysis Model (RIVTAM).

It was determined that VMT will decrease across the studied regions. Therefore, the project is anticipated to result in a less-than-significant transportation impact related to VMT. VMT Analysis is included in **Appendix M**.

APPENDIX A -

SCOPING AGREEMENT

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

7.13.2020
No further comments.

Date:	June 30, 2020
To:	Gabor Pakozdi, City Engineer, City of Coachella
From:	George Ghossain, Principal Engineer, Integrated Engineering Group
Subject:	**Scoping Agreement for Coachella Airport Business Park Project**

Integrated Engineering Group (IEG) is pleased to submit this scoping agreement for the Coachella Airport Business Park Project located at the northwest corner of the intersection of State Route 86 (SR-86) and Airport Boulevard in the City of Coachella within Riverside County, California. The subject project is proposing the construction of an industrial park on vacant site that is designated as "Industrial District" under the City's General Plan 2035 Land Use and Community Character Element, within the southwestern corner of Sub-Area 8 – East Industrial District, which allows for the development of a variety of industrial and office uses. The following land uses are proposed as part of the industrial park project and will be developed through different phases:

- Large Warehouse - 249,649 square feet
- Small Warehouse - 96,000 square feet
- Small Business - 81,000 square feet
- Brick Yard - 76,800 square feet
- Self-Storage - 137,400 square feet
- Fast Food Restaurant with Drive Through - 4,000 square feet
- Service station with Convenience Store – 10 vehicle fueling positions and 4,000 square feet convenience store

Our goal is to obtain comments from City of Coachella staff, to ensure that the traffic study fully addresses the potential impacts of the proposed Project including evaluation of project vehicle miles traveled (VMT) for CEQA transportation impact and level of service (LOS) deficiencies to support City of Coachella General Plan goals. The remainder of this letter describes the draft proposed analysis methodology, project trip generation and project trip distribution and assignment on the surrounding roadway network, which have been used to establish the draft proposed project study area and analysis locations.

The preliminary site plan for the proposed Project is shown on **Figure 1-1**. It is anticipated that the proposed development will be built in phases which will be discussed in detail with City staff. Access to the Project site will be provided via Airport Boulevard. Due to the proximity of the proposed driveway to the SR-86, a queue analysis will be conducted at SR-86 southbound ramps and the project access point along Airport Boulevard including the project drive aisle. The TIA will also be submitted for Caltrans staff review and approval.

TRIP GENERATION FOR POTENTIAL USES

The Trip generation is a measure or forecast of the number of trips that begin or end at the project site. The traffic generated is a function of the extent and type of development proposed for the site. These trips will result in some traffic increases on the streets where they occur. Vehicular traffic generation characteristics for projects are estimated based on established rates. These rates identify the probable traffic generation of various land uses based studies of developments in comparable settings. The rates used in this analysis were determined based on rates contained in the *Trip Generation Manual,10th Edition*, published by the Institute of Transportation Engineers (ITE). This document is widely used in Southern California and indicates the probable traffic generation rates for various land uses based upon studies of existing developments in comparable settings. Project ITE average trip generation rates and trip calculations summary are presented in **Table 1 and Table 2.**

Table 1 - Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Industrial Park	TSF	130	0.324	0.076	0.4	0.084	0.316	0.4	3.37
Self-Storage	TSF	151	0.06	0.04	0.1	0.08	0.09	0.17	1.51
Service Station/Mini Mart	VFP	960	14.04	14.04	28.08	11.48	11.48	22.96	230.52
Fast Food Restaurant W/Drive Through	TSF	934	20.50	19.69	40.19	16.99	15.68	32.67	470.95

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).
[2] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

Table 2 - Project Trip Generation Summary

Land Use[1]	Intensity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Industrial Park [4]	503.45	TSF	163	38	201	42	159	201	1,697
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			113	26	139	33	125	158	1,150
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			13	3	16	2	9	11	137
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			21	5	26	4	14	18	226
4+-Axle Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			94	22	116	17	65	82	1,025
		Sub-total	*240*	*56*	*297*	*56*	*212*	*269*	*2,538*
Self-Storage	145.30	TSF	*9*	*6*	*15*	*12*	*13*	*25*	*219*
Service Station/Mini Mart	10	VFP	140	140	281	115	115	230	2,305
Pass-by Reduction (62% AM Peak Hour, 56% - PM Peak Hour)[3]			87	87	174	64	64	129	1,291
		Sub-total	*53*	*53*	*107*	*51*	*51*	*101*	*1,014*
Fast Food Restaurant W/Drive Through	4.0	TSF	82	79	161	68	63	131	1,884
Pass-by Reduction (49% AM Peak Hour, 50% - PM Peak Hour)[3]			40	39	79	34	31	65	942
		Sub-total	*42*	*40*	*82*	*34*	*31*	*65*	*942*
		Total	*344*	*156*	*500*	*153*	*307*	*460*	*4,714*

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).
[2] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions
[3] Pass-by reduction percentage is based on the ITE methodology per Table E of ITE Trip Generation Handbook (3rd Edition, 2017).
[4] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, San Bernardino County CMP PCE Rates
Vehicle Mix Source: High Cube Warehouse Vehicle Trip Generation Analysis, October 2016, ITE.

STUDY AREA – LOS

The study area for this project was developed consistent with the Riverside County TIA Preparation Guide. The study area also includes all intersections of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips. **Figure 1-2** presents the study area that includes the following key intersections locations:

Intersections

1. Airport Boulevard and Pierce Street
2. Airport Boulevard and Filmore Street
3. Airport Boulevard and SR-86 Northbound Ramps
4. Airport Boulevard and SR-86 Southbound Ramps
5. Airport Boulevard and Palm Street
6. Airport Boulevard and Polk Street
7. Airport Boulevard and Tyler Street
8. Airport Boulevard and Harrison Street
9. Airport Boulevard and Project Driveway

Due to COVID 19 pandemic, traffic patterns are currently disrupted and not typical; therefore, IEG in coordination with City staff, County of Riverside, and County consultants has collected the most up to data available in the area. Counts from La Entrada Specific Plan report, County of Riverside White Water River Bridge Widening assessment, and Thermal Motorsport Park Project will be used in the development of year 2020 intersection turning movement volumes and corresponding segment volumes. Per discussion with City staff, the proposed project should be analyzed consistent with the Coachella General Plan. A copy of the City of Coachella Traffic forecast Model plots will be obtained from Fehr and Peers who prepared the General Plan and created the City of Coachella Traffic model, which is a sub-area model created specifically for the City of Coachella using the Riverside County Traffic Analysis Model (RivTAM). A comparison of the base year model (2011) and future year (2035) will reflect the anticipated area-wide growth. Based on this comparison, a yearly growth factor will be determined and used for the development of future year forecast(s).

In coordination with City staff, County of Riverside, and County consultants, it was determined that the La Entrada Specific Plan is only project in the City and County that analyzed Airport Boulevard corridor in detail; therefore, La Entrada Specific Plan existing counts will be calibrated to develop year 2020 counts for the project through a validation process utilizing counts from County of Riverside White Water River Bridge Widening assessment project and Thermal Motorsport Park Project.

Project base buildout volumes (without project) will use the Buildout Plus Project forecast volumes found in the La Entrada Specific Plan project. Project trips will then be added to develop the Buildout with project Volumes.

Roadway Segments

1. Airport Boulevard between Palm Street and Project Driveway
2. Airport Boulevard between Project Driveway and SR-86 Southbound Ramps
3. Airport Boulevard between SR-86 Southbound Ramps and SR-86 Northbound Ramps

TRIP DISTRIBUTION

Trip distribution and assignment is the process of identifying the probable destinations, directions and traffic routes that project related traffic will likely affect. Trip distribution and assignment information can be estimated from observed traffic patterns, experience or through use of a computerized travel forecast model. Once the proposed developments trips have been estimated, they are assigned to the study area network. For this development, the project distribution was developed based on the land use characteristics of the proposed project and surrounding area, anticipated travel patterns to and from the project site and existing travel patterns within the study area. **Figures 1-3** show project trips distribution.

ANALYSIS SCENARIOS

Analysis of the intersection operating conditions during the peak periods will be conducted for the following anticipated timeframe scenarios:

- Existing Conditions (Year 2020)
- Existing with Project Conditions
- Opening Year plus model developed ambient growth per year conditions (Year 2025).
- Opening Year with Project Conditions
- Buildout Conditions consistent with City of Coachella General Plan (Year 2035).
- Buildout plus Project Conditions

TRAFFIC IMPACT ANALYSIS (TIA) – COACHELLA GENRAL PLAN COMPLIANCE

In coordination with City staff, the traffic impact analysis will identify LOS deficiencies for compliance with City of Coachella General Plan goals subsequent to 7/1/2020 but will not be defined as significant environmental impacts; instead deficiencies and mitigation may be incorporated into project conditions of approval as deemed satisfactory to the City Engineer. The City of Coachella has established LOS "D" as the minimum level of service for its intersections. Therefore, any intersection operating at LOS "E" or worse will be considered deficient for the purposes of this analysis.

VEHICLE MILES TRAVELED (VMT) – California Environmental Quality Act (CEQA) COMPLIANCE

On September 27, 2013, Senate Bill (SB) 743 was signed into State law and started a process intended to fundamentally change transportation impact analysis as part of the CEQA compliance. The California Natural Resource Agency updated the CEQA transportation analysis guidelines in 2018. In this update automobile delay and level of service (LOS) metrics are no longer to be used in determining transportation impacts. After July 1, 2020, transportation analysis under CEQA must use VMT to determine impacts for land use projects. The City currently does not have guidance on evaluating VMT for transportation impacts under CEQA. In absence of direct guidance from the lead agency, statewide guidance and Riverside County guidance will be used as the basis to evaluate potential VMT impacts for this project.

Project-level VMT analysis utilizing RivTAM will be conducted for the project under With Project conditions for NOP year 2020 and future year 2040. The year 2020 conditions will be calculated through linear interpolation between the model base year (2012) and model future year (2040). This scope of services assumes we will prepare home-based-work attraction VMT per employee estimates and compare to the regional average (Riverside County). Project effect on VMT assessment will be performed for the City of Coachella under cumulative (year 2040) conditions with and without the project. A land use review within Coachella will be performed and industrial use growth will be reallocated to maintain land use control totals. This assessment will be performed using the boundary method estimating link-level VMT within the City of Coachella. VMT report will be included in the TIA appendix.

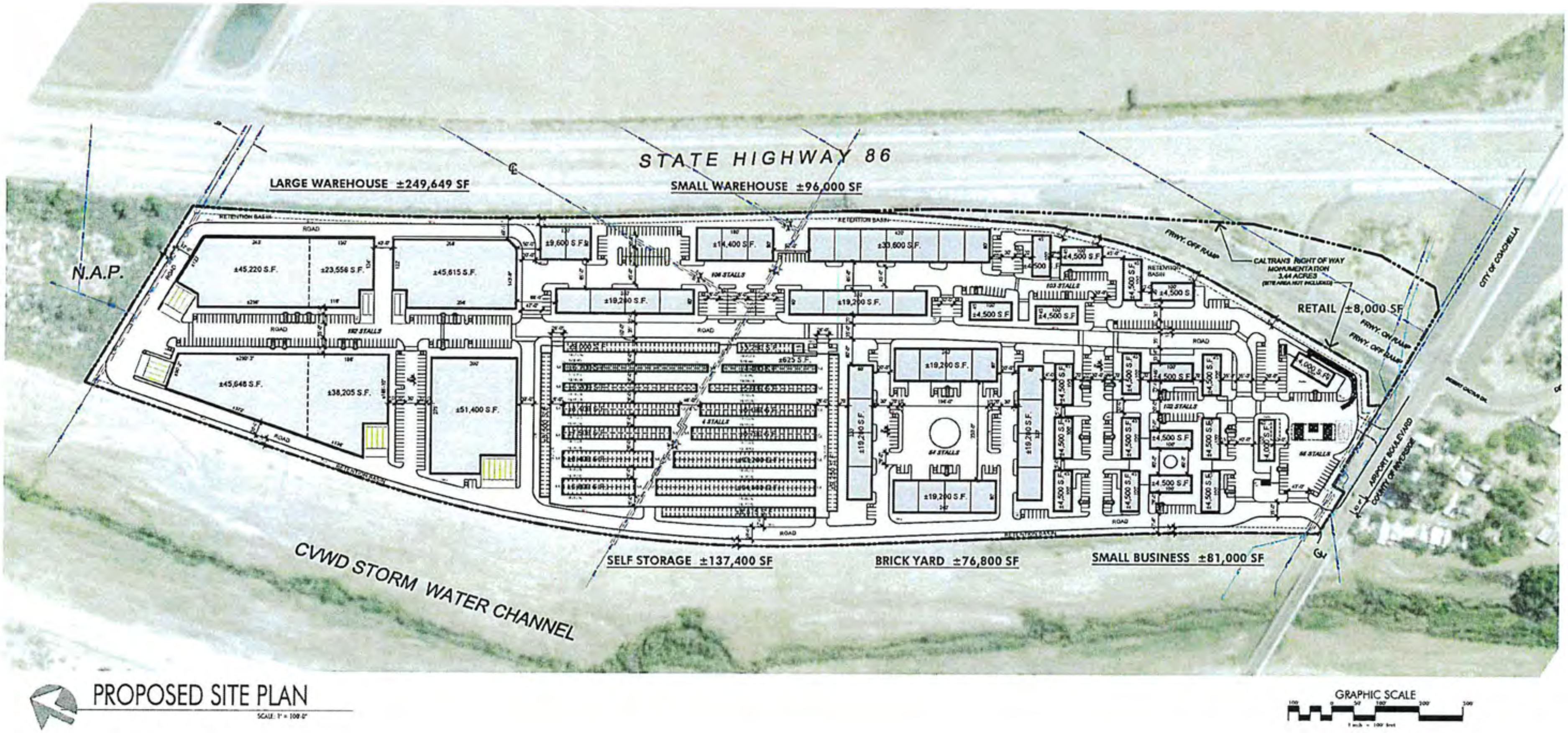
Sincerely,
IEG

George Ghossain, PE, MSCE, MPA
Principal Engineer

Attachments: Project Site Plan
Project Study Area
Project Trips Distribution

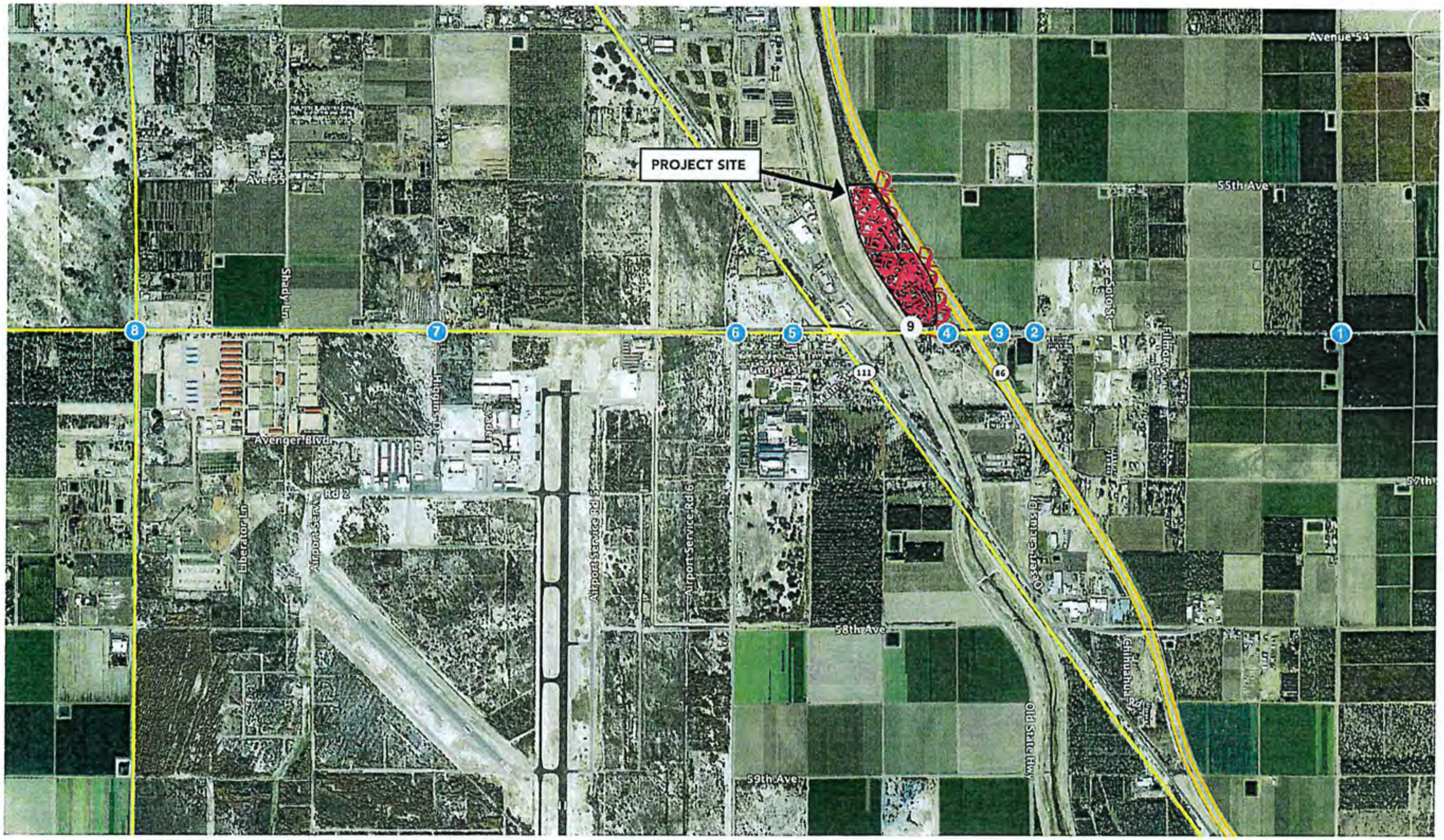
Approved By:

Signature: 7/21/2020
Name: GABOR PAKOZDI, P.E.
Address: CITY ENGINEER
CITY OF COACHELLA



INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Project Site Plan
Figure 1-1

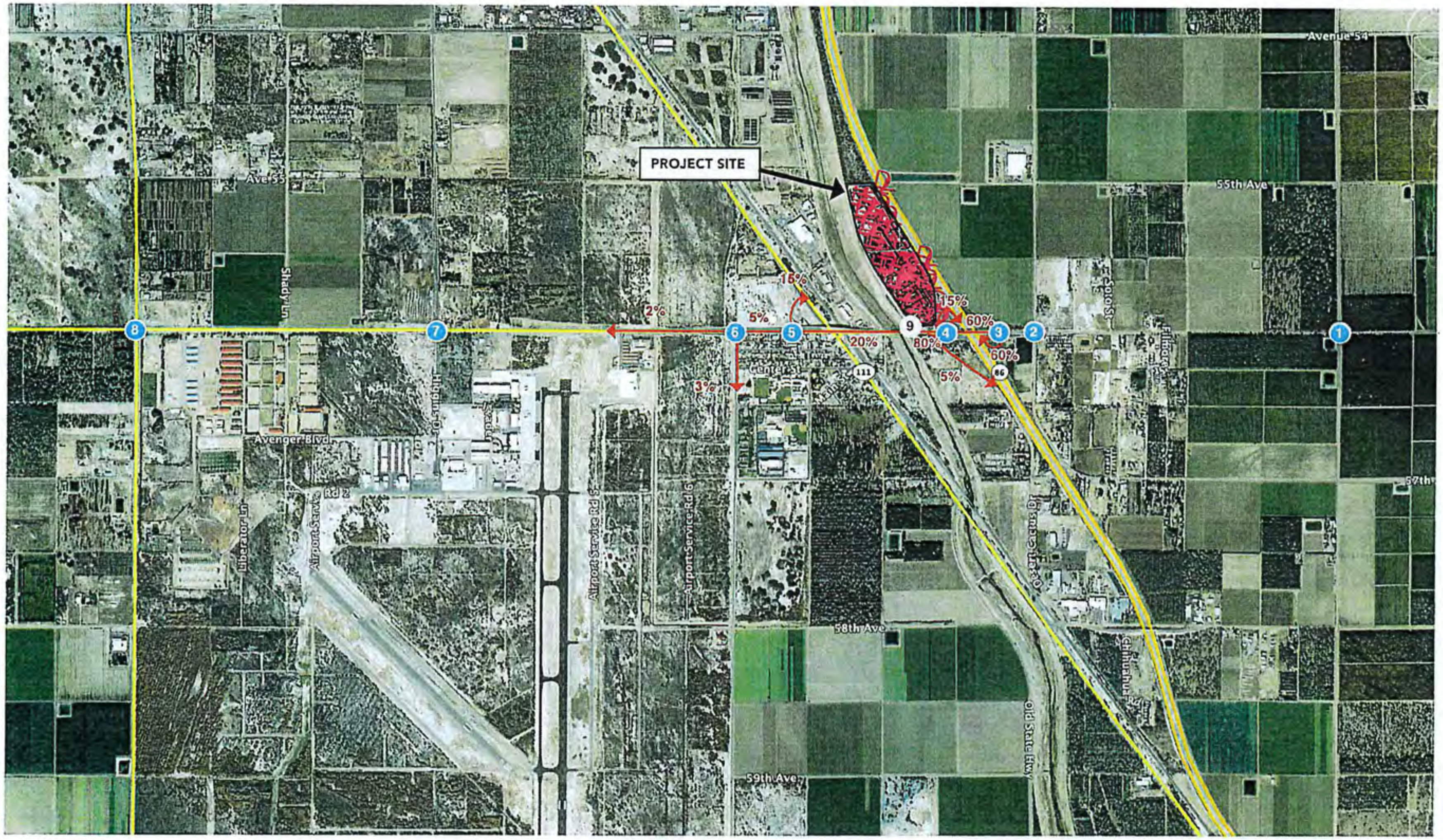


LEGEND

Intersections   # Project Driveway

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Study Area
Figure 1-2

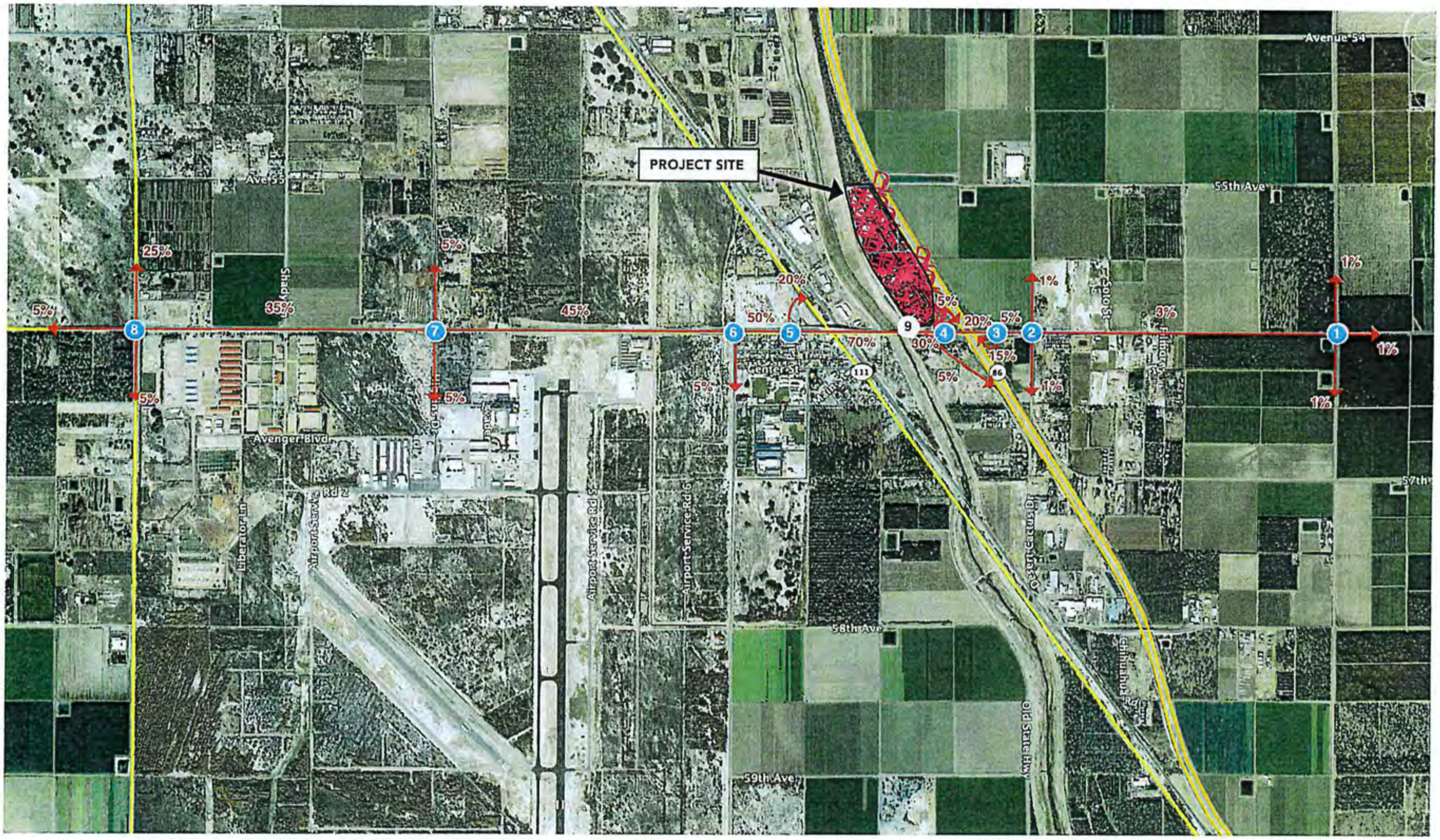


LEGEND

\# Intersections # Project Driveway

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Industrial Park component (Trucks)
Project Distribution
Figure 1-3a



LEGEND

Intersections # Project Driveway

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Coachella Airport Business Park
Industrial Park Component (Passenger Cars)
Project Distribution
Figure 1-3b

APPENDIX B -

TRAFFIC COUNT DATA

ITM Peak Hour Summary

Prepared by:

NDS

National Data & Surveying Services

Harrison St and Airport Blvd , City of Coachella

Date: 12/5/2012

Day: Wednesday

Project #: CA12_6160_021

AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	400 PM

N

Harrison St

Airport Blvd

Peak Hour Summary

Southbound Approach

Lanes	1	1	1		
AM	82	160	56	302	AM
NOON	0	0	0	0	NOON
PM	27	165	36	334	PM

Eastbound Approach

	AM	NOON	PM
	212	0	165
0	90	0	29
1	129	0	67
0	19	0	18
Lanes	AM	NOON	PM

CONTROL

Signalized

Westbound Approach

AM	NOON	PM	Lanes
41	0	48	0
115	0	120	1
9	0	15	0
198	0	124	
AM	NOON	PM	

Northbound Approach

AM	188	15	171	13	AM
NOON	0	0	0	0	NOON
PM	198	18	257	21	PM
		1	1	0	Lanes

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs

North Leg

298	302	AM
0	0	NOON
228	334	PM

East Leg

AM	NOON	PM
165	0	183
198	0	124

West Leg

AM	NOON	PM
212	0	165
238	0	114

South Leg

AM	188	199
NOON	0	0
PM	198	296

Total Volume Per Leg

North Leg

600	AM
0	NOON
562	PM

East Leg

AM	NOON	PM
363	0	307

West Leg

AM	NOON	PM
450	0	279

South Leg

AM	387
NOON	0
PM	494

ITM Peak Hour Summary

Prepared by:

NDS

National Data & Surveying Services

Tyler St and Airport Blvd , City of Coachella

Date: 12/5/2012

Day: Wednesday

Project #: CA12_6160_036

N

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Peak Hour Summary

Southbound Approach (Tyler St)

Lanes	0	1	0	
AM	17	7	45	39
NOON	0	0	0	0
PM	10	0	11	35

Eastbound Approach (Airport Blvd)

	AM	NOON	PM
	158	0	178

Lanes	AM	NOON	PM
0	19	0	11
1	196	0	115
1	7	0	3

Westbound Approach

AM	NOON	PM	Lanes
16	0	13	0
136	0	154	1
7	0	3	0

AM	NOON	PM
244	0	131

CONTROL

2-Way Stop (NB/SB)

Northbound Approach

AM	21	5	4	3
NOON	0	0	0	0
PM	6	14	11	5
Lanes		0	1	0

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs

North Leg

AM	69	39
NOON	0	0
PM	21	35

West Leg

AM	NOON	PM
158	0	178
222	0	129

East Leg

AM	NOON	PM
159	0	170
244	0	131

South Leg

AM	21	12
NOON	0	0
PM	6	30

Total Volume Per Leg

North Leg

AM	108
NOON	0
PM	56

West Leg

AM	NOON	PM
380	0	307

East Leg

AM	NOON	PM
403	0	301

South Leg

AM	33
NOON	0
PM	36

ITM Peak Hour Summary

Prepared by:

NDS

National Data & Surveying Services

Polk St and Airport Blvd , City of Coachella

Date: 12/5/2012

Day: Wednesday

Project #: CA12_6160_040

N

Polk St

Airport Blvd

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Peak Hour Summary

Southbound Approach

Lanes	0	0	0	
AM	0	0	0	0
NOON	0	0	0	0
PM	0	0	0	0

Eastbound Approach

	AM	NOON	PM
	149	0	162

Lanes	AM	NOON	PM
0	0	0	0
1	106	0	120
0	117	0	31

CONTROL

1-Way Stop (NB)

Westbound Approach

AM	NOON	PM	Lanes
0	0	0	0
111	0	101	1
58	0	21	1

AM	NOON	PM
139	0	149

Northbound Approach

AM	175	38	0	33	AM
NOON	0	0	0	0	NOON
PM	52	61	0	29	PM
		0	1	0	Lanes

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs

North Leg

AM	0	0	
NOON	0	0	
PM	0	0	

East Leg

AM	NOON	PM
169	0	122
139	0	149

West Leg

AM	NOON	PM
149	0	162
223	0	151

South Leg

AM	175	71
NOON	0	0
PM	52	90

Total Volume Per Leg

North Leg

AM	0
NOON	0
PM	0

East Leg

AM	NOON	PM
308	0	271

West Leg

AM	NOON	PM
372	0	313

South Leg

AM	246
NOON	0
PM	142

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Highway 111 and Airport Blvd , City of Coachella

Date: 12/13/2012

Day: Thursday

Project #: CA12_6160_041

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	400 PM

N

Highway 111

Airport Blvd

Peak Hour Summary

Southbound Approach

	Left	Through	Right	Out
Lanes	1	1	1	
AM	64	172	29	290
NOON	0	0	0	0
PM	44	284	51	355

Eastbound Approach

Lanes	Movement	AM	NOON	PM
	Out	221	0	144
0	Left	35	0	41
1	Through	85	0	78
0	Right	33	0	50

Westbound Approach

Movement	AM	NOON	PM	Lanes
Right	38	0	54	0
Through	138	0	53	1
Left	54	0	27	0
Out	145	0	170	

CONTROL

Signalized

Northbound Approach

	Out	Left	Through	Right
AM	259	19	217	31
NOON	0	0	0	0
PM	361	47	260	41
Lanes		1	1	1

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs

Leg	Period	In	Out
North Leg	AM	265	290
North Leg	NOON	0	0
North Leg	PM	379	355
East Leg	AM	230	145
East Leg	NOON	0	0
East Leg	PM	134	170
South Leg	AM	259	267
South Leg	NOON	0	0
South Leg	PM	361	348
West Leg	AM	221	153
West Leg	NOON	0	0
West Leg	PM	144	169

Total Volume Per Leg

Leg	AM	NOON	PM
North Leg	555	0	734
East Leg	375	0	304
South Leg	526	0	709
West Leg	374	0	313

Prepared by National Data & Surveying Services

CLASSIFICATION

Fillmore St btwn 55th Ave & Airport Blvd

Day: Wednesday
Date: 12/19/2012

City: Coachella
Project #: CA12_6164_020

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	**2**
01:00	0	2	2	0	1	0	0	0	0	0	0	0	0	**5**
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
04:00	0	0	2	0	1	0	0	0	0	0	0	0	0	**3**
05:00	0	14	12	1	2	0	0	0	0	0	0	0	0	**29**
06:00	0	14	6	2	5	0	0	0	0	0	0	0	0	**27**
07:00	0	26	12	0	6	0	0	0	1	0	0	0	0	**45**
08:00	0	11	14	0	4	0	0	0	0	0	0	0	0	**29**
09:00	0	8	8	0	4	0	0	0	2	0	0	0	0	**22**
10:00	0	9	1	0	2	0	0	1	0	0	0	0	0	**13**
11:00	0	11	9	0	5	0	0	0	0	0	0	0	0	**25**
12:00 PM	0	13	7	0	6	0	0	0	0	0	0	0	0	**26**
13:00	0	18	7	1	5	0	0	0	0	0	0	0	0	**31**
14:00	1	15	13	1	5	0	0	0	0	0	0	0	0	**35**
15:00	1	15	9	1	2	0	0	1	1	0	0	0	0	**30**
16:00	0	23	11	0	4	0	0	0	0	0	0	0	0	**38**
17:00	0	12	7	1	3	0	0	0	0	0	0	0	0	**23**
18:00	1	12	7	2	2	0	0	0	1	0	0	0	0	**25**
19:00	0	5	2	0	0	0	0	0	0	0	0	0	0	**7**
20:00	0	8	0	0	0	0	0	0	1	0	0	0	0	**9**
21:00	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
22:00	0	4	1	0	0	0	0	0	0	0	0	0	0	**5**
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Totals	3	223	132	9	57			2	6					432
% of Totals	1%	52%	31%	2%	13%			0%	1%					100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	0	96	68	3	30	0	0	1	3	0	0	0	0	201
% AM		22%	16%	1%	7%			0%	1%					47%
AM Peak Hour		07:00	08:00	06:00	07:00			10:00	09:00					07:00
Volume		26	14	2	6			1	2					45
PM Volumes	3	127	64	6	27	0	0	1	3	0	0	0	0	231
% PM	1%	29%	15%	1%	6%			0%	1%					53%
PM Peak Hour	14:00	16:00	14:00	18:00	12:00			15:00	15:00					16:00
Volume	1	23	13	2	6			1	1					38

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	74	17%	57	13%	61	14%	240	56%

Classification Definitions

1	Motorcycles	**4**	Buses	**7**	> =4-Axle Single Units	**10**	>=6-Axle Single Trailers	**13**	>=7-Axle Multi-Trailers
2	Passenger Cars	**5**	2-Axle, 6-Tire Single Units	**8**	<=4-Axle Single Trailers	**11**	<=5-Axle Multi-Trailers		
3	2-Axle, 4-Tire Single Units	**6**	3-Axle Single Units	**9**	5-Axle Single Trailers	**12**	6-Axle Multi-Trailers		

Prepared by National Data & Surveying Services

CLASSIFICATION

Fillmore St btwn 55th Ave & Airport Blvd

Day: Thursday
Date: 12/20/2012

City: Coachella
Project #: CA12_6164_020

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	7	8	0	1	0	0	0	0	0	0	0	0	16
06:00	0	16	4	2	5	0	0	0	1	0	0	0	0	28
07:00	0	17	10	1	5	1	0	0	0	0	0	0	0	34
08:00	0	6	6	1	6	2	0	2	0	0	0	0	0	23
09:00	0	9	8	0	7	0	0	0	1	0	0	0	0	25
10:00	1	8	6	0	5	1	0	0	2	0	0	0	0	23
11:00	1	11	7	0	6	0	0	0	1	0	0	0	0	26
12:00 PM	0	14	5	0	3	0	0	0	3	0	0	0	0	25
13:00	2	23	13	0	4	0	0	1	1	0	0	0	0	44
14:00	0	21	14	2	8	0	0	0	3	0	0	0	0	48
15:00	0	41	22	0	7	0	0	0	1	0	0	0	0	71
16:00	0	14	9	2	3	0	0	0	0	0	0	0	0	28
17:00	0	13	2	0	3	0	0	1	1	0	0	0	0	20
18:00	0	6	2	1	1	0	0	0	1	0	0	0	0	11
19:00	0	5	4	0	0	0	0	0	0	0	0	0	0	9
20:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
21:00	0	2	3	0	0	0	0	0	0	0	0	0	0	5
22:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	4	224	125	9	64	4		4	15					449
% of Totals	1%	50%	28%	2%	14%	1%		1%	3%					100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	2	79	49	4	35	4	0	2	5	0	0	0	0	180
% AM	0%	18%	11%	1%	8%	1%		0%	1%					40%
AM Peak Hour	10:00	07:00	07:00	06:00	09:00	08:00		08:00	10:00					07:00
Volume	1	17	10	2	7	2		2	2					34
PM Volumes	2	145	76	5	29	0	0	2	10	0	0	0	0	269
% PM	0%	32%	17%	1%	6%			0%	2%					60%
PM Peak Hour	13:00	15:00	15:00	14:00	14:00			13:00	12:00					15:00
Volume	2	41	22	2	8			1	3					71

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	57	13%	69	15%	48	11%	275	61%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Airport Blvd w/o Fillmore St

Day: Wednesday
Date: 12/19/2012

City: Coachella
Project #: CA12_6164_021

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	5	3	0	0	0	0	0	0	0	0	0	0	8
01:00	1	4	1	0	2	0	0	0	0	0	0	0	0	8
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	8	2	0	1	0	0	0	2	0	0	0	0	13
04:00	0	12	7	0	4	0	0	0	6	0	0	0	0	29
05:00	0	89	40	0	5	0	0	0	6	0	0	0	0	140
06:00	1	157	60	2	18	1	0	1	9	0	0	0	0	249
07:00	1	86	36	2	24	1	0	1	6	0	0	0	0	157
08:00	0	54	35	0	15	1	0	0	5	0	0	0	0	110
09:00	1	37	34	0	18	1	0	2	3	0	1	0	0	97
10:00	0	53	31	0	11	2	0	1	3	0	1	0	0	102
11:00	0	51	25	1	18	0	0	1	4	0	1	0	0	101
12:00 PM	1	51	16	0	14	2	0	0	3	0	0	0	0	87
13:00	0	70	30	2	12	0	0	0	1	0	1	0	0	116
14:00	1	93	36	2	11	0	0	0	2	0	0	0	0	145
15:00	4	165	73	1	10	1	0	2	8	0	0	0	0	264
16:00	0	154	53	0	11	1	0	2	2	0	0	0	0	223
17:00	1	110	38	2	9	0	0	1	14	0	1	0	0	176
18:00	0	87	32	3	6	0	0	1	3	0	0	0	0	132
19:00	0	40	10	0	1	0	0	0	2	0	1	0	0	54
20:00	0	43	5	0	2	0	0	0	1	0	0	0	0	51
21:00	0	36	5	0	0	0	0	0	1	0	0	0	0	42
22:00	0	17	2	0	1	0	0	0	0	0	0	0	0	20
23:00	0	19	2	0	0	0	0	0	0	0	0	0	0	21
Totals	11	1445	577	15	193	10		12	81		6			2350
% of Totals	0%	61%	25%	1%	8%	0%		1%	3%		0%			100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	4	560	275	5	116	6	0	6	44	0	3	0	0	1019
% AM	0%	24%	12%	0%	5%	0%		0%	2%		0%			43%
AM Peak Hour	01:00	06:00	06:00	06:00	07:00	10:00		09:00	06:00		09:00			06:00
Volume	1	157	60	2	24	2		2	9		1			249
PM Volumes	7	885	302	10	77	4	0	6	37	0	3	0	0	1331
% PM	0%	38%	13%	0%	3%	0%		0%	2%		0%			57%
PM Peak Hour	15:00	15:00	15:00	18:00	12:00	12:00		15:00	17:00		13:00			15:00
Volume	4	165	73	3	14	2		2	14		1			264

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	267	11%	203	9%	399	17%	1481	63%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Airport Blvd w/o Fillmore St

Day: Thursday
Date: 12/20/2012

City: Coachella
Project #: CA12_6164_021

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	5	2	0	0	0	0	0	0	0	0	0	0	7
01:00	0	6	1	0	1	0	0	0	0	0	0	0	0	8
02:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
03:00	0	11	4	0	1	0	0	0	2	0	0	0	0	18
04:00	0	17	5	0	5	0	0	0	0	0	0	0	0	27
05:00	1	67	34	0	4	0	0	2	11	0	0	0	0	119
06:00	1	155	58	1	15	0	0	0	11	0	0	0	0	241
07:00	0	83	34	3	15	1	0	1	4	0	0	0	0	141
08:00	0	45	44	1	9	1	0	1	4	0	2	0	0	107
09:00	0	39	31	0	13	0	0	4	3	0	1	0	0	91
10:00	0	53	36	1	13	0	0	1	4	0	1	0	0	109
11:00	0	64	31	1	26	0	0	1	8	0	1	0	0	132
12:00 PM	0	61	19	0	10	1	0	0	5	0	0	0	0	96
13:00	0	76	35	1	14	1	0	3	12	0	0	0	0	142
14:00	0	107	39	2	23	0	0	4	7	0	1	0	0	183
15:00	1	179	57	3	20	2	0	2	19	0	1	0	0	284
16:00	0	107	49	3	15	0	0	1	6	0	0	0	0	181
17:00	0	110	33	0	9	0	0	0	4	0	0	0	0	156
18:00	0	72	17	3	4	0	0	1	5	0	2	0	0	104
19:00	1	49	13	0	1	0	0	0	2	0	0	0	0	66
20:00	0	42	10	0	2	0	0	0	1	0	0	0	0	55
21:00	0	38	6	0	1	0	0	0	0	0	0	0	0	45
22:00	0	19	5	0	0	0	0	0	0	0	0	0	0	24
23:00	0	12	3	0	1	0	0	0	0	0	0	0	0	16
Totals	4	1419	568	19	202	6		21	108		9			2356
% of Totals	0%	60%	24%	1%	9%	0%		1%	5%		0%			100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	2	547	282	7	102	2	0	10	47	0	5	0	0	1004
% AM	0%	23%	12%	0%	4%	0%		0%	2%		0%			43%
AM Peak Hour	05:00	06:00	06:00	07:00	11:00	07:00		09:00	05:00		08:00			06:00
Volume	1	155	58	3	26	1		4	11		2			241
PM Volumes	2	872	286	12	100	4	0	11	61	0	4	0	0	1352
% PM	0%	37%	12%	1%	4%	0%		0%	3%		0%			57%
PM Peak Hour	15:00	15:00	15:00	15:00	14:00	15:00		14:00	15:00		18:00			15:00
Volume	1	179	57	3	23	2		4	19		2			284

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	248	11%	238	10%	337	14%	1533	65%

Classification Definitions

1 Motorcycles	4 Buses	7 > =4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Airport Blvd e/o Soto St

Day: Wednesday
Date: 12/19/2012

City: Coachella
Project #: CA12_6164_022

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	1	0	0	2	0	0	0	0	0	0	0	0	3
02:00	0	1	1	0	0	0	0	2	0	0	0	0	0	4
03:00	0	4	0	0	1	0	0	2	1	0	0	0	0	8
04:00	2	8	3	0	6	0	0	5	1	0	0	0	0	25
05:00	0	49	15	0	7	0	0	2	4	0	0	0	0	77
06:00	1	98	47	1	19	1	0	4	9	0	0	0	0	180
07:00	0	24	16	2	10	1	0	3	5	0	0	0	0	61
08:00	0	16	7	1	15	2	0	2	3	0	0	0	0	46
09:00	0	12	10	0	10	2	0	2	2	0	0	0	0	38
10:00	0	24	18	1	14	1	0	1	2	0	0	0	0	61
11:00	1	22	11	0	14	0	0	2	3	0	1	0	0	54
12:00 PM	0	19	8	0	9	2	0	2	2	0	0	0	0	42
13:00	0	24	10	4	12	0	0	0	1	0	0	0	0	51
14:00	0	38	14	1	6	0	0	0	2	0	0	0	0	61
15:00	0	105	35	1	16	2	0	2	8	0	0	0	0	169
16:00	0	62	32	0	10	0	0	1	1	0	0	0	0	106
17:00	0	24	14	1	8	1	0	2	11	0	0	0	0	61
18:00	1	27	10	0	4	0	0	1	0	0	0	0	0	43
19:00	2	15	2	0	2	0	0	0	1	0	0	0	0	22
20:00	0	11	3	0	2	0	0	1	0	0	0	0	0	17
21:00	0	14	1	0	0	0	0	0	1	0	0	0	0	16
22:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
23:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
Totals	7	610	258	12	167	12		34	57		1			1158
% of Totals	1%	53%	22%	1%	14%	1%		3%	5%		0%			100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	4	262	128	5	98	7	0	25	30	0	1	0	0	560
% AM	0%	23%	11%	0%	8%	1%		2%	3%		0%			48%
AM Peak Hour	04:00	06:00	06:00	07:00	06:00	08:00		04:00	06:00		11:00			06:00
Volume	2	98	47	2	19	2		5	9		1			180
PM Volumes	3	348	130	7	69	5	0	9	27	0	0	0	0	598
% PM	0%	30%	11%	1%	6%	0%		1%	2%					52%
PM Peak Hour	19:00	15:00	15:00	13:00	15:00	12:00		12:00	17:00					15:00
Volume	2	105	35	4	16	2		2	11					169

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	107	9%	93	8%	167	14%	791	68%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Airport Blvd e/o Soto St

Day: Thursday
Date: 12/20/2012

City: Coachella
Project #: CA12_6164_022

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	2	0	0	0	0	0	0	0	0	0	0	4
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	8	2	0	1	0	0	2	1	0	0	0	0	14
04:00	0	12	2	0	7	0	0	0	1	0	0	0	0	22
05:00	1	37	22	1	5	0	0	3	6	0	0	0	0	75
06:00	0	95	39	2	16	1	0	4	9	0	0	0	0	166
07:00	0	27	11	3	10	1	0	0	2	0	0	0	0	54
08:00	0	18	22	0	13	1	0	1	2	0	2	0	0	59
09:00	0	14	10	0	11	0	0	4	1	0	0	0	0	40
10:00	0	25	18	0	14	1	0	2	2	0	0	0	0	62
11:00	0	19	14	1	22	1	0	2	2	0	1	0	0	62
12:00 PM	0	21	17	0	7	3	0	1	4	0	0	0	0	53
13:00	0	32	23	1	8	1	0	3	6	0	0	0	0	74
14:00	0	45	24	3	10	1	0	5	3	0	0	0	0	91
15:00	0	101	36	2	8	1	0	5	11	0	1	0	0	165
16:00	0	49	25	1	13	0	0	3	4	0	0	0	0	95
17:00	0	36	17	0	7	0	0	3	1	0	0	0	0	64
18:00	0	27	8	1	4	0	0	0	4	0	0	0	0	44
19:00	0	15	4	0	1	0	0	1	1	0	0	0	0	22
20:00	0	6	3	0	1	0	0	1	0	0	0	0	0	11
21:00	0	6	5	0	0	0	0	0	0	0	0	0	0	11
22:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
23:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
Totals	1	606	306	15	158	11		40	60		4			1201
% of Totals	0%	50%	25%	1%	13%	1%		3%	5%		0%			100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	1	258	143	7	99	5	0	18	26	0	3	0	0	560
% AM	0%	21%	12%	1%	8%	0%		1%	2%		0%			47%
AM Peak Hour	05:00	06:00	06:00	07:00	11:00	06:00		06:00	06:00		08:00			06:00
Volume	1	95	39	3	22	1		4	9		2			166
PM Volumes	0	348	163	8	59	6	0	22	34	0	1	0	0	641
% PM		29%	14%	1%	5%	0%		2%	3%		0%			53%
PM Peak Hour		15:00	15:00	14:00	16:00	12:00		14:00	15:00		15:00			15:00
Volume		101	36	3	13	3		5	11		1			165

Directional Peak Periods	**AM 7-9**			**NOON 12-2**			**PM 4-6**			**Off Peak Volumes**		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	113		9%	127		11%	159		13%	802		67%

Classification Definitions

- **1** Motorcycles
- **2** Passenger Cars
- **3** 2-Axle, 4-Tire Single Units
- **4** Buses
- **5** 2-Axle, 6-Tire Single Units
- **6** 3-Axle Single Units
- **7** > =4-Axle Single Units
- **8** <=4-Axle Single Trailers
- **9** 5-Axle Single Trailers
- **10** >=6-Axle Single Trailers
- **11** <=5-Axle Multi-Trailers
- **12** 6-Axle Multi-Trailers
- **13** >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

55th Ave e/o Fillmore St

Day: Wednesday
Date: 12/19/2012

City: Coachella
Project #: CA12_6164_019

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
05:00	0	6	1	0	0	0	0	0	0	0	0	0	0	**7**
06:00	0	6	2	0	2	0	0	0	0	0	0	0	0	**10**
07:00	0	5	1	0	1	0	0	0	0	0	0	0	0	**7**
08:00	0	5	0	0	2	0	0	0	0	0	0	0	0	**7**
09:00	0	2	1	0	0	0	0	0	0	0	0	0	0	**3**
10:00	0	2	0	0	2	0	0	0	0	0	0	0	0	**4**
11:00	0	7	1	0	0	0	0	0	0	0	0	0	0	**8**
12:00 PM	0	5	1	0	1	0	0	0	0	0	0	0	0	**7**
13:00	0	5	1	0	0	0	0	0	0	0	0	0	0	**6**
14:00	0	4	2	2	0	0	0	0	0	0	0	0	0	**8**
15:00	0	7	3	0	1	0	0	0	0	0	0	0	0	**11**
16:00	0	2	2	0	0	0	0	0	0	0	0	0	0	**4**
17:00	0	4	2	0	0	0	0	0	0	0	0	0	0	**6**
18:00	0	3	1	0	0	0	0	0	0	0	0	0	0	**4**
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
20:00	0	4	0	0	0	0	0	0	0	0	0	0	0	**4**
21:00	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
22:00	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Totals		**72**	**18**	**2**	**9**									**101**
% of Totals		71%	18%	2%	9%									100%
AM Volumes	0	34	6	0	7	0	0	0	0	0	0	0	0	47
% AM		34%	6%		7%									47%
AM Peak Hour		11:00	06:00		06:00									06:00
Volume		7	2		2									10
PM Volumes	0	38	12	2	2	0	0	0	0	0	0	0	0	54
% PM		38%	12%	2%	2%									53%
PM Peak Hour		15:00	15:00	14:00	12:00									15:00
Volume		7	3	2	1									11

Directional Peak Periods All Classes	**AM 7-9**		**NOON 12-2**		**PM 4-6**		**Off Peak Volumes**	
	Volume	%	Volume	%	Volume	%	Volume	%
	14	14%	13	13%	10	10%	64	63%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

55th Ave e/o Fillmore St

Day: Thursday
Date: 12/20/2012

City: Coachella
Project #: CA12_6164_019

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
05:00	0	4	1	0	0	0	0	0	0	0	0	0	0	**5**
06:00	0	8	1	0	0	0	0	0	0	0	0	0	0	**9**
07:00	0	3	0	2	0	0	0	0	0	0	0	0	0	**5**
08:00	0	7	0	0	1	0	0	0	0	0	0	0	0	**8**
09:00	0	2	4	0	2	0	0	0	0	0	0	0	0	**8**
10:00	0	6	2	0	2	0	0	0	0	0	0	0	0	**10**
11:00	0	7	2	0	3	0	0	0	0	0	0	0	0	**12**
12:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	**4**
13:00	0	4	1	0	2	0	0	0	0	0	0	0	0	**7**
14:00	0	8	4	2	1	0	0	0	0	0	0	0	0	**15**
15:00	0	8	3	0	2	0	0	0	0	0	0	0	0	**13**
16:00	0	6	2	0	0	0	0	0	0	0	0	0	0	**8**
17:00	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
18:00	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
19:00	0	4	1	0	0	0	0	0	0	0	0	0	0	**5**
20:00	0	4	0	0	0	0	0	0	0	0	0	0	0	**4**
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Totals		80	21	4	13									118
% of Totals		68%	18%	3%	11%									100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	0	38	10	2	8	0	0	0	0	0	0	0	0	58
% AM		32%	8%	2%	7%									49%
AM Peak Hour		06:00	09:00	07:00	11:00									11:00
Volume		8	4	2	3									12
PM Volumes	0	42	11	2	5	0	0	0	0	0	0	0	0	60
% PM		36%	9%	2%	4%									51%
PM Peak Hour		14:00	14:00	14:00	13:00									14:00
Volume		8	4	2	2									15

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	13	11%	11	9%	10	8%	84	71%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Airport Blvd e/o Soto St

Day: Wednesday
Date: 12/19/2012

City: Coachella
Project #: CA12_6164_022

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	1	0	0	2	0	0	0	0	0	0	0	0	3
02:00	0	1	1	0	0	0	0	2	0	0	0	0	0	4
03:00	0	4	0	0	1	0	0	2	1	0	0	0	0	8
04:00	2	8	3	0	6	0	0	5	1	0	0	0	0	25
05:00	0	49	15	0	7	0	0	2	4	0	0	0	0	77
06:00	1	98	47	1	19	1	0	4	9	0	0	0	0	180
07:00	0	24	16	2	10	1	0	3	5	0	0	0	0	61
08:00	0	16	7	1	15	2	0	2	3	0	0	0	0	46
09:00	0	12	10	0	10	2	0	2	2	0	0	0	0	38
10:00	0	24	18	1	14	1	0	1	2	0	0	0	0	61
11:00	1	22	11	0	14	0	0	2	3	0	1	0	0	54
12:00 PM	0	19	8	0	9	2	0	2	2	0	0	0	0	42
13:00	0	24	10	4	12	0	0	0	1	0	0	0	0	51
14:00	0	38	14	1	6	0	0	0	2	0	0	0	0	61
15:00	0	105	35	1	16	2	0	2	8	0	0	0	0	169
16:00	0	62	32	0	10	0	0	1	1	0	0	0	0	106
17:00	0	24	14	1	8	1	0	2	11	0	0	0	0	61
18:00	1	27	10	0	4	0	0	1	0	0	0	0	0	43
19:00	2	15	2	0	2	0	0	0	1	0	0	0	0	22
20:00	0	11	3	0	2	0	0	1	0	0	0	0	0	17
21:00	0	14	1	0	0	0	0	0	1	0	0	0	0	16
22:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
23:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
Totals	7	610	258	12	167	12		34	57		1			1158
% of Totals	1%	53%	22%	1%	14%	1%		3%	5%		0%			100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	4	262	128	5	98	7	0	25	30	0	1	0	0	560
% AM	0%	23%	11%	0%	8%	1%		2%	3%		0%			48%
AM Peak Hour	04:00	06:00	06:00	07:00	06:00	08:00		04:00	06:00		11:00			06:00
Volume	2	98	47	2	19	2		5	9		1			180
PM Volumes	3	348	130	7	69	5	0	9	27	0	0	0	0	598
% PM	0%	30%	11%	1%	6%	0%		1%	2%					52%
PM Peak Hour	19:00	15:00	15:00	13:00	15:00	12:00		12:00	17:00					15:00
Volume	2	105	35	4	16	2		2	11					169

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	107	9%	93	8%	167	14%	791	68%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

CLASSIFICATION

Airport Blvd e/o Soto St

Day: Thursday
Date: 12/20/2012

City: Coachella
Project #: CA12_6164_022

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	2	0	0	0	0	0	0	0	0	0	0	4
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	8	2	0	1	0	0	2	1	0	0	0	0	14
04:00	0	12	2	0	7	0	0	0	1	0	0	0	0	22
05:00	1	37	22	1	5	0	0	3	6	0	0	0	0	75
06:00	0	95	39	2	16	1	0	4	9	0	0	0	0	166
07:00	0	27	11	3	10	1	0	0	2	0	0	0	0	54
08:00	0	18	22	0	13	1	0	1	2	0	2	0	0	59
09:00	0	14	10	0	11	0	0	4	1	0	0	0	0	40
10:00	0	25	18	0	14	1	0	2	2	0	0	0	0	62
11:00	0	19	14	1	22	1	0	2	2	0	1	0	0	62
12:00 PM	0	21	17	0	7	3	0	1	4	0	0	0	0	53
13:00	0	32	23	1	8	1	0	3	6	0	0	0	0	74
14:00	0	45	24	3	10	1	0	5	3	0	0	0	0	91
15:00	0	101	36	2	8	1	0	5	11	0	1	0	0	165
16:00	0	49	25	1	13	0	0	3	4	0	0	0	0	95
17:00	0	36	17	0	7	0	0	3	1	0	0	0	0	64
18:00	0	27	8	1	4	0	0	0	4	0	0	0	0	44
19:00	0	15	4	0	1	0	0	1	1	0	0	0	0	22
20:00	0	6	3	0	1	0	0	1	0	0	0	0	0	11
21:00	0	6	5	0	0	0	0	0	0	0	0	0	0	11
22:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
23:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
Totals	1	606	306	15	158	11		40	60		4			1201
% of Totals	0%	50%	25%	1%	13%	1%		3%	5%		0%			100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	1	258	143	7	99	5	0	18	26	0	3	0	0	560
% AM	0%	21%	12%	1%	8%	0%		1%	2%		0%			47%
AM Peak Hour	05:00	06:00	06:00	07:00	11:00	06:00		06:00	06:00		08:00			06:00
Volume	1	95	39	3	22	1		4	9		2			166
PM Volumes	0	348	163	8	59	6	0	22	34	0	1	0	0	641
% PM		29%	14%	1%	5%	0%		2%	3%		0%			53%
PM Peak Hour		15:00	15:00	14:00	16:00	12:00		14:00	15:00		15:00			15:00
Volume		101	36	3	13	3		5	11		1			165

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	113	9%	127	11%	159	13%	802	67%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by NDS/ATD

VOLUME

Pierce St btw 54th Ave & 55th Ave

Day: Tuesday
Date: 2/12/2013

City: Thermal
Project #: CA13_6033_003

DAILY TOTALS	NB	SB	EB	WB	Total
	176	142	0	0	318

AM Period	NB		SB		EB	WB	TOTAL	
00:00	0		0				0	
00:15	0		0				0	
00:30	0		0				0	
00:45	0		1	1			1	1
01:00	0		0				0	
01:15	0		0				0	
01:30	0		0				0	
01:45	0		0				0	
02:00	1		0				1	
02:15	0		0				0	
02:30	0		0				0	
02:45	0	1	0				0	1
03:00	0		0				0	
03:15	0		0				0	
03:30	0		0				0	
03:45	0		0				0	
04:00	1		1				2	
04:15	0		0				0	
04:30	0		0				0	
04:45	0	1	0	1			0	2
05:00	0		0				0	
05:15	4		0				4	
05:30	7		2				9	
05:45	5	16	1	3			6	19
06:00	5		2				7	
06:15	6		2				8	
06:30	7		1				8	
06:45	5	23	5	10			10	33
07:00	4		1				5	
07:15	5		6				11	
07:30	4		3				7	
07:45	2	15	2	12			4	27
08:00	4		3				7	
08:15	1		2				3	
08:30	0		3				3	
08:45	2	7	2	10			4	17
09:00	12		2				14	
09:15	6		1				7	
09:30	3		5				8	
09:45	5	26	1	9			6	35
10:00	2		4				6	
10:15	1		3				4	
10:30	3		2				5	
10:45	2	8	3	12			5	20
11:00	4		1				5	
11:15	1		2				3	
11:30	4		3				7	
11:45	3	12	3	9			6	21
TOTALS		109		67				176
SPLIT %		61.9%		38.1%				55.3%

PM Period	NB		SB		EB	WB	TOTAL	
12:00	2		6				8	
12:15	2		1				3	
12:30	2		5				7	
12:45	1	7	2	14			3	21
13:00	3		0				3	
13:15	5		5				10	
13:30	2		3				5	
13:45	1	11	2	10			3	21
14:00	4		1				5	
14:15	7		4				11	
14:30	3		3				6	
14:45	2	16	2	10			4	26
15:00	1		3				4	
15:15	2		9				11	
15:30	4		11				15	
15:45	5	12	2	25			7	37
16:00	1		4				5	
16:15	3		2				5	
16:30	2		3				5	
16:45	3	9	0	9			3	18
17:00	1		0				1	
17:15	0		1				1	
17:30	0		1				1	
17:45	0	1	2	4			2	5
18:00	1		0				1	
18:15	2		0				2	
18:30	0		0				0	
18:45	1	4	0				1	4
19:00	0		1				1	
19:15	0		0				0	
19:30	0		0				0	
19:45	0		0	1			0	1
20:00	0		1				1	
20:15	4		1				5	
20:30	0		0				0	
20:45	1	5	0	2			1	7
21:00	0		0				0	
21:15	0		0				0	
21:30	1		0				1	
21:45	0	1	0				0	1
22:00	0		0				0	
22:15	1		0				1	
22:30	0		0				0	
22:45	0	1	0				0	1
23:00	0		0				0	
23:15	0		0				0	
23:30	0		0				0	
23:45	0		0				0	
TOTALS		67		75				142
SPLIT %		47.2%		52.8%				44.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	176	142	0	0	318

	NB	SB	EB	WB	Total
AM Peak Hour	09:00	06:45			09:00
AM Pk Volume	26	15			35
Pk Hr Factor	0.542	0.625			0.625
7 - 9 Volume	22	22	0	0	44
7 - 9 Peak Hour	07:00	07:15			07:15
7 - 9 Pk Volume	15	14	0	0	29
Pk Hr Factor	0.750	0.583	0.000	0.000	0.659

	NB	SB	EB	WB	Total
PM Peak Hour	14:00	15:15			15:15
PM Pk Volume	16	26			38
Pk Hr Factor	0.571	0.591			0.633
4 - 6 Volume	10	13	0	0	23
4 - 6 Peak Hour	16:00	16:00			16:00
4 - 6 Pk Volume	9	9	0	0	18
Pk Hr Factor	0.750	0.563	0.000	0.000	0.900

Prepared by NDS/ATD

VOLUME

Pierce St btwn Airport Blvd & 57th Ave

Day: Tuesday
Date: 2/12/2013

City: Thermal
Project #: CA13_6033_004

DAILY TOTALS	NB	SB	EB	WB	Total
	154	178	0	0	332

AM Period	NB		SB		EB	WB	TOTAL	
00:00	0		0				0	
00:15	0		0				0	
00:30	1		0				1	
00:45	0	1	1	1			1	2
01:00	0		0				0	
01:15	0		0				0	
01:30	0		0				0	
01:45	0		0				0	
02:00	0		0				0	
02:15	0		0				0	
02:30	0		0				0	
02:45	0		0				0	
03:00	0		0				0	
03:15	0		0				0	
03:30	0		0				0	
03:45	0		0				0	
04:00	0		0				0	
04:15	0		1				1	
04:30	0		0				0	
04:45	0		0	1			0	1
05:00	0		1				1	
05:15	2		1				3	
05:30	4		3				7	
05:45	1	7	8	13			9	20
06:00	7		6				13	
06:15	7		2				9	
06:30	3		1				4	
06:45	4	21	2	11			6	32
07:00	2		4				6	
07:15	0		2				2	
07:30	5		5				10	
07:45	0	7	1	12			1	19
08:00	3		4				7	
08:15	3		5				8	
08:30	2		1				3	
08:45	3	11	1	11			4	22
09:00	3		2				5	
09:15	1		1				2	
09:30	2		1				3	
09:45	1	7	2	6			3	13
10:00	0		6				6	
10:15	3		3				6	
10:30	3		7				10	
10:45	5	11	2	18			7	29
11:00	2		6				8	
11:15	1		1				2	
11:30	6		1				7	
11:45	2	11	2	10			4	21
TOTALS	76		83				159	
SPLIT %	47.8%		52.2%				47.9%	

PM Period	NB		SB		EB	WB	TOTAL	
12:00	1		2				3	
12:15	3		5				8	
12:30	5		3				8	
12:45	3	12	3	13			6	25
13:00	1		6				7	
13:15	3		2				5	
13:30	1		4				5	
13:45	3	8	3	15			6	23
14:00	5		3				8	
14:15	7		8				15	
14:30	9		8				17	
14:45	2	23	1	20			3	43
15:00	2		6				8	
15:15	3		1				4	
15:30	5		5				10	
15:45	2	12	3	15			5	27
16:00	4		6				10	
16:15	1		8				9	
16:30	4		0				4	
16:45	0	9	0	14			0	23
17:00	3		1				4	
17:15	1		0				1	
17:30	2		3				5	
17:45	0	6	1	5			1	11
18:00	1		1				2	
18:15	3		1				4	
18:30	1		2				3	
18:45	0	5	2	6			2	11
19:00	0		0				0	
19:15	0		0				0	
19:30	0		0				0	
19:45	0		0				0	
20:00	0		2				2	
20:15	0		2				2	
20:30	1		1				2	
20:45	0	1	1	6			1	7
21:00	0		0				0	
21:15	1		0				1	
21:30	1		1				2	
21:45	0	2	0	1			0	3
22:00	0		0				0	
22:15	0		0				0	
22:30	0		0				0	
22:45	0		0				0	
23:00	0		0				0	
23:15	0		0				0	
23:30	0		0				0	
23:45	0		0				0	
TOTALS	78		95				173	
SPLIT %	45.1%		54.9%				52.1%	

DAILY TOTALS	NB	SB	EB	WB	Total
	154	178	0	0	332

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour	06:00	05:30			05:30	PM Peak Hour	13:45	14:15			13:45
AM Pk Volume	21	19			38	PM Pk Volume	24	23			46
Pk Hr Factor	0.750	0.594			0.731	Pk Hr Factor	0.667	0.719			0.676
7 - 9 Volume	18	23	0	0	41	4 - 6 Volume	15	19	0	0	34
7 - 9 Peak Hour	07:30	07:30			07:30	4 - 6 Peak Hour	16:00	16:00			16:00
7 - 9 Pk Volume	11	15	0	0	26	4 - 6 Pk Volume	9	14	0	0	23
Pk Hr Factor	0.550	0.750	0.000	0.000	0.650	Pk Hr Factor	0.563	0.438	0.000	0.000	0.575

Prepared by NDS/ATD

VOLUME

Airport Blvd E/o Pierce St

Day: Tuesday **City:** Thermal
Date: 2/12/2013 **Project #:** CA13_6033_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	398	390	788

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		1		1		12:00			14		5		19	
00:15			0		0		0		12:15			4		11		15	
00:30			0		0		0		12:30			6		8		14	
00:45			1	1	0	1	1	2	12:45			5	29	2	26	7	55
01:00			0		0		0		13:00			9		6		15	
01:15			0		0		0		13:15			5		3		8	
01:30			0		0		0		13:30			8		4		12	
01:45			0		0		0		13:45			10	32	14	27	24	59
02:00			0		0		0		14:00			4		8		12	
02:15			0		0		0		14:15			12		7		19	
02:30			2		0		2		14:30			9		12		21	
02:45			1	3	1	1	2	4	14:45			7	32	6	33	13	65
03:00			0		5		5		15:00			9		11		20	
03:15			1		1		2		15:15			7		7		14	
03:30			1		2		3		15:30			4		9		13	
03:45			2	4	0	8	2	12	15:45			7	27	8	35	15	62
04:00			2		5		7		16:00			13		12		25	
04:15			0		6		6		16:15			7		10		17	
04:30			0		3		3		16:30			5		13		18	
04:45			7	9	1	15	8	24	16:45			3	28	9	44	12	72
05:00			5		5		10		17:00			4		10		14	
05:15			5		11		16		17:15			1		3		4	
05:30			4		6		10		17:30			3		12		15	
05:45			11	25	11	33	22	58	17:45			4	12	7	32	11	44
06:00			18		7		25		18:00			2		2		4	
06:15			15		4		19		18:15			2		4		6	
06:30			6		3		9		18:30			2		3		5	
06:45			7	46	7	21	14	67	18:45			3	9	1	10	4	19
07:00			9		2		11		19:00			5		0		5	
07:15			6		5		11		19:15			1		1		2	
07:30			4		1		5		19:30			0		0		0	
07:45			5	24	7	15	12	39	19:45			0	6	2	3	2	9
08:00			8		3		11		20:00			1		0		1	
08:15			6		5		11		20:15			3		0		3	
08:30			9		1		10		20:30			0		1		1	
08:45			3	26	7	16	10	42	20:45			0	4	0	1	0	5
09:00			12		3		15		21:00			3		1		4	
09:15			6		4		10		21:15			0		2		2	
09:30			10		3		13		21:30			0		0		0	
09:45			5	33	2	12	7	45	21:45			0	3	0	3	0	6
10:00			4		4		8		22:00			1		0		1	
10:15			2		6		8		22:15			1		0		1	
10:30			8		9		17		22:30			0		1		1	
10:45			4	18	7	26	11	44	22:45			0	2	2	3	2	5
11:00			6		4		10		23:00			1		0		1	
11:15			2		3		5		23:15			0		0		0	
11:30			10		12		22		23:30			0		0		0	
11:45			6	24	6	25	12	49	23:45			0	1	0		0	1
TOTALS				213		173		**386**	**TOTALS**				185		217		**402**
SPLIT %				55.2%		44.8%		**49.0%**	**SPLIT %**				46.0%		54.0%		**51.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	398	390	788

AM Peak Hour			05:45	05:15	**05:30**	**PM Peak Hour**			14:15	16:00	**13:45**
AM Pk Volume			50	35	**76**	**PM Pk Volume**			37	44	**76**
Pk Hr Factor			0.694	0.795	**0.760**	**Pk Hr Factor**			0.771	0.846	**0.792**
7 - 9 Volume	0	0	50	31	**81**	**4 - 6 Volume**	0	0	40	76	**116**
7 - 9 Peak Hour			07:45	07:15	**07:45**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	28	16	**44**	**4 - 6 Pk Volume**	0	0	28	44	**72**
Pk Hr Factor	0.000	0.000	0.778	0.571	**0.917**	**Pk Hr Factor**	0.000	0.000	0.538	0.846	**0.720**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Feb 27, 20	LOCATION:	Thermal	PROJECT #:	SC
	NORTH & SOUTH:	SR-86 NB Ramps	LOCATION #:	3
	EAST & WEST:	Airport	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

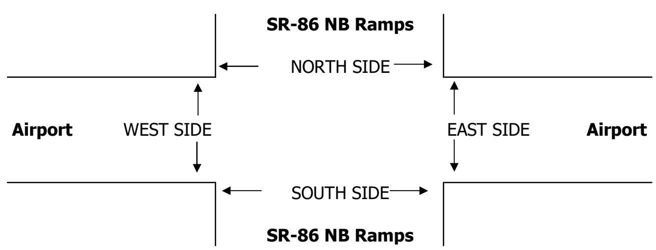
▲ N ◄ W E ► S ▼

☑ Add U-Turns to Left Turns

	NORTHBOUND SR-86 NB Ramps			SOUTHBOUND SR-86 NB Ramps			EASTBOUND Airport			WESTBOUND Airport			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	X	1	X	X	X	X	0.5	0.5	1	1	X	
AM 5:00 AM	2	0	1	0	0	0	0	9	6	6	14	0	38
5:15 AM	13	0	2	0	0	0	0	18	9	5	10	0	57
5:30 AM	18	0	3	0	0	0	0	33	9	6	13	0	82
5:45 AM	10	0	9	0	0	0	0	28	11	13	16	0	87
6:00 AM	14	0	9	0	0	0	0	28	21	11	14	0	97
6:15 AM	18	0	6	0	0	0	0	32	19	13	17	0	105
6:30 AM	15	0	3	0	0	0	0	24	26	8	18	0	94
6:45 AM	9	0	2	0	0	0	0	19	13	14	29	0	86
7:00 AM	12	0	4	0	0	0	0	18	24	6	17	0	81
7:15 AM	9	0	5	0	0	0	0	17	21	14	21	0	87
7:30 AM	24	0	4	0	0	0	0	19	19	11	19	0	96
7:45 AM	17	0	4	0	0	0	0	22	13	7	24	0	87
VOLUMES	161	0	52	0	0	0	0	267	191	114	212	0	997
APPROACH %	76%	0%	24%	0%	0%	0%	0%	58%	42%	35%	65%	0%	
APP/DEPART	213	/	0	0	/	305	458	/	319	326	/	373	0
BEGIN PEAK HR		5:45 AM											
VOLUMES	57	0	27	0	0	0	0	112	77	45	65	0	383
APPROACH %	68%	0%	32%	0%	0%	0%	0%	59%	41%	41%	59%	0%	
PEAK HR FACTOR		0.875			0.000			0.926			0.917		0.912
APP/DEPART	84	/	0	0	/	122	189	/	139	110	/	122	0
PM 3:00 PM	9	0	5	0	0	0	0	32	39	10	35	0	130
3:15 PM	16	0	5	0	0	0	0	27	29	6	25	0	108
3:30 PM	12	0	3	0	0	0	0	29	36	12	35	0	127
3:45 PM	12	0	3	0	0	0	0	22	32	15	23	0	107
4:00 PM	5	0	3	0	0	0	0	27	38	2	33	0	108
4:15 PM	14	0	4	0	0	0	0	33	42	10	31	0	134
4:30 PM	9	0	3	0	0	0	0	22	56	10	27	0	127
4:45 PM	9	0	3	0	0	0	0	26	37	6	28	0	109
5:00 PM	6	0	0	0	0	0	0	34	50	10	27	0	127
5:15 PM	7	0	3	0	0	0	0	27	45	14	24	0	120
VOLUMES	99	0	32	0	0	0	0	279	404	95	288	0	1,197
APPROACH %	76%	0%	24%	0%	0%	0%	0%	41%	59%	25%	75%	0%	
APP/DEPART	131	/	0	0	/	499	683	/	311	383	/	387	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	38	0	10	0	0	0	0	115	185	36	113	0	497
APPROACH %	79%	0%	21%	0%	0%	0%	0%	38%	62%	24%	76%	0%	
PEAK HR FACTOR		0.667			0.000			0.893			0.909		0.927
APP/DEPART	48	/	0	0	/	221	300	/	125	149	/	151	0

U-TURNS

	NB	SB	EB	WB	TTL
LANES	0	0	0	0	
5:00 AM	0	0	0	0	0
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
5:45 AM	0	0	0	0	0
6:00 AM	0	0	0	0	0
6:15 AM	0	0	0	0	0
6:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0



	PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM BEGIN PEAK HR			5:45 AM			0	0	0	0	0					
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM BEGIN PEAK HR			4:15 PM			0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS

Thermal, SC — ALL HOURS

SR-86 NB Ramps (north approach)

TOTAL	0	0	0	0	0
PM	0	0	0	0	0
AM	0	0	0	0	0

Airport (west approach)

TOTAL	760	0	546	595	1,141
PM	387	0	279	404	683
AM	373	0	267	191	458

Airport (east approach)

AM	326	0	212	114	319
PM	383	0	288	95	311
TOTAL	709	0	500	209	630

SR-86 NB Ramps (south approach)

AM	305	161	0	52	213
PM	499	99	0	32	131
TOTAL	804	260	0	84	344

PEAK HOUR

AM 5:45 AM

PM 4:15 PM

SR-86 NB Ramps (north approach)

TOTAL	0	0	0	0	0
PM	0	0	0	0	0
AM	0	0	0	0	0

Airport (west approach)

TOTAL	273	0	227	262	489
PM	151	0	115	185	300
AM	122	0	112	77	189

Airport (east approach)

AM	110	0	65	45	139
PM	149	0	113	36	125
TOTAL	259	0	178	81	264

SR-86 NB Ramps (south approach)

AM	122	57	0	27	84
PM	221	38	0	10	48
Total	343	95	0	37	132

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Feb 27, 20	LOCATION:	Thermal	PROJECT #:	SC
	NORTH & SOUTH:	SR-86 SB Ramps	LOCATION #:	4
	EAST & WEST:	Airport	CONTROL:	SIGNAL

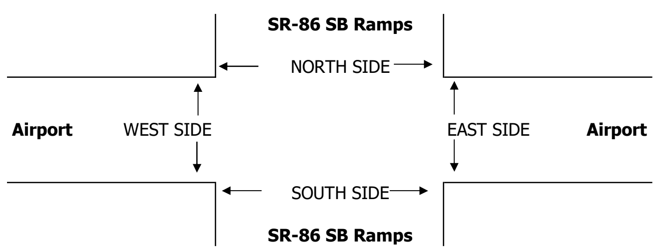
NOTES:

AM PM MD OTHER OTHER

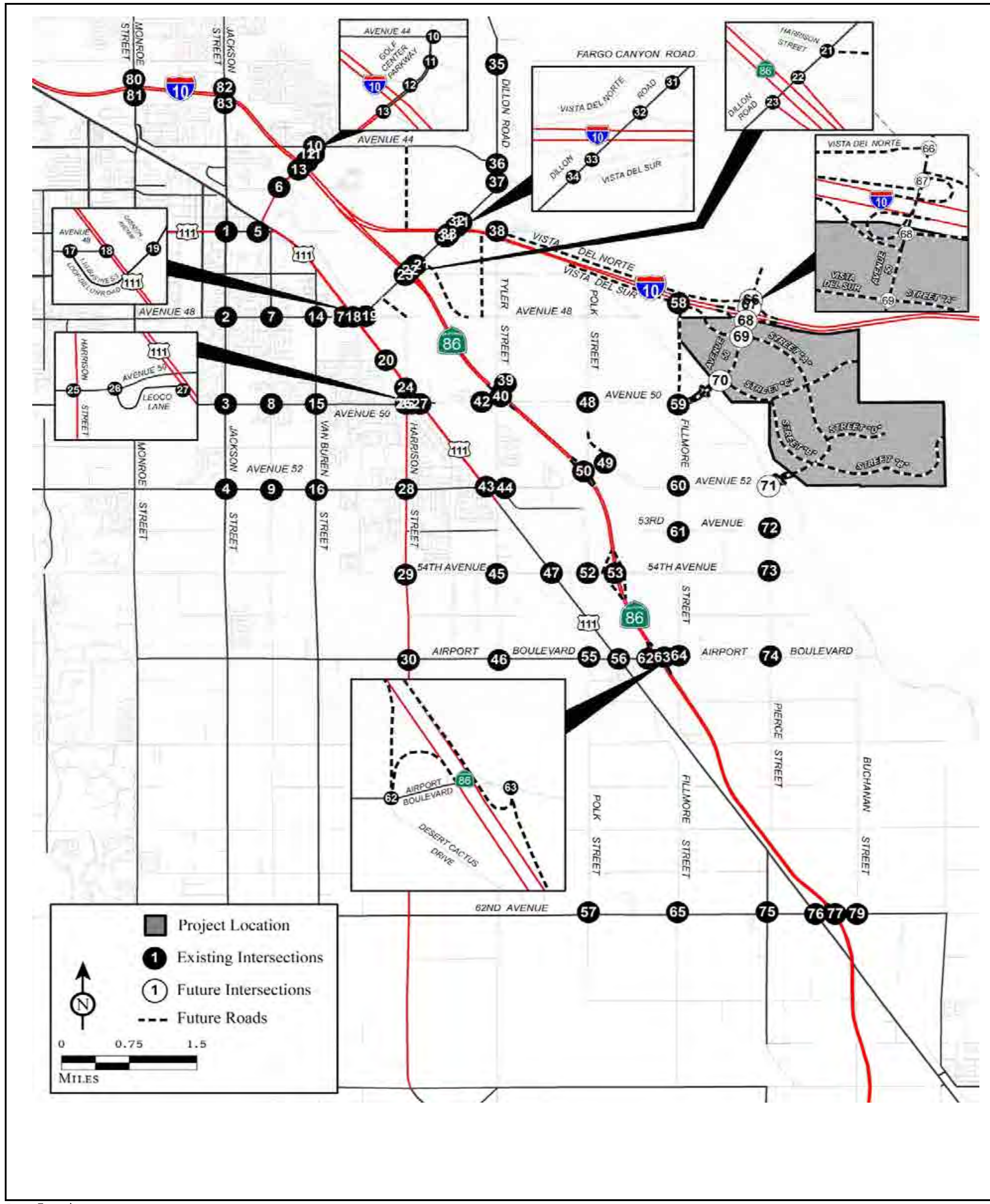
▲ N ◄ W E ► S ▼

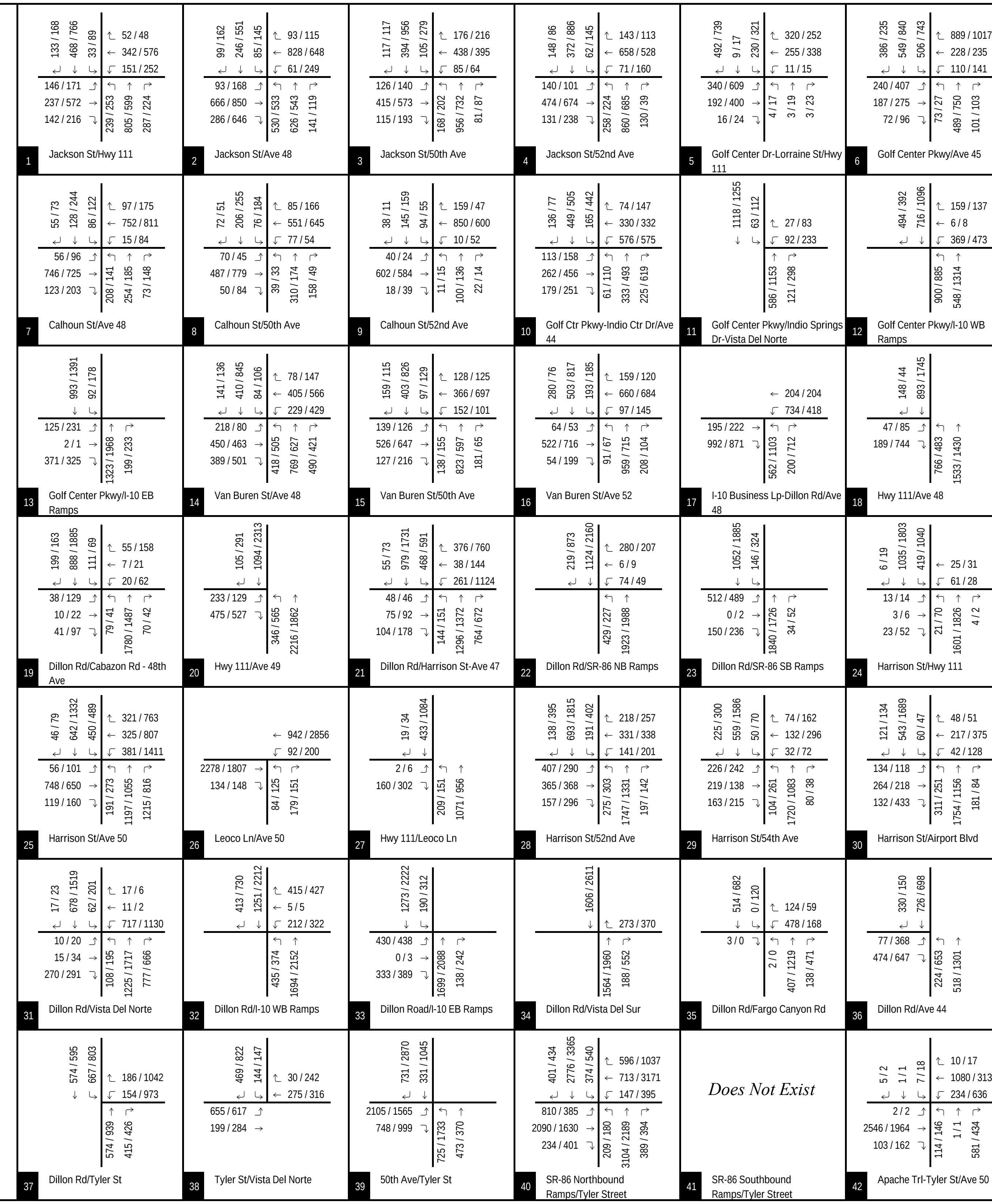
☑ Add U-Turns to Left Turns

	NORTHBOUND SR-86 SB Ramps-Desert Cactus			SOUTHBOUND SR-86 SB Ramps-Desert Cactus			EASTBOUND Airport			WESTBOUND Airport				U-TURNS				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
LANES:	0	1	0	0.5	0.5	1	1	0.5	0.5	1	0.5	0.5		0	0	0	0	
AM 5:00 AM	2	0	1	1	1	10	5	12	0	2	13	1	48	0	0	0	0	0
5:15 AM	0	1	4	6	0	16	4	17	2	2	18	2	72	0	0	0	0	0
5:30 AM	2	0	10	8	2	12	8	25	4	0	26	5	102	0	0	0	0	0
5:45 AM	3	0	3	8	8	19	9	28	2	0	24	2	106	0	0	0	0	0
6:00 AM	0	1	11	7	2	27	4	31	2	0	23	5	113	0	0	0	0	0
6:15 AM	3	0	7	9	3	30	4	36	4	1	30	4	131	0	0	0	0	0
6:30 AM	6	0	9	11	5	45	7	30	4	0	30	3	150	0	0	0	0	0
6:45 AM	4	0	4	7	5	55	6	21	5	0	35	3	145	0	0	0	0	0
7:00 AM	1	0	2	7	6	36	6	33	4	1	27	1	124	0	0	0	0	0
7:15 AM	2	1	9	5	2	29	8	22	3	0	28	2	111	0	0	0	0	0
7:30 AM	3	0	7	5	2	39	8	24	2	1	37	5	133	0	0	0	0	0
7:45 AM	3	0	6	4	4	63	16	27	6	2	39	3	173	0	0	0	0	0
VOLUMES	29	3	73	78	40	381	85	306	38	9	330	36	1,408	0	0	0	0	0
APPROACH %	28%	3%	70%	16%	8%	76%	20%	71%	9%	2%	88%	10%						
APP/DEPART	105	/	124	499	/	87	429	/	457	375	/	740	0					
BEGIN PEAK HR		6:15 AM																
VOLUMES	14	0	22	34	19	166	23	120	17	2	122	11	550					
APPROACH %	39%	0%	61%	16%	9%	76%	14%	75%	11%	1%	90%	8%						
PEAK HR FACTOR		0.600			0.817			0.909			0.888		0.917					
APP/DEPART	36	/	34	219	/	38	160	/	176	135	/	302	0					
PM 3:00 PM	3	0	8	11	3	15	10	53	6	7	33	6	155	0	0	0	0	0
3:15 PM	1	0	5	12	3	21	11	39	6	1	37	3	139	0	0	0	0	0
3:30 PM	7	0	8	12	4	24	9	45	8	0	42	5	164	0	0	0	0	0
3:45 PM	3	0	8	7	4	22	8	39	8	1	30	4	134	0	0	0	0	0
4:00 PM	7	1	8	6	7	19	4	51	7	1	34	3	148	0	0	0	0	0
4:15 PM	1	1	7	13	6	28	6	55	5	1	44	1	168	0	0	0	0	0
4:30 PM	6	1	5	5	2	17	13	68	6	1	29	6	159	0	0	0	0	0
4:45 PM	8	1	4	10	3	13	12	49	1	0	27	10	138	0	0	0	0	0
5:00 PM	6	0	4	11	4	18	12	69	5	5	26	2	162	0	0	0	0	0
5:15 PM	9	0	4	9	7	23	10	59	4	0	24	6	155	0	0	0	0	0
VOLUMES	51	4	61	96	43	200	95	527	56	17	326	46	1,522	0	0	0	0	0
APPROACH %	44%	3%	53%	28%	13%	59%	14%	78%	8%	4%	84%	12%						
APP/DEPART	116	/	145	339	/	116	678	/	684	389	/	577	0					
BEGIN PEAK HR		4:15 PM																
VOLUMES	21	3	20	39	15	76	43	241	17	7	126	19	627					
APPROACH %	48%	7%	45%	30%	12%	58%	14%	80%	6%	5%	83%	13%						
PEAK HR FACTOR		0.846			0.691			0.865			0.826		0.933					
APP/DEPART	44	/	65	130	/	39	301	/	300	152	/	223	0					



	PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM BEGIN PEAK HR			6:15 AM			0	0	0	0	0					
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM BEGIN PEAK HR			4:15 PM			0	0	0	0	0					





LSA

FIGURE 28A

La Entrada Specific Plan

Year 2035 with Project Build-out (with Avenue 50 interchange) Peak Hour Traffic Volumes

XXX / YYY AM / PM Peak Hour Volume (In PCEs)

R:\CLA1201A\Traffic\z84-4A_Vol_2035_With Proj-With Inter A (5/17/2013)

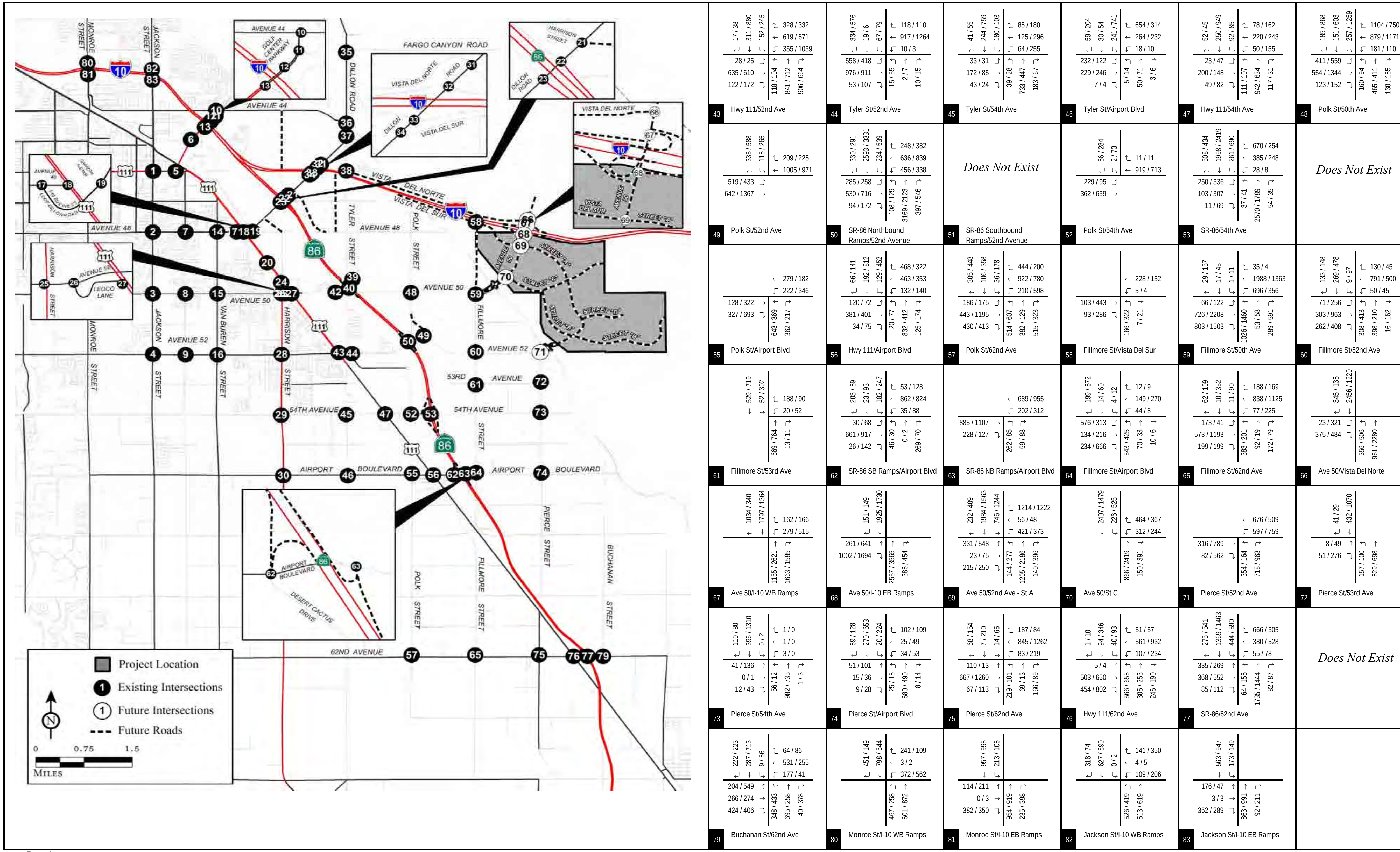


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FIGURE 28B

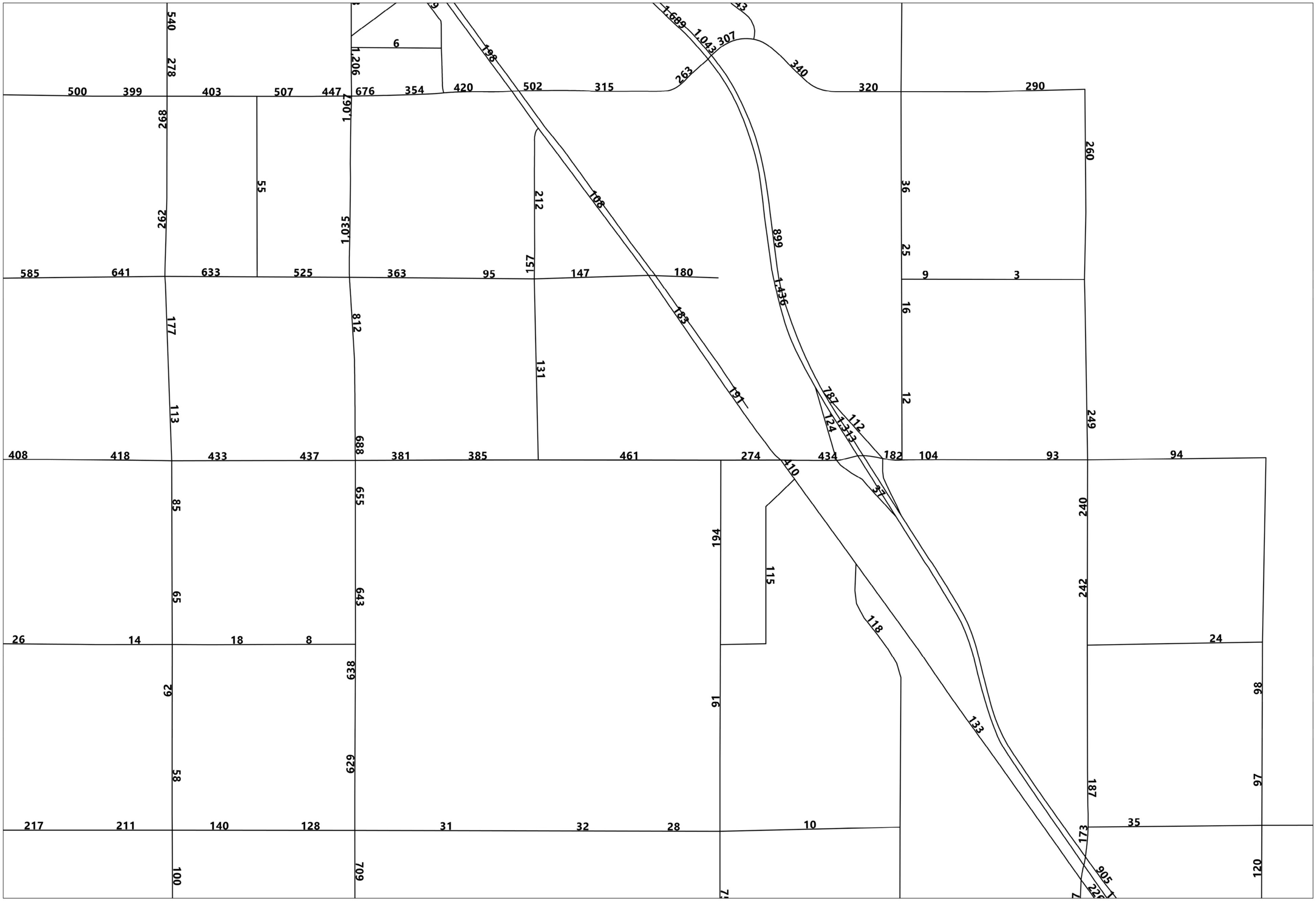
La Entrada Specific Plan

Year 2035 with Project Build-out (with Avenue 50 interchange) Peak Hour Traffic Volumes

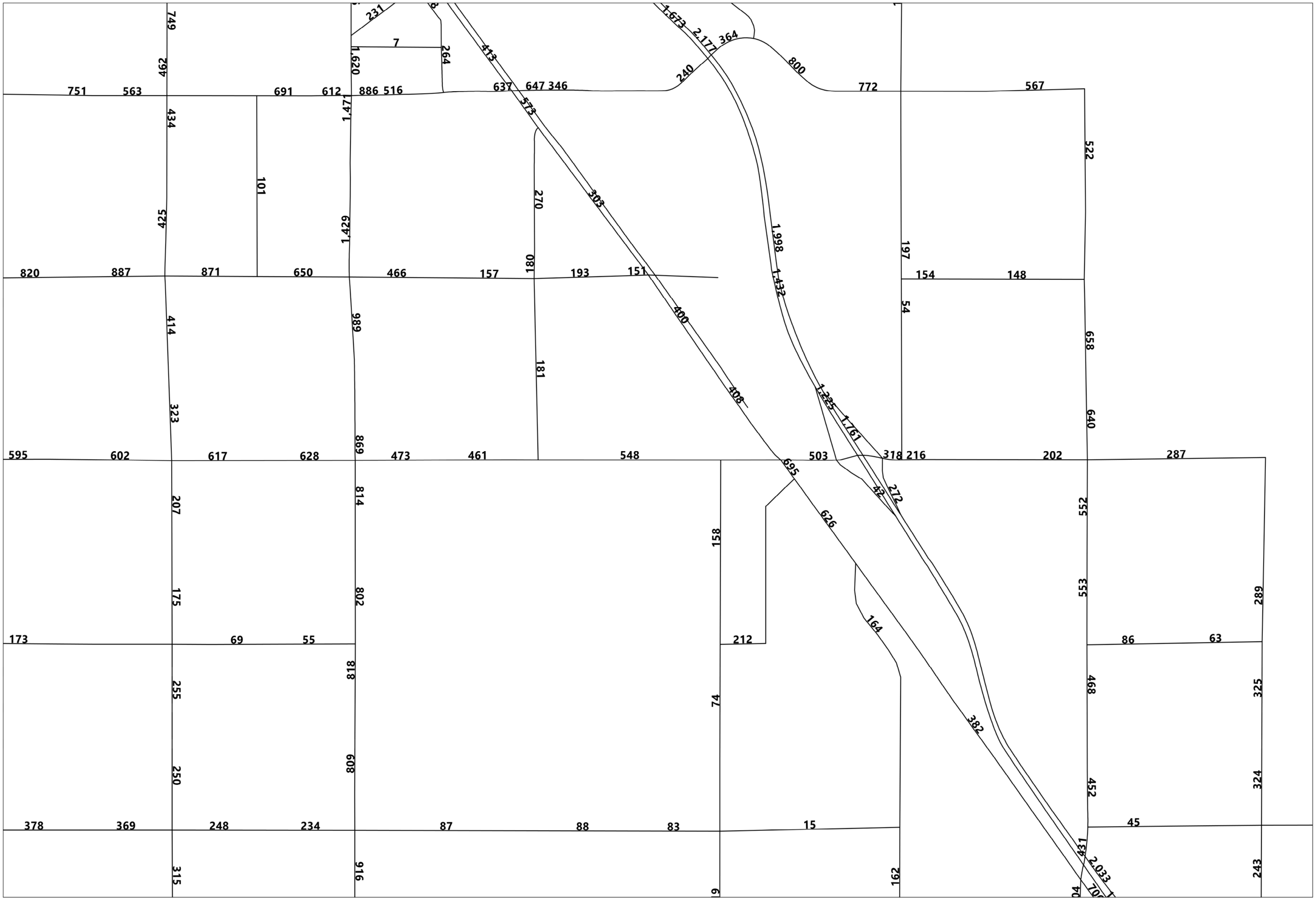
XXX / YYY AM / PM Peak Hour Volume (In PCEs)

R:\CLA1201A\Traffic\z84-4A_Vol_2035_With Proj-With Inter B (5/17/2013)

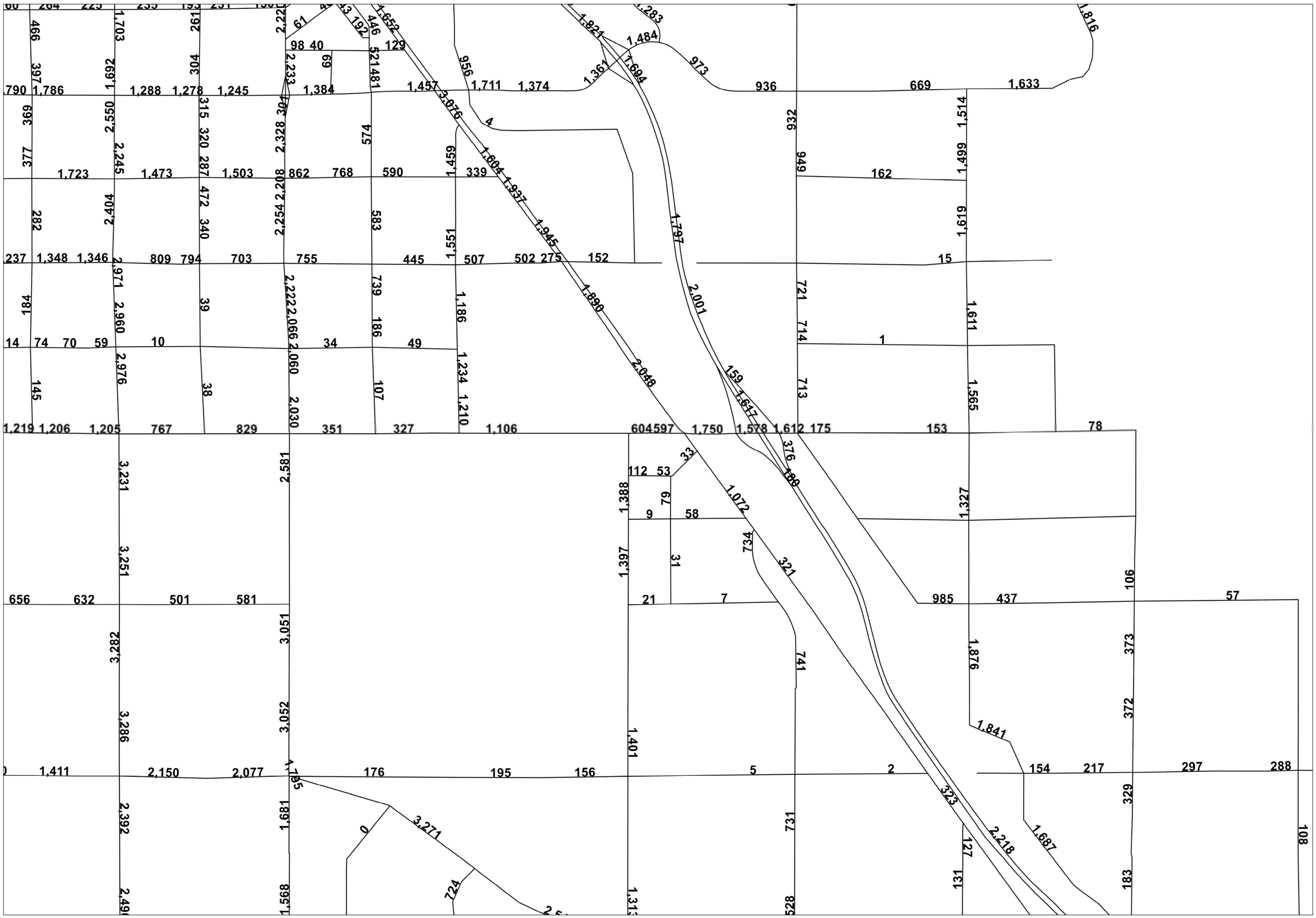
AM Peak Hour Volume from RIVTAM Base Year 2012



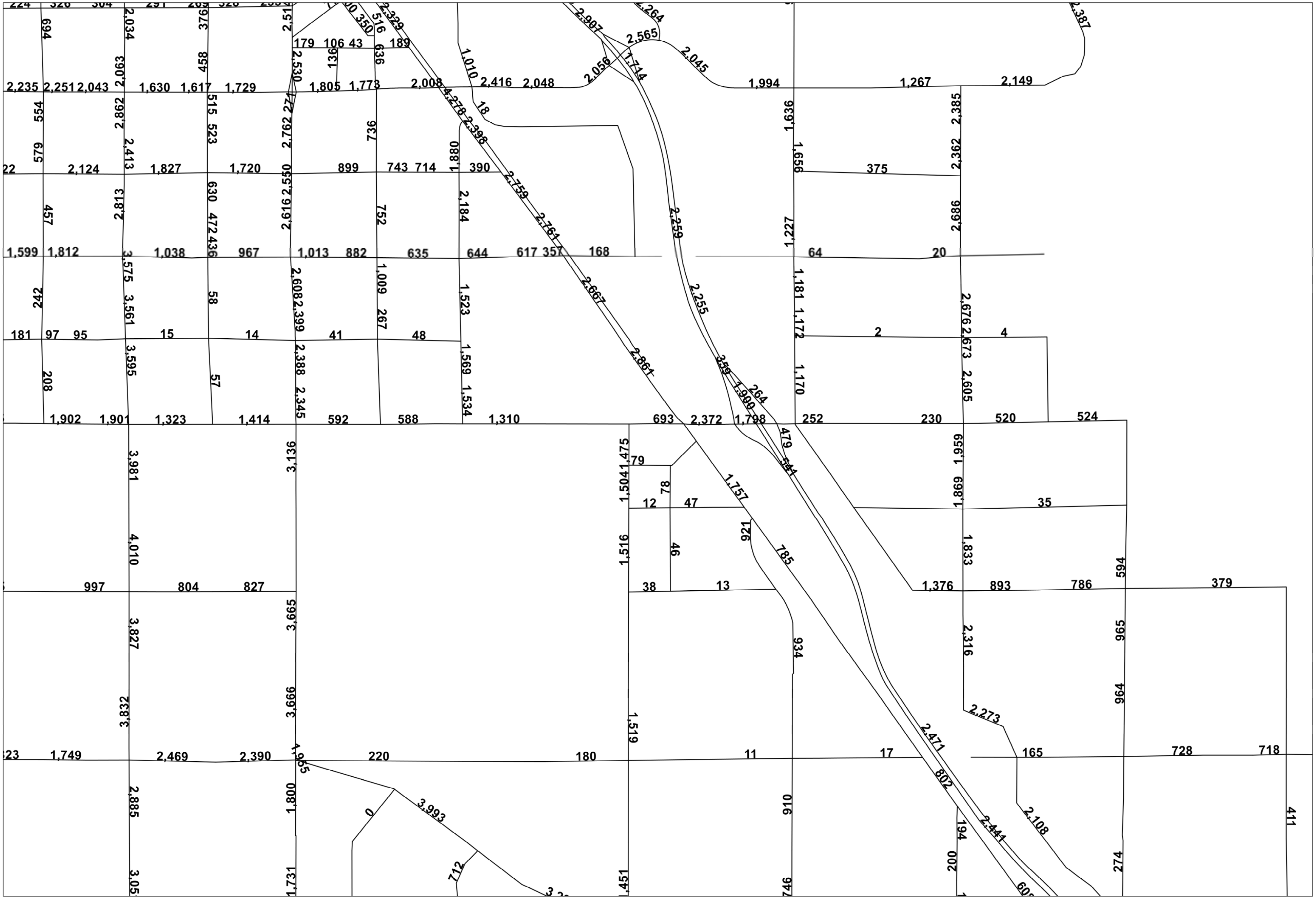
PM Peak Hour Volume from RIVTAM Base Year 2012



AM Peak Hour Volume from Coachella General Plan Model 2035



PM Peak Hour Volume from Coachella General Plan Model 2035



Appendix B - AM Peak Hour Growth

Intersection	Leg	RIVTAM 2012	La Entrada 2012	RIVTAM 2035	Annual Growth Rate
1	E	93	45	153	2.81%
	S	249	17	1565	22.98%
	W	94	46	78	0.22%
	N	240	22	1327	19.69%
2	E	182	204	1612	34.16%
	S	12	57	713	253.99%
	W	104	92	175	2.97%
	N	N/A	73	985	0.22%
3	E	N/A	276	1578	N/A
	S	N/A	N/A	N/A	N/A
	W	182	204	1612	34.16%
	N	118	138	376	9.51%
4	E	434	435	1750	13.18%
	S	124	207	180	1.96%
	W	N/A	277	1578	0.22%
	N	N/A	81	N/A	0.22%
5	E	274	349	597	5.13%
	S	N/A	279	N/A	0.22%
	W	434	430	1750	13.18%
	N	N/A	N/A	N/A	N/A
6	E	461	391	1106	6.08%
	S	N/A	N/A	N/A	N/A
	W	274	326	604	5.24%
	N	194	259	1388	26.76%
7	E	385	402	327	0.22%
	S	131	116	1210	35.81%
	W	461	423	1106	6.08%
	N	N/A	33	N/A	0.22%
8	E	437	463	829	3.90%
	S	688	617	2030	8.48%
	W	381	377	351	0.22%
	N	655	399	2581	12.78%
				East	3.63%
				West	4.99%
				North	19.75%
				South	22.42%

Appendix B - PM Peak Hour Growth

Intersection	Leg	RIVTAM 2012	La Entrada 2012	RIVTAM 2035	RIVTAM 2012 to RIVTAM 2035 Annual Growth Rate
1	E	202	121	230	0.60%
	S	640	18	2605	13.35%
	W	287	80	520	3.53%
	N	552	23	1959	11.08%
2	E	318	266	1798	20.24%
	S	54	46	1170	89.86%
	W	216	137	252	0.72%
	N	N/A	83	1378	N/A
3	E	N/A	360	1798	N/A
	S	N/A	N/A	N/A	N/A
	W	318	266	N/A	N/A
	N	272	176	479	3.31%
4	E	503	401	2372	16.16%
	S	207	137	359	3.19%
	W	N/A	360	1798	N/A
	N	N/A	88	N/A	N/A
5	E	548	284	693	1.15%
	S	N/A	325	N/A	N/A
	W	503	327	2372	16.16%
	N	N/A	N/A	N/A	N/A
6	E	548	328	1310	6.05%
	S	N/A	N/A	N/A	N/A
	W	503	286	693	1.64%
	N	158	144	1475	36.24%
7	E	461	319	588	1.20%
	S	181	57	1534	32.50%
	W	548	312	1310	6.05%
	N	N/A	36	N/A	N/A
8	E	628	286	1414	5.44%
	S	869	567	2345	7.38%
	W	473	320	592	1.09%
	N	814	509	3136	12.40%
				East	2.89%
				West	5.69%
				North	19.91%
				South	17.74%

Appendix B - Annual Growth Rates

Intersection	Intersection Name	Growth Rate Applied																							
		AM												PM											
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Airport Blvd and Pierce St	19.7%	19.7%	0.0%	23.0%	23.0%	23.0%	2.8%	0.0%	2.8%	5.0%	5.0%	5.0%	11.1%	11.1%	11.1%	13.3%	13.3%	13.3%	0.6%	0.6%	0.6%	3.5%	0.0%	3.5%
2	Airport Blvd and Filmore St	0.2%	0.2%	0.2%	22.4%	22.4%	22.4%	3.6%	3.6%	3.6%	3.0%	3.0%	3.0%	19.9%	19.9%	19.9%	89.9%	89.9%	89.9%	2.9%	2.9%	2.9%	0.7%	0.7%	0.7%
3	Airport Blvd and SR-86 NB Ramps	9.5%	9.5%	9.5%	0.0%	0.0%	0.0%	3.6%	3.6%	3.6%	34.2%	34.2%	34.2%	3.3%	3.3%	3.3%	17.7%	17.7%	17.7%	2.9%	2.9%	0.0%	0.2%	0.2%	0.2%
4	Airport Blvd and SR-86 SB Ramps	0.2%	0.2%	0.2%	2.0%	2.0%	2.0%	3.6%	13.2%	3.6%	0.2%	0.2%	0.2%	0.0%	0.0%	19.9%	3.2%	3.2%	0.0%	2.9%	2.9%	2.9%	5.7%	5.7%	5.7%
5	Airport Blvd and Palm St	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	5.1%	5.1%	5.1%	13.2%	5.0%	13.2%	19.9%	19.9%	19.9%	17.7%	17.7%	0.0%	1.2%	1.2%	1.2%	16.2%	16.2%	16.2%
6	Airport Blvd and Polk St	26.8%	26.8%	26.8%	0.0%	0.0%	0.0%	6.1%	3.6%	6.1%	5.2%	5.2%	5.2%	19.9%	19.9%	19.9%	36.2%	36.2%	36.2%	6.0%	6.0%	6.0%	1.6%	1.6%	1.6%
7	Airport Blvd and Tyler St	0.2%	0.2%	0.2%	35.8%	35.8%	0.0%	0.2%	0.2%	0.2%	6.1%	6.1%	6.1%	0.0%	19.9%	0.0%	32.5%	32.5%	32.5%	1.2%	1.2%	1.2%	6.0%	5.7%	6.0%
8	Airport Blvd and Harrison St	12.8%	12.8%	12.8%	0.0%	8.5%	0.0%	3.6%	3.9%	3.9%	0.2%	0.2%	0.2%	12.4%	12.4%	12.4%	0.0%	7.4%	7.4%	5.4%	5.4%	5.4%	1.1%	1.1%	1.1%

Appendix B - Developed 2020 Volumes

Intersection	Intersection Name	Scenario	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Airport Blvd and Pierce St	Developed 2020 Baseline Volumes	3	5	8	14	3	11	5	15	9	4	20	1	17	0	0	0	0	19	9	32	15	0	49	0
2	Airport Blvd and Filmore St		41	0	0	0	0	89	32	46	31	11	58	0	106	0	0	0	0	229	22	63	52	0	91	0
3	Airport Blvd and SR-86 NB Ramps		57	0	27	0	0	0	0	112	77	45	65	0	38	0	10	0	0	0	0	115	185	36	113	0
4	Airport Blvd and SR-86 SB Ramps		14	0	22	34	19	166	23	120	17	2	122	11	21	3	20	39	15	76	43	241	17	7	126	19
5	Airport Blvd and Palm St		0	0	0	64	0	86	51	142	0	0	208	193	0	0	0	235	0	99	46	88	0	0	142	199
6	Airport Blvd and Polk St		129	0	113	0	0	0	0	143	180	87	167	0	161	0	78	0	0	0	0	184	46	24	126	0
7	Airport Blvd and Tyler St		5	4	3	178	27	22	19	208	7	10	216	27	14	29	5	40	0	36	13	129	3	4	236	19
8	Airport Blvd and Harrison St		32	354	28	58	275	85	117	176	26	10	119	45	38	514	50	36	266	43	44	99	27	23	132	52
9	Airport Blvd and Project Dwy									160			302									301			223	
1	Airport Blvd and Pierce St	Developed 2020 Baseline Volumes + Project	6	5	8	14	3	14	7	17	11	4	23	1	19	0	0	0	0	21	11	34	17	0	51	0
2	Airport Blvd and Filmore St		44	0	0	0	0	92	34	53	33	11	66	0	108	0	0	0	0	231	24	70	54	0	97	0
3	Airport Blvd and SR-86 NB Ramps		73	0	27	0	0	0	0	123	106	45	78	0	45	0	10	0	0	0	0	127	235	36	123	0
4	Airport Blvd and SR-86 SB Ramps		24	0	22	34	19	227	31	160	23	2	151	11	27	3	20	39	15	104	56	303	26	7	143	19
5	Airport Blvd and Palm St		0	0	0	97	0	86	51	216	0	0	260	212	0	0	0	254	0	99	46	139	0	0	213	230
6	Airport Blvd and Polk St		129	0	122	0	0	0	0	208	180	93	213	0	161	0	84	0	0	0	0	229	46	33	189	0
7	Airport Blvd and Tyler St		5	4	11	186	27	22	19	257	7	16	251	33	14	29	11	46	0	36	13	163	3	11	284	26
8	Airport Blvd and Harrison St		32	354	36	91	275	85	117	185	26	16	125	68	38	514	56	59	266	43	44	105	27	30	140	84
9	Airport Blvd and Project Dwy		0	0	0	54	0	72	107	160	0	0	302	100	0	0	0	84	0	102	70	301	0	0	223	51

	Segment	Scenario	PM Peak In/Out	ADT*
Airport Blvd Roadway Segments	Palm St to Project Dwy	Developed Baseline 2020 Volumes	664	7970
	Proj Dwy to SR-86 SB Ramps		524	6290
	SB to NB Ramps		451	5410
	Palm St to Project Dwy	Developed 2020 Baseline Volumes + Project	836	10030
	Proj Dwy to SR-86 SB Ramps		659	7910
	SB to NB Ramps		530	6360

*ADT = PM Peak In/Out x 12

Appendix B - Developed Opening Year 2025 Volumes

Intersection	Intersection Name	Scenario	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	**Airport Blvd and Pierce St**	**Developed Opening Year 2025 Baseline Volumes**	4	8	8	20	4	16	6	15	10	5	24	2	17	0	0	0	0	25	10	34	16	0	49	0
2	**Airport Blvd and Filmore St**		42	0	0	0	0	126	37	53	36	13	66	0	148	0	0	0	0	356	25	71	58	0	95	0
3	**Airport Blvd and SR-86 NB Ramps**		85	0	40	0	0	0	0	133	91	122	177	0	45	0	12	0	0	0	0	132	185	37	115	0
4	**Airport Blvd and SR-86 SB Ramps**		15	0	23	38	21	183	30	200	26	3	124	12	21	3	40	46	18	76	50	276	20	9	162	25
5	**Airport Blvd and Palm St**		0	0	0	65	0	86	60	169	0	0	246	256	0	0	0	321	0	99	49	94	0	0	193	270
6	**Airport Blvd and Polk St**		184	0	162	0	0	0	0	143	217	103	199	0	223	0	108	0	0	0	0	222	56	26	135	0
7	**Airport Blvd and Tyler St**		6	5	4	178	27	22	20	210	8	13	260	33	14	40	5	58	0	53	14	137	4	6	236	24
8	**Airport Blvd and Harrison St**		43	466	38	58	345	85	134	202	31	11	121	46	50	674	66	36	328	53	53	118	33	24	139	55
9	**Airport Blvd and Project Dwy**									256			322									346			259	
1	**Airport Blvd and Pierce St**	**Developed Opening Year 2025 Baseline Volumes + Project**	7	8	8	20	4	19	8	17	12	5	27	2	19	0	0	0	0	27	12	36	18	0	51	0
2	**Airport Blvd and Filmore St**		45	0	0	0	0	129	39	60	38	13	74	0	150	0	0	0	0	358	27	78	60	0	101	0
3	**Airport Blvd and SR-86 NB Ramps**		101	0	40	0	0	0	0	144	120	122	190	0	52	0	12	0	0	0	0	144	235	37	125	0
4	**Airport Blvd and SR-86 SB Ramps**		25	0	23	38	21	244	38	240	32	3	153	12	27	3	40	46	18	104	63	338	29	9	179	25
5	**Airport Blvd and Palm St**		0	0	0	98	0	86	60	243	0	0	298	275	0	0	0	340	0	99	49	145	0	0	264	301
6	**Airport Blvd and Polk St**		184	0	171	0	0	0	0	208	217	109	245	0	223	0	114	0	0	0	0	267	56	35	198	0
7	**Airport Blvd and Tyler St**		6	5	12	186	27	22	20	259	8	19	295	39	14	40	11	64	0	53	14	171	4	13	284	31
8	**Airport Blvd and Harrison St**		43	466	46	91	345	85	134	211	31	17	127	69	50	674	72	59	328	53	53	124	33	31	147	87
9	**Airport Blvd and Project Dwy**		0	0	0	54	0	72	107	256	0	0	322	100	0	0	0	84	0	102	70	346	0	0	259	51

			PM Peak In/Out	ADT*
Airport Blvd Roadway Segments	Palm St to Project Dwy	**Developed Baseline Opening Year 2025 Volumes**	878	10540
	Proj Dwy to SR-86 SB Ramps		605	7260
	SB to NB Ramps		477	5720
	Palm St to Project Dwy	**Developed Baseline Opening Year 2025 Volumes + Project**	1050	12600
	Proj Dwy to SR-86 SB Ramps		740	8880
	SB to NB Ramps		556	6670

* PM Peak In/Out x 12

Appendix B - Developed Opening Year 2030 Volumes

Intersection	Intersection Name	Scenario	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Airport Blvd and Pierce St	Developed Opening Year 2030 Baseline Volumes	8	10	8	20	6	24	9	17	12	6	27	2	19	0	0	0	0	33	12	37	18	0	51	0
2	Airport Blvd and Filmore St		45	0	0	0	0	165	44	67	42	14	81	0	190	0	0	0	0	483	30	85	66	0	104	0
3	Airport Blvd and SR-86 NB Ramps		128	0	53	0	0	0	0	164	134	199	301	0	58	0	14	0	0	0	0	161	235	37	126	0
4	Airport Blvd and SR-86 SB Ramps		25	0	23	41	23	260	40	319	30	3	154	12	27	3	60	52	20	104	69	373	31	11	215	30
5	Airport Blvd and Palm St		0	0	0	99	0	86	70	269	0	0	335	337	0	0	0	426	0	99	51	149	0	0	314	371
6	Airport Blvd and Polk St		239	0	219	0	0	0	0	208	254	125	276	0	285	0	144	0	0	0	0	304	65	37	207	0
7	Airport Blvd and Tyler St		6	5	12	186	27	22	20	261	8	21	295	44	14	51	11	82	0	69	15	178	4	14	284	35
8	Airport Blvd and Harrison St		53	578	55	91	415	85	134	238	35	17	128	69	62	834	87	59	389	63	62	143	38	33	153	90
9	Airport Blvd and Project Dwy		0	0	0	54	0	72	107	335	0	0	339	100	0	0	0	84	0	102	70	389	0	0	295	51
1	Airport Blvd and Pierce St	Developed Opening Year 2030 Baseline Volumes + Project	8	10	8	20	6	24	9	17	12	6	27	2	19	0	0	0	0	33	12	37	18	0	51	0
2	Airport Blvd and Filmore St		45	0	0	0	0	165	44	67	42	14	82	0	190	0	0	0	0	483	30	86	66	0	104	0
3	Airport Blvd and SR-86 NB Ramps		136	0	53	0	0	0	0	164	141	199	303	0	60	0	14	0	0	0	0	163	257	37	127	0
4	Airport Blvd and SR-86 SB Ramps		29	0	23	41	23	289	42	326	31	3	163	12	28	3	60	52	20	110	75	397	34	11	217	30
5	Airport Blvd and Palm St		0	0	0	112	0	86	70	288	0	0	339	340	0	0	0	429	0	99	51	154	0	0	334	383
6	Airport Blvd and Polk St		239	0	222	0	0	0	0	224	254	126	280	0	285	0	145	0	0	0	0	309	65	40	225	0
7	Airport Blvd and Tyler St		6	5	14	188	27	22	20	274	8	21	298	44	14	51	12	83	0	69	15	182	4	16	298	37
8	Airport Blvd and Harrison St		53	578	57	100	415	85	134	240	35	17	129	71	62	834	88	62	389	63	62	144	38	35	155	100
9	Airport Blvd and Project Dwy		0	0	0	64	0	79	139	335	0	0	339	141	0	0	0	117	0	134	78	389	0	0	295	60

			PM Peak In/Out	ADT*
Airport Blvd Roadway Segments	Palm St to Project Dwy	Developed Opening Year 2030 Baseline Volumes	1260	15120
	Proj Dwy to SR-86 SB Ramps		819	9830
	SB to NB Ramps		580	6960
	Palm St to Project Dwy	Developed Opening Year 2030 Baseline Volumes + Project	1300	15600
	Proj Dwy to SR-86 SB Ramps		861	10330
	SB to NB Ramps		607	7280

*ADT = PM Peak In/Out x 12

Appendix B - Developed Buildout 2035 Volumes

Intersection	Intersection Name	Scenario	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	**Airport Blvd and Pierce St**	**Buildout 2035 Baseline**	28	680	8	20	270	72	53	17	11	34	28	102	20	490	14	224	653	130	103	38	30	53	51	109
2	**Airport Blvd and Filmore St**		546	70	10	4	14	202	578	141	236	44	158	12	427	33	6	12	60	574	315	224	668	8	276	9
3	**Airport Blvd and SR-86 NB Ramps**		286	0	59	0	0	0	0	896	264	202	704	0	94	0	88	0	0	0	0	1121	199	312	966	0
4	**Airport Blvd and SR-86 SB Ramps**		60	0	269	182	23	293	40	708	33	35	900	53	37	2	70	247	93	93	87	1003	154	88	843	128
5	**Airport Blvd and Palm St**		0	0	0	300	0	86	120	474	0	0	519	622	0	0	0	648	0	143	72	457	0	0	444	505
6	**Airport Blvd and Polk St**		643	0	374	0	0	0	0	209	327	229	329	0	369	0	224	0	0	0	0	372	693	358	263	0
7	**Airport Blvd and Tyler St**		5	50	13	251	30	59	232	291	7	24	302	660	14	71	13	748	54	204	122	284	4	19	294	323
8	**Airport Blvd and Harrison St**		311	1754	191	102	543	121	134	275	132	48	224	73	251	1156	91	73	1689	134	118	225	433	137	385	93
9	**Airport Blvd and Project Dwy**		0	0	0	64	0	79	139	717	0	0	1111	141	0	0	0	117	0	134	78	1127	0	0	913	60
1	**Airport Blvd and Pierce St**	**Buildout 2035 Baseline + Project**	28	680	8	20	270	72	53	17	11	34	28	102	20	490	14	224	653	130	103	38	30	53	51	109
2	**Airport Blvd and Filmore St**		546	70	10	4	14	202	578	141	236	44	159	12	427	33	6	12	60	574	315	225	668	8	277	9
3	**Airport Blvd and SR-86 NB Ramps**		292	0	59	0	0	0	0	897	270	202	706	0	96	0	88	0	0	0	0	1123	217	312	967	0
4	**Airport Blvd and SR-86 SB Ramps**		63	0	269	182	23	316	41	714	34	35	908	53	38	2	70	247	93	99	92	1023	157	88	845	128
5	**Airport Blvd and Palm St**		0	0	0	311	0	86	120	491	0	0	523	625	0	0	0	651	0	143	72	464	0	0	462	515
6	**Airport Blvd and Polk St**		643	0	376	0	0	0	0	223	327	230	333	0	369	0	225	0	0	0	0	378	693	360	279	0
7	**Airport Blvd and Tyler St**		5	50	15	253	30	59	232	302	7	24	305	660	14	71	14	749	54	204	122	288	4	21	306	325
8	**Airport Blvd and Harrison St**		311	1754	193	110	543	121	134	277	132	48	225	75	251	1156	92	76	1689	134	118	226	433	139	387	102
9	**Airport Blvd and Project Dwy**		0	0	0	72	0	86	167	717	0	0	1111	176	0	0	0	145	0	162	88	1127	0	0	913	69

			PM Peak In/Out	ADT*
Airport Blvd Roadway Segments	**Palm St to Project Dwy**	**Buildout 2035 Baseline**	2054	24650
	Proj Dwy to SR-86 SB Ramps		2217	26600
	SB to NB Ramps		2380	28560
	Palm St to Project Dwy	**Buildout 2035 Baseline + Project**	2092	25100
	Proj Dwy to SR-86 SB Ramps		2254	27050
	SB to NB Ramps		2403	28840

*ADT = PM Peak In/Out x 12

APPENDIX C -

EXISTING CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	15	9	4	20	1	3	5	8	14	3	11
Future Vol, veh/h	5	15	9	4	20	1	3	5	8	14	3	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	16	9	4	21	1	3	5	8	15	3	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	25	0	0	68	61	21	67	65	22
Stage 1	-	-	-	-	-	-	31	31	-	30	30	-
Stage 2	-	-	-	-	-	-	37	30	-	37	35	-
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	1593	-	-	1589	-	-	925	830	1056	926	826	1055
Stage 1	-	-	-	-	-	-	986	869	-	987	870	-
Stage 2	-	-	-	-	-	-	978	870	-	978	866	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1593	-	-	1589	-	-	908	825	1056	910	821	1055
Mov Cap-2 Maneuver	-	-	-	-	-	-	908	825	-	910	821	-
Stage 1	-	-	-	-	-	-	983	866	-	984	867	-
Stage 2	-	-	-	-	-	-	961	867	-	961	863	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	1.2	8.9	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	944	1593	-	-	1589	-	-	950
HCM Lane V/C Ratio	0.018	0.003	-	-	0.003	-	-	0.031
HCM Control Delay (s)	8.9	7.3	0	-	7.3	0	-	8.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	46	31	11	58	0	41	0	0	0	0	89
Future Vol, veh/h	32	46	31	11	58	0	41	0	0	0	0	89
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	48	33	12	61	0	43	0	0	0	0	94

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	61	0	0	81	0	0	265	218	65	218	234	61
Stage 1	-	-	-	-	-	-	133	133	-	85	85	-
Stage 2	-	-	-	-	-	-	132	85	-	133	149	-
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	1542	-	-	1517	-	-	688	680	999	738	666	1004
Stage 1	-	-	-	-	-	-	870	786	-	923	824	-
Stage 2	-	-	-	-	-	-	871	824	-	870	774	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1542	-	-	1517	-	-	609	659	999	720	645	1004
Mov Cap-2 Maneuver	-	-	-	-	-	-	609	659	-	720	645	-
Stage 1	-	-	-	-	-	-	850	768	-	902	817	-
Stage 2	-	-	-	-	-	-	783	817	-	850	756	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	1.2	11.4	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	609	1542	-	-	1517	-	-	1004
HCM Lane V/C Ratio	0.071	0.022	-	-	0.008	-	-	0.093
HCM Control Delay (s)	11.4	7.4	0	-	7.4	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	112	77	45	65	57	27
Future Volume (veh/h)	112	77	45	65	57	27
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	118	81	47	68	60	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	648	445	72	1389	191	170
Arrive On Green	1.00	1.00	0.04	0.74	0.11	0.11
Sat Flow, veh/h	1033	709	1781	1870	1781	1585
Grp Volume(v), veh/h	0	199	47	68	60	28
Grp Sat Flow(s),veh/h/ln	0	1743	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	2.1	0.8	2.5	1.3
Cycle Q Clear(g_c), s	0.0	0.0	2.1	0.8	2.5	1.3
Prop In Lane		0.41	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1093	72	1389	191	170
V/C Ratio(X)	0.00	0.18	0.65	0.05	0.31	0.16
Avail Cap(c_a), veh/h	0	1093	134	1389	379	337
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	37.8	2.7	33.0	32.4
Incr Delay (d2), s/veh	0.0	0.4	9.5	0.1	0.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	1.0	0.2	1.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.4	47.3	2.8	33.9	32.9
LnGrp LOS	A	A	D	A	C	C
Approach Vol, veh/h	199			115	88	
Approach Delay, s/veh	0.4			21.0	33.6	
Approach LOS	A			C	C	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		14.6	9.2	56.2				65.4
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		17.0	6.0	39.0				51.0
Max Q Clear Time (g_c+I1), s		4.5	4.1	2.0				2.8
Green Ext Time (p_c), s		0.1	0.0	1.1				0.3

Intersection Summary			
HCM 6th Ctrl Delay			13.5
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	120	17	2	122	11	14	0	22	34	19	166
Future Volume (veh/h)	23	120	17	2	122	11	14	0	22	34	19	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	126	18	2	128	12	15	0	23	36	20	175
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	783	112	5	785	74	47	0	71	159	88	216
Arrive On Green	0.05	0.98	0.98	0.01	0.93	0.93	0.07	0.00	0.07	0.14	0.14	0.14
Sat Flow, veh/h	1781	1601	229	1781	1684	158	654	0	1003	1165	647	1585
Grp Volume(v), veh/h	24	0	144	2	0	140	38	0	0	56	0	175
Grp Sat Flow(s),veh/h/ln	1781	0	1829	1781	0	1842	1657	0	0	1812	0	1585
Q Serve(g_s), s	1.1	0.0	0.2	0.1	0.0	0.5	1.7	0.0	0.0	2.2	0.0	8.6
Cycle Q Clear(g_c), s	1.1	0.0	0.2	0.1	0.0	0.5	1.7	0.0	0.0	2.2	0.0	8.6
Prop In Lane	1.00		0.13	1.00		0.09	0.39		0.61	0.64		1.00
Lane Grp Cap(c), veh/h	46	0	895	5	0	859	118	0	0	247	0	216
V/C Ratio(X)	0.52	0.00	0.16	0.41	0.00	0.16	0.32	0.00	0.00	0.23	0.00	0.81
Avail Cap(c_a), veh/h	111	0	895	111	0	859	342	0	0	374	0	327
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	0.4	39.7	0.0	1.5	35.3	0.0	0.0	30.8	0.0	33.5
Incr Delay (d2), s/veh	8.8	0.0	0.4	47.5	0.0	0.4	1.6	0.0	0.0	0.5	0.0	8.7
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	0.6	0.0	0.1	0.1	0.0	0.2	0.7	0.0	0.0	1.0	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	0.0	0.8	87.2	0.0	1.9	36.9	0.0	0.0	31.2	0.0	42.2
LnGrp LOS	D	A	A	F	A	A	D	A	A	C	A	D
Approach Vol, veh/h		168			142			38			231	
Approach Delay, s/veh		7.3			3.1			36.9			39.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.7	6.2	45.2		16.9	8.1	43.3				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s		3.7	2.1	2.2		10.6	3.1	2.5				
Green Ext Time (p_c), s		0.1	0.0	0.6		0.4	0.0	0.5				

Intersection Summary			
HCM 6th Ctrl Delay			21.1
HCM 6th LOS			C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	142	208	193	64	86
Future Volume (veh/h)	51	142	208	193	64	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	149	219	203	67	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	482	1211	609	537	441	392
Arrive On Green	0.34	0.34	0.34	0.34	0.25	0.25
Sat Flow, veh/h	965	3647	1881	1576	1781	1585
Grp Volume(v), veh/h	54	149	218	204	67	91
Grp Sat Flow(s),veh/h/ln	965	1777	1777	1587	1781	1585
Q Serve(g_s), s	1.3	0.8	2.7	2.8	0.9	1.3
Cycle Q Clear(g_c), s	4.1	0.8	2.7	2.8	0.9	1.3
Prop In Lane	1.00			0.99	1.00	1.00
Lane Grp Cap(c), veh/h	482	1211	606	541	441	392
V/C Ratio(X)	0.11	0.12	0.36	0.38	0.15	0.23
Avail Cap(c_a), veh/h	1245	4022	2011	1796	2138	1903
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.8	6.6	7.2	7.3	8.6	8.8
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.4	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.7	0.6	0.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.9	6.7	7.6	7.7	8.7	9.1
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		203	422		158	
Approach Delay, s/veh		7.3	7.6		8.9	
Approach LOS		A	A		A	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	15.9	13.2	15.9
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	33.0	35.0	33.0
Max Q Clear Time (g_c+I1), s	6.1	3.3	4.8
Green Ext Time (p_c), s	1.1	0.5	2.8

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	143	180	87	167	0	129	0	113	0	0	0
Future Volume (veh/h)	0	143	180	87	167	0	129	0	113	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	151	189	92	176	0	136	0	119	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	872	757	142	1679	0	209	0	183	0	5	0
Arrive On Green	0.00	0.25	0.25	0.08	0.47	0.00	0.23	0.00	0.23	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	898	0	786	0	1870	0
Grp Volume(v), veh/h	0	151	189	92	176	0	255	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1684	0	0	0	1870	0
Q Serve(g_s), s	0.0	1.4	2.9	2.0	1.1	0.0	5.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.4	2.9	2.0	1.1	0.0	5.6	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.53		0.47	0.00		0.00
Lane Grp Cap(c), veh/h	4	872	757	142	1679	0	391	0	0	0	5	0
V/C Ratio(X)	0.00	0.17	0.25	0.65	0.10	0.00	0.65	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	219	2099	1304	219	2099	0	1533	0	0	0	460	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.1	6.3	18.2	5.9	0.0	14.1	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.2	4.9	0.0	0.0	1.8	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	0.0	0.4	1.0	0.9	0.2	0.0	1.8	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.2	6.5	23.1	6.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		340			268			255			0	
Approach Delay, s/veh		9.0			11.9			16.0			0.0	
Approach LOS		A			B			B				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.4	9.2	16.0		0.0	0.0	25.2				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		7.6	4.0	4.9		0.0	0.0	3.1				
Green Ext Time (p_c), s		1.5	0.0	1.3		0.0	0.0	0.9				

Intersection Summary		
HCM 6th Ctrl Delay		11.9
HCM 6th LOS		B

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	208	7	10	216	27	5	4	3	178	27	22
Future Vol, veh/h	19	208	7	10	216	27	5	4	3	178	27	22
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	219	7	11	227	28	5	4	3	187	28	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	255	0	0	226	0	0	548	536	219	529	529	241
Stage 1	-	-	-	-	-	-	259	259	-	263	263	-
Stage 2	-	-	-	-	-	-	289	277	-	266	266	-
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	1310	-	-	1342	-	-	447	451	821	460	455	798
Stage 1	-	-	-	-	-	-	746	694	-	742	691	-
Stage 2	-	-	-	-	-	-	719	681	-	739	689	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1310	-	-	1342	-	-	405	439	821	446	443	798
Mov Cap-2 Maneuver	-	-	-	-	-	-	405	439	-	446	443	-
Stage 1	-	-	-	-	-	-	733	682	-	729	684	-
Stage 2	-	-	-	-	-	-	662	674	-	719	677	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	12.7	20.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	478	1310	-	-	1342	-	-	466
HCM Lane V/C Ratio	0.026	0.015	-	-	0.008	-	-	0.513
HCM Control Delay (s)	12.7	7.8	0	-	7.7	0	-	20.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	176	26	10	119	45	32	354	28	58	275	85
Future Volume (veh/h)	117	176	26	10	119	45	32	354	28	58	275	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	185	27	11	125	47	34	373	29	61	289	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	266	35	95	337	120	68	484	38	105	567	481
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.04	0.28	0.28	0.06	0.30	0.30
Sat Flow, veh/h	496	1008	132	41	1279	456	1781	1713	133	1781	1870	1585
Grp Volume(v), veh/h	335	0	0	183	0	0	34	0	402	61	289	89
Grp Sat Flow(s),veh/h/ln	1637	0	0	1776	0	0	1781	0	1846	1781	1870	1585
Q Serve(g_s), s	4.5	0.0	0.0	0.0	0.0	0.0	0.9	0.0	9.1	1.5	5.8	1.9
Cycle Q Clear(g_c), s	8.4	0.0	0.0	3.8	0.0	0.0	0.9	0.0	9.1	1.5	5.8	1.9
Prop In Lane	0.37		0.08	0.06		0.26	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	539	0	0	552	0	0	68	0	522	105	567	481
V/C Ratio(X)	0.62	0.00	0.00	0.33	0.00	0.00	0.50	0.00	0.77	0.58	0.51	0.19
Avail Cap(c_a), veh/h	1114	0	0	1197	0	0	196	0	1054	274	1150	974
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	0.0	13.8	0.0	0.0	21.5	0.0	15.0	20.9	13.1	11.7
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.3	0.0	0.0	5.5	0.0	2.4	5.0	0.7	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	2.4	0.0	0.0	1.1	0.0	0.0	0.4	0.0	2.9	0.6	1.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	0.0	0.0	14.1	0.0	0.0	27.0	0.0	17.4	25.9	13.8	11.9
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	B	B
Approach Vol, veh/h		335			183			436			439	
Approach Delay, s/veh		16.4			14.1			18.2			15.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	18.9		18.0	7.7	19.8		18.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	26.0		29.0	5.0	28.0		29.0				
Max Q Clear Time (g_c+I1), s	3.5	11.1		10.4	2.9	7.8		5.8				
Green Ext Time (p_c), s	0.0	1.8		1.6	0.0	1.6		0.8				

Intersection Summary			
HCM 6th Ctrl Delay			16.3
HCM 6th LOS			B

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	32	15	0	49	0	17	0	0	0	0	19
Future Vol, veh/h	9	32	15	0	49	0	17	0	0	0	0	19
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	34	16	0	52	0	18	0	0	0	0	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	50	0	0	122	112	42	112	120	52
Stage 1	-	-	-	-	-	-	60	60	-	52	52	-
Stage 2	-	-	-	-	-	-	62	52	-	60	68	-
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	1554	-	-	1557	-	-	853	778	1029	866	770	1016
Stage 1	-	-	-	-	-	-	951	845	-	961	852	-
Stage 2	-	-	-	-	-	-	949	852	-	951	838	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1557	-	-	833	773	1029	862	765	1016
Mov Cap-2 Maneuver	-	-	-	-	-	-	833	773	-	862	765	-
Stage 1	-	-	-	-	-	-	945	840	-	955	852	-
Stage 2	-	-	-	-	-	-	930	852	-	945	833	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	9.4	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	833	1554	-	-	1557	-	-	1016
HCM Lane V/C Ratio	0.021	0.006	-	-	-	-	-	0.02
HCM Control Delay (s)	9.4	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	63	52	0	91	0	106	0	0	0	0	229
Future Vol, veh/h	22	63	52	0	91	0	106	0	0	0	0	229
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	66	55	0	96	0	112	0	0	0	0	241

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	121	0	0	357	236	94	236	263	96
Stage 1	-	-	-	-	-	-	140	140	-	96	96	-
Stage 2	-	-	-	-	-	-	217	96	-	140	167	-
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	1498	-	-	1467	-	-	598	665	963	718	642	960
Stage 1	-	-	-	-	-	-	863	781	-	911	815	-
Stage 2	-	-	-	-	-	-	785	815	-	863	760	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1498	-	-	1467	-	-	442	654	963	709	631	960
Mov Cap-2 Maneuver	-	-	-	-	-	-	442	654	-	709	631	-
Stage 1	-	-	-	-	-	-	848	768	-	896	815	-
Stage 2	-	-	-	-	-	-	588	815	-	848	747	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	15.9	10
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1498	-	-	1467	-	-	960
HCM Lane V/C Ratio	0.252	0.015	-	-	-	-	-	0.251
HCM Control Delay (s)	15.9	7.4	0	-	0	-	-	10
HCM Lane LOS	C	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	1	0	-	-	0	-	-	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	115	185	36	113	38	10
Future Volume (veh/h)	115	185	36	113	38	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	195	38	119	40	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	422	680	63	1431	151	134
Arrive On Green	1.00	1.00	0.04	0.77	0.08	0.08
Sat Flow, veh/h	645	1039	1781	1870	1781	1585
Grp Volume(v), veh/h	0	316	38	119	40	11
Grp Sat Flow(s),veh/h/ln	0	1683	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	1.7	1.3	1.7	0.5
Cycle Q Clear(g_c), s	0.0	0.0	1.7	1.3	1.7	0.5
Prop In Lane		0.62	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1102	63	1431	151	134
V/C Ratio(X)	0.00	0.29	0.60	0.08	0.26	0.08
Avail Cap(c_a), veh/h	0	1102	134	1431	379	337
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	38.0	2.4	34.3	33.7
Incr Delay (d2), s/veh	0.0	0.6	8.7	0.1	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.8	0.3	0.8	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.6	46.7	2.5	35.2	34.0
LnGrp LOS	A	A	D	A	D	C
Approach Vol, veh/h	316			157	51	
Approach Delay, s/veh	0.6			13.2	34.9	
Approach LOS	A			B	C	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		12.8	8.9	58.4				67.2
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		17.0	6.0	39.0				51.0
Max Q Clear Time (g_c+I1), s		3.7	3.7	2.0				3.3
Green Ext Time (p_c), s		0.1	0.0	1.9				0.6

Intersection Summary		
HCM 6th Ctrl Delay		7.7
HCM 6th LOS		A

HCM 6th Signalized Intersection Summary | Coachella Airport Business Park
4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd | 07/30/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	241	17	7	126	19	21	3	20	39	15	76
Future Volume (veh/h)	43	241	17	7	126	19	21	3	20	39	15	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	254	18	7	133	20	22	3	21	41	16	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	849	60	16	733	110	65	9	62	155	60	189
Arrive On Green	0.04	0.49	0.49	0.02	0.92	0.92	0.08	0.08	0.08	0.12	0.12	0.12
Sat Flow, veh/h	1781	1726	122	1781	1588	239	809	110	772	1299	507	1585
Grp Volume(v), veh/h	45	0	272	7	0	153	46	0	0	57	0	80
Grp Sat Flow(s),veh/h/ln	1781	0	1848	1781	0	1827	1691	0	0	1805	0	1585
Q Serve(g_s), s	2.0	0.0	7.0	0.3	0.0	0.6	2.1	0.0	0.0	2.3	0.0	3.7
Cycle Q Clear(g_c), s	2.0	0.0	7.0	0.3	0.0	0.6	2.1	0.0	0.0	2.3	0.0	3.7
Prop In Lane	1.00		0.07	1.00		0.13	0.48		0.46	0.72		1.00
Lane Grp Cap(c), veh/h	70	0	909	16	0	843	135	0	0	215	0	189
V/C Ratio(X)	0.64	0.00	0.30	0.44	0.00	0.18	0.34	0.00	0.00	0.27	0.00	0.42
Avail Cap(c_a), veh/h	134	0	909	111	0	843	349	0	0	372	0	327
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	12.1	39.1	0.0	1.7	34.8	0.0	0.0	32.1	0.0	32.7
Incr Delay (d2), s/veh	9.3	0.0	0.8	17.6	0.0	0.5	1.5	0.0	0.0	0.7	0.0	1.5
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	1.0	0.0	2.9	0.2	0.0	0.3	0.9	0.0	0.0	1.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	13.0	56.6	0.0	2.2	36.3	0.0	0.0	32.7	0.0	34.2
LnGrp LOS	D	A	B	E	A	A	D	A	A	C	A	C
Approach Vol, veh/h		317			160			46			137	
Approach Delay, s/veh		17.8			4.5			36.3			33.6	
Approach LOS		B			A			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.4	6.7	45.4		15.5	9.2	42.9				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	6.0	17.0				
Max Q Clear Time (g_c+I1), s		4.1	2.3	9.0		5.7	4.0	2.6				
Green Ext Time (p_c), s		0.1	0.0	1.0		0.3	0.0	0.6				

Intersection Summary			
HCM 6th Ctrl Delay			19.2
HCM 6th LOS			B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	88	142	199	235	99
Future Volume (veh/h)	46	88	142	199	235	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	93	149	209	247	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	444	1117	559	498	541	481
Arrive On Green	0.31	0.31	0.31	0.31	0.30	0.30
Sat Flow, veh/h	1023	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	48	93	149	209	247	104
Grp Sat Flow(s),veh/h/ln	1023	1777	1777	1585	1781	1585
Q Serve(g_s), s	1.2	0.6	2.0	3.3	3.5	1.5
Cycle Q Clear(g_c), s	4.5	0.6	2.0	3.3	3.5	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	444	1117	559	498	541	481
V/C Ratio(X)	0.11	0.08	0.27	0.42	0.46	0.22
Avail Cap(c_a), veh/h	1068	3282	1641	1464	2212	1968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	7.6	8.1	8.5	8.8	8.2
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.6	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.5	0.8	0.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.4	7.6	8.3	9.1	9.4	8.4
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h		141	358		351	
Approach Delay, s/veh		8.6	8.8		9.1	
Approach LOS		A	A		A	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				15.9		15.5		15.9
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				29.0		39.0		29.0
Max Q Clear Time (g_c+I1), s				6.5		5.5		5.3
Green Ext Time (p_c), s				0.6		1.1		2.2

Intersection Summary			
HCM 6th Ctrl Delay			8.9
HCM 6th LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	184	46	24	126	0	161	0	78	0	0	0
Future Volume (veh/h)	0	184	46	24	126	0	161	0	78	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	194	48	25	133	0	169	0	82	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	911	792	54	1576	0	280	0	136	0	5	0
Arrive On Green	0.00	0.26	0.26	0.03	0.44	0.00	0.24	0.00	0.24	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1153	0	559	0	1870	0
Grp Volume(v), veh/h	0	194	48	25	133	0	251	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1712	0	0	0	1870	0
Q Serve(g_s), s	0.0	1.6	0.6	0.5	0.8	0.0	5.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.6	0.6	0.5	0.8	0.0	5.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.67		0.33	0.00		0.00
Lane Grp Cap(c), veh/h	5	911	792	54	1576	0	416	0	0	0	5	0
V/C Ratio(X)	0.00	0.21	0.06	0.46	0.08	0.00	0.60	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	233	2227	1379	233	2227	0	1654	0	0	0	488	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	11.2	4.9	18.3	6.2	0.0	12.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	6.0	0.0	0.0	1.4	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	0.0	0.4	0.2	0.3	0.2	0.0	1.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.3	5.0	24.2	6.2	0.0	14.3	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		242			158			251			0	
Approach Delay, s/veh		10.1			9.0			14.3			0.0	
Approach LOS		B			A			B				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.3	7.2	15.8		0.0	0.0	23.0				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		7.0	2.5	3.6		0.0	0.0	2.8				
Green Ext Time (p_c), s		1.5	0.0	1.1		0.0	0.0	0.6				

Intersection Summary			
HCM 6th Ctrl Delay			11.4
HCM 6th LOS			B

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	129	3	4	236	19	14	29	5	40	0	36
Future Vol, veh/h	13	129	3	4	236	19	14	29	5	40	0	36
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	136	3	4	248	20	15	31	5	42	0	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	268	0	0	139	0	0	449	440	136	450	433	258
Stage 1	-	-	-	-	-	-	164	164	-	266	266	-
Stage 2	-	-	-	-	-	-	285	276	-	184	167	-
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	1296	-	-	1445	-	-	520	511	913	519	516	781
Stage 1	-	-	-	-	-	-	838	762	-	739	689	-
Stage 2	-	-	-	-	-	-	722	682	-	818	760	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1296	-	-	1445	-	-	489	503	913	486	508	781
Mov Cap-2 Maneuver	-	-	-	-	-	-	489	503	-	486	508	-
Stage 1	-	-	-	-	-	-	828	753	-	730	687	-
Stage 2	-	-	-	-	-	-	685	680	-	771	751	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	12.6	12
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	1296	-	-	1445	-	-	592
HCM Lane V/C Ratio	0.097	0.011	-	-	0.003	-	-	0.135
HCM Control Delay (s)	12.6	7.8	0	-	7.5	0	-	12
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	99	27	23	132	52	38	514	50	36	266	43
Future Volume (veh/h)	44	99	27	23	132	52	38	514	50	36	266	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	104	28	24	139	55	40	541	53	38	280	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	235	55	102	243	89	76	652	64	73	725	614
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.04	0.39	0.39	0.04	0.39	0.39
Sat Flow, veh/h	292	1159	271	103	1199	439	1781	1677	164	1781	1870	1585
Grp Volume(v), veh/h	178	0	0	218	0	0	40	0	594	38	280	45
Grp Sat Flow(s),veh/h/ln	1722	0	0	1741	0	0	1781	0	1841	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	0.0	1.1	0.0	14.3	1.0	5.3	0.9
Cycle Q Clear(g_c), s	4.2	0.0	0.0	5.5	0.0	0.0	1.1	0.0	14.3	1.0	5.3	0.9
Prop In Lane	0.26		0.16	0.11		0.25	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	442	0	0	435	0	0	76	0	716	73	725	614
V/C Ratio(X)	0.40	0.00	0.00	0.50	0.00	0.00	0.52	0.00	0.83	0.52	0.39	0.07
Avail Cap(c_a), veh/h	994	0	0	1026	0	0	218	0	1125	181	1105	937
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	0.0	17.8	0.0	0.0	23.0	0.0	13.5	23.0	10.8	9.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.9	0.0	0.0	5.5	0.0	3.0	5.6	0.3	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	1.4	0.0	0.0	1.8	0.0	0.0	0.5	0.0	4.4	0.5	1.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.0	0.0	18.7	0.0	0.0	28.5	0.0	16.6	28.6	11.2	9.5
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	B	A
Approach Vol, veh/h		178			218			634			363	
Approach Delay, s/veh		17.9			18.7			17.3			12.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	25.1		16.0	8.1	25.0		16.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	5.0	30.0		27.0	6.0	29.0		27.0
Max Q Clear Time (g_c+I1), s	3.0	16.3		6.2	3.1	7.3		7.5
Green Ext Time (p_c), s	0.0	2.8		0.8	0.0	1.4		1.0

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

APPENDIX D -

OPENING YEAR (2025) PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	15	10	5	24	2	4	8	8	20	4	16
Future Vol, veh/h	6	15	10	5	24	2	4	8	8	20	4	16
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	16	11	5	25	2	4	8	8	21	4	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	27	0	0	81	71	22	78	75	26
Stage 1	-	-	-	-	-	-	34	34	-	36	36	-
Stage 2	-	-	-	-	-	-	47	37	-	42	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	1587	-	-	1587	-	-	907	819	1055	911	815	1050
Stage 1	-	-	-	-	-	-	982	867	-	980	865	-
Stage 2	-	-	-	-	-	-	967	864	-	972	862	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1587	-	-	1587	-	-	884	813	1055	892	809	1050
Mov Cap-2 Maneuver	-	-	-	-	-	-	884	813	-	892	809	-
Stage 1	-	-	-	-	-	-	978	864	-	976	862	-
Stage 2	-	-	-	-	-	-	944	861	-	951	859	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	1.2	9	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	911	1587	-	-	1587	-	-	939
HCM Lane V/C Ratio	0.023	0.004	-	-	0.003	-	-	0.045
HCM Control Delay (s)	9	7.3	0	-	7.3	0	-	9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	53	36	13	66	0	42	0	0	0	0	126
Future Vol, veh/h	37	53	36	13	66	0	42	0	0	0	0	126
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	56	38	14	69	0	44	0	0	0	0	133

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	69	0	0	94	0	0	317	250	75	250	269	69
Stage 1	-	-	-	-	-	-	153	153	-	97	97	-
Stage 2	-	-	-	-	-	-	164	97	-	153	172	-
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	1532	-	-	1500	-	-	636	653	986	703	637	994
Stage 1	-	-	-	-	-	-	849	771	-	910	815	-
Stage 2	-	-	-	-	-	-	838	815	-	849	756	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1532	-	-	1500	-	-	536	629	986	683	613	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	536	629	-	683	613	-
Stage 1	-	-	-	-	-	-	826	750	-	885	807	-
Stage 2	-	-	-	-	-	-	719	807	-	826	736	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	1.2	12.3	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	536	1532	-	-	1500	-	-	994
HCM Lane V/C Ratio	0.082	0.025	-	-	0.009	-	-	0.133
HCM Control Delay (s)	12.3	7.4	0	-	7.4	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	133	91	122	177	85	40
Future Volume (veh/h)	133	91	122	177	85	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	96	128	186	89	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	586	402	160	1369	211	187
Arrive On Green	0.19	0.19	0.09	0.73	0.12	0.12
Sat Flow, veh/h	1034	709	1781	1870	1781	1585
Grp Volume(v), veh/h	0	236	128	186	89	42
Grp Sat Flow(s),veh/h/ln	0	1743	1781	1870	1781	1585
Q Serve(g_s), s	0.0	9.2	5.6	2.4	3.7	1.9
Cycle Q Clear(g_c), s	0.0	9.2	5.6	2.4	3.7	1.9
Prop In Lane		0.41	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	988	160	1369	211	187
V/C Ratio(X)	0.00	0.24	0.80	0.14	0.42	0.22
Avail Cap(c_a), veh/h	0	988	178	1369	367	327
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	17.8	35.7	3.2	32.7	31.9
Incr Delay (d2), s/veh	0.0	0.6	20.3	0.2	1.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	3.2	0.6	1.6	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	18.4	56.0	3.4	34.1	32.5
LnGrp LOS	A	B	E	A	C	C
Approach Vol, veh/h	236			314	131	
Approach Delay, s/veh	18.4			24.8	33.6	
Approach LOS	B			C	C	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	15.5	13.2	51.3	64.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	16.5	8.0	37.5	51.5
Max Q Clear Time (g_c+I1), s	5.7	7.6	11.2	4.4
Green Ext Time (p_c), s	0.2	0.0	1.3	1.0

Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	200	26	3	124	12	15	0	23	38	21	183
Future Volume (veh/h)	30	200	26	3	124	12	15	0	23	38	21	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	211	27	3	131	13	16	0	24	40	22	193
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	771	99	7	748	74	49	0	73	173	95	234
Arrive On Green	0.03	0.47	0.47	0.00	0.15	0.15	0.07	0.00	0.07	0.15	0.15	0.15
Sat Flow, veh/h	1781	1625	208	1781	1674	166	663	0	995	1169	643	1585
Grp Volume(v), veh/h	32	0	238	3	0	144	40	0	0	62	0	193
Grp Sat Flow(s),veh/h/ln	1781	0	1833	1781	0	1840	1658	0	0	1812	0	1585
Q Serve(g_s), s	1.4	0.0	6.3	0.1	0.0	5.5	1.8	0.0	0.0	2.4	0.0	9.5
Cycle Q Clear(g_c), s	1.4	0.0	6.3	0.1	0.0	5.5	1.8	0.0	0.0	2.4	0.0	9.5
Prop In Lane	1.00		0.11	1.00		0.09	0.40		0.60	0.65		1.00
Lane Grp Cap(c), veh/h	57	0	870	7	0	822	122	0	0	268	0	234
V/C Ratio(X)	0.56	0.00	0.27	0.42	0.00	0.18	0.33	0.00	0.00	0.23	0.00	0.82
Avail Cap(c_a), veh/h	111	0	870	111	0	822	342	0	0	374	0	327
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.2	0.0	12.7	39.9	0.0	21.2	35.2	0.0	0.0	30.1	0.0	33.1
Incr Delay (d2), s/veh	8.5	0.0	0.8	34.1	0.0	0.5	1.5	0.0	0.0	0.4	0.0	11.2
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	0.7	0.0	2.6	0.1	0.0	2.3	0.8	0.0	0.0	1.1	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	0.0	13.5	73.9	0.0	21.7	36.7	0.0	0.0	30.5	0.0	44.3
LnGrp LOS	D	A	B	E	A	C	D	A	A	C	A	D
Approach Vol, veh/h		270			147			40			255	
Approach Delay, s/veh		17.4			22.7			36.7			40.9	
Approach LOS		B			C			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.9	6.3	44.0		17.8	8.5	41.7				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s		3.8	2.1	8.3		11.5	3.4	7.5				
Green Ext Time (p_c), s		0.1	0.0	0.9		0.4	0.0	0.4				

Intersection Summary			
HCM 6th Ctrl Delay			28.0
HCM 6th LOS			C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	169	246	256	65	86
Future Volume (veh/h)	60	169	246	256	65	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	178	259	269	68	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	427	1213	607	541	442	393
Arrive On Green	0.34	0.34	0.34	0.34	0.25	0.25
Sat Flow, veh/h	875	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	63	178	259	269	68	91
Grp Sat Flow(s),veh/h/ln	875	1777	1777	1585	1781	1585
Q Serve(g_s), s	1.8	1.0	3.3	3.9	0.9	1.3
Cycle Q Clear(g_c), s	5.7	1.0	3.3	3.9	0.9	1.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	427	1213	607	541	442	393
V/C Ratio(X)	0.15	0.15	0.43	0.50	0.15	0.23
Avail Cap(c_a), veh/h	1117	4012	2006	1789	2133	1898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	6.7	7.4	7.6	8.6	8.8
Incr Delay (d2), s/veh	0.2	0.1	0.5	0.7	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	0.8	0.9	0.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.1	6.7	7.9	8.3	8.8	9.1
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h		241	528		159	
Approach Delay, s/veh		7.6	8.1		8.9	
Approach LOS		A	A		A	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	16.0	13.3	16.0
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	33.0	35.0	33.0
Max Q Clear Time (g_c+I1), s	7.7	3.3	5.9
Green Ext Time (p_c), s	1.3	0.5	3.6

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	143	217	103	199	0	184	0	162	0	0	0
Future Volume (veh/h)	0	143	217	103	199	0	184	0	162	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	151	228	108	209	0	194	0	171	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	797	814	147	1569	0	259	0	228	0	4	0
Arrive On Green	0.00	0.22	0.22	0.08	0.44	0.00	0.29	0.00	0.29	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	895	0	789	0	1870	0
Grp Volume(v), veh/h	0	151	228	108	209	0	365	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1684	0	0	0	1870	0
Q Serve(g_s), s	0.0	1.5	3.6	2.6	1.6	0.0	8.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.5	3.6	2.6	1.6	0.0	8.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.53		0.47	0.00		0.00
Lane Grp Cap(c), veh/h	4	797	814	147	1569	0	487	0	0	0	4	0
V/C Ratio(X)	0.00	0.19	0.28	0.73	0.13	0.00	0.75	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	200	1913	1312	200	1913	0	1397	0	0	0	420	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.0	6.2	20.0	7.4	0.0	14.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.2	8.7	0.0	0.0	2.3	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	0.0	0.5	1.5	1.3	0.4	0.0	2.9	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.1	6.3	28.7	7.4	0.0	16.7	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		379			317			365			0	
Approach Delay, s/veh		9.4			14.7			16.7			0.0	
Approach LOS		A			B			B				

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		18.9	9.7	16.0		0.0	0.0	25.7
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0
Max Q Clear Time (g_c+I1), s		10.8	4.6	5.6		0.0	0.0	3.6
Green Ext Time (p_c), s		2.3	0.0	1.4		0.0	0.0	1.1

Intersection Summary			
HCM 6th Ctrl Delay			13.5
HCM 6th LOS			B

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	210	8	13	260	33	6	5	4	178	27	22
Future Vol, veh/h	20	210	8	13	260	33	6	5	4	178	27	22
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	221	8	14	274	35	6	5	4	187	28	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	309	0	0	229	0	0	608	600	221	592	591	292
Stage 1	-	-	-	-	-	-	263	263	-	320	320	-
Stage 2	-	-	-	-	-	-	345	337	-	272	271	-
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	1252	-	-	1339	-	-	408	415	819	418	420	747
Stage 1	-	-	-	-	-	-	742	691	-	692	652	-
Stage 2	-	-	-	-	-	-	671	641	-	734	685	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1252	-	-	1339	-	-	365	402	819	402	407	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	402	-	402	407	-
Stage 1	-	-	-	-	-	-	728	678	-	679	644	-
Stage 2	-	-	-	-	-	-	613	633	-	711	672	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	13.4	24.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	444	1252	-	-	1339	-	-	421
HCM Lane V/C Ratio	0.036	0.017	-	-	0.01	-	-	0.568
HCM Control Delay (s)	13.4	7.9	0	-	7.7	0	-	24.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	202	31	11	121	46	43	466	38	58	345	85
Future Volume (veh/h)	134	202	31	11	121	46	43	466	38	58	345	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	213	33	12	127	48	45	491	40	61	363	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	277	39	80	364	130	80	585	48	97	660	559
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.04	0.34	0.34	0.05	0.35	0.35
Sat Flow, veh/h	514	975	139	44	1282	458	1781	1706	139	1781	1870	1585
Grp Volume(v), veh/h	387	0	0	187	0	0	45	0	531	61	363	89
Grp Sat Flow(s),veh/h/ln	1628	0	0	1784	0	0	1781	0	1845	1781	1870	1585
Q Serve(g_s), s	7.6	0.0	0.0	0.0	0.0	0.0	1.4	0.0	15.0	1.9	8.8	2.2
Cycle Q Clear(g_c), s	12.3	0.0	0.0	4.7	0.0	0.0	1.4	0.0	15.0	1.9	8.8	2.2
Prop In Lane	0.36		0.09	0.06		0.26	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	549	0	0	574	0	0	80	0	633	97	660	559
V/C Ratio(X)	0.70	0.00	0.00	0.33	0.00	0.00	0.56	0.00	0.84	0.63	0.55	0.16
Avail Cap(c_a), veh/h	849	0	0	908	0	0	189	0	980	158	961	814
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	0.0	0.0	16.2	0.0	0.0	26.4	0.0	17.1	26.1	14.7	12.5
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.3	0.0	0.0	6.1	0.0	4.0	6.5	0.7	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	3.9	0.0	0.0	1.6	0.0	0.0	0.6	0.0	5.4	0.9	2.9	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.3	0.0	0.0	16.5	0.0	0.0	32.5	0.0	21.1	32.6	15.4	12.7
LnGrp LOS	C	A	A	B	A	A	C	A	C	C	B	B
Approach Vol, veh/h		387			187			576			513	
Approach Delay, s/veh		20.3			16.5			22.0			17.0	
Approach LOS		C			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	25.4		22.0	8.5	25.9		22.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	30.0		27.0	6.0	29.0		27.0				
Max Q Clear Time (g_c+I1), s	3.9	17.0		14.3	3.4	10.8		6.7				
Green Ext Time (p_c), s	0.0	2.4		1.7	0.0	1.9		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			19.4									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	34	16	0	49	0	17	0	0	0	0	25
Future Vol, veh/h	10	34	16	0	49	0	17	0	0	0	0	25
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	36	17	0	52	0	18	0	0	0	0	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	53	0	0	132	119	45	119	127	52
Stage 1	-	-	-	-	-	-	67	67	-	52	52	-
Stage 2	-	-	-	-	-	-	65	52	-	67	75	-
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	1554	-	-	1553	-	-	840	771	1025	857	764	1016
Stage 1	-	-	-	-	-	-	943	839	-	961	852	-
Stage 2	-	-	-	-	-	-	946	852	-	943	833	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1553	-	-	814	766	1025	853	759	1016
Mov Cap-2 Maneuver	-	-	-	-	-	-	814	766	-	853	759	-
Stage 1	-	-	-	-	-	-	936	833	-	954	852	-
Stage 2	-	-	-	-	-	-	921	852	-	936	827	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	9.5	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	814	1554	-	-	1553	-	-	1016
HCM Lane V/C Ratio	0.022	0.007	-	-	-	-	-	0.026
HCM Control Delay (s)	9.5	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	71	58	0	95	0	148	0	0	0	0	356
Future Vol, veh/h	25	71	58	0	95	0	148	0	0	0	0	356
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	75	61	0	100	0	156	0	0	0	0	375

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	136	0	0	446	258	106	258	288	100
Stage 1	-	-	-	-	-	-	158	158	-	100	100	-
Stage 2	-	-	-	-	-	-	288	100	-	158	188	-
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	1493	-	-	1448	-	-	523	646	948	695	622	956
Stage 1	-	-	-	-	-	-	844	767	-	906	812	-
Stage 2	-	-	-	-	-	-	720	812	-	844	745	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1493	-	-	1448	-	-	313	634	948	685	610	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	313	634	-	685	610	-
Stage 1	-	-	-	-	-	-	828	752	-	889	812	-
Stage 2	-	-	-	-	-	-	438	812	-	828	731	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	27.4	11.2
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	313	1493	-	-	1448	-	-	956
HCM Lane V/C Ratio	0.498	0.018	-	-	-	-	-	0.392
HCM Control Delay (s)	27.4	7.5	0	-	0	-	-	11.2
HCM Lane LOS	D	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	2.6	0.1	-	-	0	-	-	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	132	185	37	115	45	12
Future Volume (veh/h)	132	185	37	115	45	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	139	195	39	121	47	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	456	639	65	1418	164	146
Arrive On Green	1.00	1.00	0.04	0.76	0.09	0.09
Sat Flow, veh/h	704	988	1781	1870	1781	1585
Grp Volume(v), veh/h	0	334	39	121	47	13
Grp Sat Flow(s),veh/h/ln	0	1692	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	1.7	1.3	2.0	0.6
Cycle Q Clear(g_c), s	0.0	0.0	1.7	1.3	2.0	0.6
Prop In Lane		0.58	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1095	65	1418	164	146
V/C Ratio(X)	0.00	0.31	0.60	0.09	0.29	0.09
Avail Cap(c_a), veh/h	0	1095	134	1418	379	337
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.96	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	38.0	2.5	33.9	33.2
Incr Delay (d2), s/veh	0.0	0.7	8.8	0.1	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.9	0.3	0.9	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.7	46.8	2.6	34.8	33.5
LnGrp LOS	A	A	D	A	C	C
Approach Vol, veh/h	334			160	60	
Approach Delay, s/veh	0.7			13.4	34.5	
Approach LOS	A			B	C	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		13.4	8.9	57.7				66.6
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		17.0	6.0	39.0				51.0
Max Q Clear Time (g_c+I1), s		4.0	3.7	2.0				3.3
Green Ext Time (p_c), s		0.1	0.0	2.1				0.6

Intersection Summary			
HCM 6th Ctrl Delay			8.0
HCM 6th LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	276	20	9	162	25	21	3	40	46	18	76
Future Volume (veh/h)	50	276	20	9	162	25	21	3	40	46	18	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	291	21	9	171	26	22	3	42	48	19	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	813	59	20	697	106	53	7	101	156	62	191
Arrive On Green	0.04	0.47	0.47	0.02	0.88	0.88	0.10	0.10	0.10	0.12	0.12	0.12
Sat Flow, veh/h	1781	1724	124	1781	1586	241	544	74	1038	1294	512	1585
Grp Volume(v), veh/h	53	0	312	9	0	197	67	0	0	67	0	80
Grp Sat Flow(s),veh/h/ln	1781	0	1848	1781	0	1827	1656	0	0	1806	0	1585
Q Serve(g_s), s	2.3	0.0	8.6	0.4	0.0	1.3	3.0	0.0	0.0	2.7	0.0	3.7
Cycle Q Clear(g_c), s	2.3	0.0	8.6	0.4	0.0	1.3	3.0	0.0	0.0	2.7	0.0	3.7
Prop In Lane	1.00		0.07	1.00		0.13	0.33		0.63	0.72		1.00
Lane Grp Cap(c), veh/h	77	0	872	20	0	803	160	0	0	217	0	191
V/C Ratio(X)	0.69	0.00	0.36	0.45	0.00	0.25	0.42	0.00	0.00	0.31	0.00	0.42
Avail Cap(c_a), veh/h	134	0	872	111	0	803	342	0	0	372	0	327
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	13.4	38.8	0.0	2.8	34.0	0.0	0.0	32.2	0.0	32.6
Incr Delay (d2), s/veh	10.4	0.0	1.1	14.7	0.0	0.7	1.7	0.0	0.0	0.8	0.0	1.5
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	3.6	0.2	0.0	0.5	1.2	0.0	0.0	1.2	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	14.6	53.5	0.0	3.5	35.7	0.0	0.0	33.0	0.0	34.1
LnGrp LOS	D	A	B	D	A	A	D	A	A	C	A	C
Approach Vol, veh/h		365			206			67			147	
Approach Delay, s/veh		19.4			5.7			35.7			33.6	
Approach LOS		B			A			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.7	6.9	43.7		15.6	9.5	41.2				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	6.0	17.0				
Max Q Clear Time (g_c+I1), s		5.0	2.4	10.6		5.7	4.3	3.3				
Green Ext Time (p_c), s		0.2	0.0	1.0		0.4	0.0	0.8				

Intersection Summary			
HCM 6th Ctrl Delay			19.9
HCM 6th LOS			B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	94	193	270	321	99
Future Volume (veh/h)	49	94	193	270	321	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	99	203	284	338	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	376	1115	557	497	549	489
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	909	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	52	99	203	284	338	104
Grp Sat Flow(s),veh/h/ln	909	1777	1777	1585	1781	1585
Q Serve(g_s), s	1.6	0.6	2.8	4.8	5.1	1.5
Cycle Q Clear(g_c), s	6.4	0.6	2.8	4.8	5.1	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	376	1115	557	497	549	489
V/C Ratio(X)	0.14	0.09	0.36	0.57	0.62	0.21
Avail Cap(c_a), veh/h	892	3133	1566	1397	2243	1996
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	7.7	8.4	9.1	9.4	8.1
Incr Delay (d2), s/veh	0.2	0.0	0.4	1.0	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.8	1.2	1.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.9	7.7	8.8	10.1	10.5	8.3
LnGrp LOS	B	A	A	B	B	A
Approach Vol, veh/h		151	487		442	
Approach Delay, s/veh		9.2	9.6		10.0	
Approach LOS		A	A		A	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	16.0	15.8	16.0
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	28.0	40.0	28.0
Max Q Clear Time (g_c+I1), s	8.4	7.1	6.8
Green Ext Time (p_c), s	0.7	1.4	3.1

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	222	56	26	135	0	223	0	108	0	0	0
Future Volume (veh/h)	0	222	56	26	135	0	223	0	108	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	234	59	27	142	0	235	0	114	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	868	832	58	1507	0	324	0	157	0	5	0
Arrive On Green	0.00	0.24	0.24	0.03	0.42	0.00	0.28	0.00	0.28	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1153	0	559	0	1870	0
Grp Volume(v), veh/h	0	234	59	27	142	0	349	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1712	0	0	0	1870	0
Q Serve(g_s), s	0.0	2.2	0.7	0.6	1.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.2	0.7	0.6	1.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.67		0.33	0.00		0.00
Lane Grp Cap(c), veh/h	4	868	832	58	1507	0	481	0	0	0	5	0
V/C Ratio(X)	0.00	0.27	0.07	0.47	0.09	0.00	0.73	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	219	2098	1381	219	2098	0	1558	0	0	0	460	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.4	4.8	19.3	7.0	0.0	13.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	5.8	0.0	0.0	2.1	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	0.0	0.6	0.3	0.3	0.2	0.0	2.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.6	4.8	25.1	7.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		293			169			349			0	
Approach Delay, s/veh		11.0			9.9			15.3			0.0	
Approach LOS		B			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.4	7.3	15.9		0.0	0.0	23.2				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		9.5	2.6	4.2		0.0	0.0	3.0				
Green Ext Time (p_c), s		2.1	0.0	1.3		0.0	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			12.6									
HCM 6th LOS			B									

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	14	137	4	6	236	24	14	40	5	58	0	53
Future Vol, veh/h	14	137	4	6	236	24	14	40	5	58	0	53
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	144	4	6	248	25	15	42	5	61	0	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	273	0	0	148	0	0	475	459	144	473	451	261
Stage 1	-	-	-	-	-	-	174	174	-	273	273	-
Stage 2	-	-	-	-	-	-	301	285	-	200	178	-
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	1290	-	-	1434	-	-	500	499	903	501	504	778
Stage 1	-	-	-	-	-	-	828	755	-	733	684	-
Stage 2	-	-	-	-	-	-	708	676	-	802	752	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1290	-	-	1434	-	-	458	490	903	459	495	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	458	490	-	459	495	-
Stage 1	-	-	-	-	-	-	817	745	-	723	681	-
Stage 2	-	-	-	-	-	-	654	673	-	742	742	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.2	13.2	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	501	1290	-	-	1434	-	-	571
HCM Lane V/C Ratio	0.124	0.011	-	-	0.004	-	-	0.205
HCM Control Delay (s)	13.2	7.8	0	-	7.5	0	-	12.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	118	33	24	139	55	50	674	66	36	328	53
Future Volume (veh/h)	53	118	33	24	139	55	50	674	66	36	328	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	124	35	25	146	58	53	709	69	38	345	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	189	48	87	207	77	88	813	79	70	888	752
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.05	0.48	0.48	0.04	0.47	0.47
Sat Flow, veh/h	332	1106	279	113	1213	450	1781	1678	163	1781	1870	1585
Grp Volume(v), veh/h	215	0	0	229	0	0	53	0	778	38	345	56
Grp Sat Flow(s),veh/h/ln	1717	0	0	1776	0	0	1781	0	1841	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	1.7	0.0	22.2	1.2	7.0	1.1
Cycle Q Clear(g_c), s	6.7	0.0	0.0	7.1	0.0	0.0	1.7	0.0	22.2	1.2	7.0	1.1
Prop In Lane	0.26		0.16	0.11		0.25	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	370	0	0	371	0	0	88	0	892	70	888	752
V/C Ratio(X)	0.58	0.00	0.00	0.62	0.00	0.00	0.60	0.00	0.87	0.54	0.39	0.07
Avail Cap(c_a), veh/h	825	0	0	859	0	0	212	0	1250	151	1206	1022
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	0.0	23.2	0.0	0.0	27.5	0.0	13.6	27.8	10.0	8.4
Incr Delay (d2), s/veh	1.4	0.0	0.0	1.7	0.0	0.0	6.5	0.0	5.2	6.4	0.3	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	2.5	0.0	0.0	2.7	0.0	0.0	0.8	0.0	7.2	0.6	2.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	0.0	24.9	0.0	0.0	34.0	0.0	18.7	34.2	10.3	8.5
LnGrp LOS	C	A	A	C	A	A	C	A	B	C	B	A
Approach Vol, veh/h		215			229			831			439	
Approach Delay, s/veh		24.5			24.9			19.7			12.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	34.5		16.1	8.9	34.0		16.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	40.0		27.0	7.0	38.0		27.0				
Max Q Clear Time (g_c+I1), s	3.2	24.2		8.7	3.7	9.0		9.1				
Green Ext Time (p_c), s	0.0	4.3		0.9	0.0	1.9		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			19.0									
HCM 6th LOS			B									

APPENDIX E -

OPENING YEAR (2025) WITH PHASE I PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	17	12	5	27	2	7	8	8	20	4	19
Future Vol, veh/h	8	17	12	5	27	2	7	8	8	20	4	19
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	18	13	5	28	2	7	8	8	21	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	31	0	0	92	81	25	88	86	29
Stage 1	-	-	-	-	-	-	41	41	-	39	39	-
Stage 2	-	-	-	-	-	-	51	40	-	49	47	-
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	1583	-	-	1582	-	-	892	809	1051	897	804	1046
Stage 1	-	-	-	-	-	-	974	861	-	976	862	-
Stage 2	-	-	-	-	-	-	962	862	-	964	856	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1583	-	-	1582	-	-	866	803	1051	877	798	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	866	803	-	877	798	-
Stage 1	-	-	-	-	-	-	969	857	-	971	859	-
Stage 2	-	-	-	-	-	-	936	859	-	942	852	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	1.1	9.1	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	896	1583	-	-	1582	-	-	935
HCM Lane V/C Ratio	0.027	0.005	-	-	0.003	-	-	0.048
HCM Control Delay (s)	9.1	7.3	0	-	7.3	0	-	9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	60	38	13	74	0	45	0	0	0	0	129
Future Vol, veh/h	39	60	38	13	74	0	45	0	0	0	0	129
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	63	40	14	78	0	47	0	0	0	0	136

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	78	0	0	103	0	0	339	271	83	271	291	78
Stage 1	-	-	-	-	-	-	165	165	-	106	106	-
Stage 2	-	-	-	-	-	-	174	106	-	165	185	-
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	1520	-	-	1489	-	-	615	636	976	682	619	983
Stage 1	-	-	-	-	-	-	837	762	-	900	807	-
Stage 2	-	-	-	-	-	-	828	807	-	837	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1520	-	-	1489	-	-	514	611	976	662	595	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	514	611	-	662	595	-
Stage 1	-	-	-	-	-	-	813	740	-	874	799	-
Stage 2	-	-	-	-	-	-	706	799	-	813	725	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	1.1	12.7	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	514	1520	-	-	1489	-	-	983
HCM Lane V/C Ratio	0.092	0.027	-	-	0.009	-	-	0.138
HCM Control Delay (s)	12.7	7.4	0	-	7.4	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	144	120	122	190	101	40		
Future Volume (veh/h)	144	120	122	190	101	40		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No	No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	152	126	128	200	106	42		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	534	443	160	1365	214	191		
Arrive On Green	1.00	1.00	0.09	0.73	0.12	0.12		
Sat Flow, veh/h	946	784	1781	1870	1781	1585		
Grp Volume(v), veh/h	0	278	128	200	106	42		
Grp Sat Flow(s),veh/h/ln	0	1729	1781	1870	1781	1585		
Q Serve(g_s), s	0.0	0.0	5.6	2.6	4.5	1.9		
Cycle Q Clear(g_c), s	0.0	0.0	5.6	2.6	4.5	1.9		
Prop In Lane		0.45	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	0	976	160	1365	214	191		
V/C Ratio(X)	0.00	0.28	0.80	0.15	0.49	0.22		
Avail Cap(c_a), veh/h	0	976	178	1365	367	327		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.97	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	35.7	3.3	32.9	31.8		
Incr Delay (d2), s/veh	0.0	0.7	20.3	0.2	1.8	0.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.2	3.2	0.6	2.0	0.7		
Unsig. Movement Delay, s/veh								
LnGrp Delay(d),s/veh	0.0	0.7	56.0	3.5	34.7	32.4		
LnGrp LOS	A	A	E	A	C	C		
Approach Vol, veh/h	278			328	148			
Approach Delay, s/veh	0.7			24.0	34.0			
Approach LOS	A			C	C			
Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		15.6	13.2	51.2				64.4
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		16.5	8.0	37.5				51.5
Max Q Clear Time (g_c+I1), s		6.5	7.6	2.0				4.6
Green Ext Time (p_c), s		0.3	0.0	1.6				1.1
Intersection Summary								
HCM 6th Ctrl Delay			17.4					
HCM 6th LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	240	32	3	153	12	25	0	23	38	21	244
Future Volume (veh/h)	38	240	32	3	153	12	25	0	23	38	21	244
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	253	34	3	161	13	26	0	24	40	22	257
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	689	93	7	673	54	73	0	68	217	119	294
Arrive On Green	0.04	0.43	0.43	0.01	0.79	0.79	0.08	0.00	0.08	0.19	0.19	0.19
Sat Flow, veh/h	1781	1614	217	1781	1708	138	874	0	807	1169	643	1585
Grp Volume(v), veh/h	40	0	287	3	0	174	50	0	0	62	0	257
Grp Sat Flow(s),veh/h/ln	1781	0	1831	1781	0	1846	1681	0	0	1812	0	1585
Q Serve(g_s), s	1.8	0.0	8.5	0.1	0.0	2.0	2.2	0.0	0.0	2.3	0.0	12.6
Cycle Q Clear(g_c), s	1.8	0.0	8.5	0.1	0.0	2.0	2.2	0.0	0.0	2.3	0.0	12.6
Prop In Lane	1.00		0.12	1.00		0.07	0.52		0.48	0.65		1.00
Lane Grp Cap(c), veh/h	66	0	781	7	0	727	141	0	0	336	0	294
V/C Ratio(X)	0.61	0.00	0.37	0.42	0.00	0.24	0.35	0.00	0.00	0.18	0.00	0.87
Avail Cap(c_a), veh/h	134	0	781	111	0	727	347	0	0	374	0	327
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.98	0.00	0.98	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	15.6	39.6	0.0	5.4	34.6	0.0	0.0	27.5	0.0	31.7
Incr Delay (d2), s/veh	8.8	0.0	1.3	33.7	0.0	0.8	1.5	0.0	0.0	0.3	0.0	20.7
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	0.9	0.0	3.6	0.1	0.0	0.8	0.9	0.0	0.0	1.0	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	0.0	16.9	73.3	0.0	6.1	36.1	0.0	0.0	27.7	0.0	52.3
LnGrp LOS	D	A	B	E	A	A	D	A	A	C	A	D
Approach Vol, veh/h		327			177			50			319	
Approach Delay, s/veh		20.6			7.3			36.1			47.6	
Approach LOS		C			A			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.7	6.3	40.1		20.8	8.9	37.5				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	6.0	17.0				
Max Q Clear Time (g_c+I1), s		4.2	2.1	10.5		14.6	3.8	4.0				
Green Ext Time (p_c), s		0.1	0.0	0.9		0.2	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			28.6									
HCM 6th LOS			C									

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	243	298	275	98	86
Future Volume (veh/h)	60	243	298	275	98	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	256	314	289	103	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	398	1229	614	548	469	418
Arrive On Green	0.35	0.35	0.35	0.35	0.26	0.26
Sat Flow, veh/h	816	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	63	256	314	289	103	91
Grp Sat Flow(s),veh/h/ln	816	1777	1777	1585	1781	1585
Q Serve(g_s), s	2.1	1.6	4.3	4.5	1.4	1.4
Cycle Q Clear(g_c), s	6.5	1.6	4.3	4.5	1.4	1.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	398	1229	614	548	469	418
V/C Ratio(X)	0.16	0.21	0.51	0.53	0.22	0.22
Avail Cap(c_a), veh/h	993	3819	1910	1703	2030	1807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	7.1	8.0	8.0	8.8	8.8
Incr Delay (d2), s/veh	0.2	0.1	0.7	0.8	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	1.1	1.1	0.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.8	7.2	8.6	8.8	9.1	9.1
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h		319	603		194	
Approach Delay, s/veh		7.9	8.7		9.1	
Approach LOS		A	A		A	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				16.6		14.1		16.6
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				33.0		35.0		33.0
Max Q Clear Time (g_c+I1), s				8.5		3.4		6.5
Green Ext Time (p_c), s				1.8		0.6		4.1

Intersection Summary			
HCM 6th Ctrl Delay			8.6
HCM 6th LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	208	217	109	245	0	184	0	171	0	0	0
Future Volume (veh/h)	0	208	217	109	245	0	184	0	171	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	219	228	115	258	0	194	0	180	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	787	819	151	1560	0	257	0	239	0	4	0
Arrive On Green	0.00	0.22	0.22	0.08	0.44	0.00	0.30	0.00	0.30	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	872	0	809	0	1870	0
Grp Volume(v), veh/h	0	219	228	115	258	0	374	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1681	0	0	0	1870	0
Q Serve(g_s), s	0.0	2.3	3.7	2.9	2.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.3	3.7	2.9	2.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.52		0.48	0.00		0.00
Lane Grp Cap(c), veh/h	4	787	819	151	1560	0	496	0	0	0	4	0
V/C Ratio(X)	0.00	0.28	0.28	0.76	0.17	0.00	0.75	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	197	1890	1311	197	1890	0	1378	0	0	0	414	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.6	6.2	20.2	7.7	0.0	14.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	12.0	0.0	0.0	2.3	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	0.0	0.7	1.6	1.5	0.5	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.8	6.3	32.2	7.7	0.0	16.8	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		447			373			374			0	
Approach Delay, s/veh		10.5			15.3			16.8			0.0	
Approach LOS		B			B			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.3	9.8	16.0		0.0	0.0	25.8				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		11.1	4.9	5.7		0.0	0.0	4.0				
Green Ext Time (p_c), s		2.3	0.0	1.8		0.0	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			13.9									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	259	8	19	295	39	6	5	12	186	27	22
Future Vol, veh/h	20	259	8	19	295	39	6	5	12	186	27	22
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	273	8	20	311	41	6	5	13	196	28	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	352	0	0	281	0	0	712	707	273	700	695	332
Stage 1	-	-	-	-	-	-	315	315	-	372	372	-
Stage 2	-	-	-	-	-	-	397	392	-	328	323	-
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	1207	-	-	1282	-	-	347	360	766	354	366	710
Stage 1	-	-	-	-	-	-	696	656	-	648	619	-
Stage 2	-	-	-	-	-	-	629	606	-	685	650	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1207	-	-	1282	-	-	305	346	766	334	351	710
Mov Cap-2 Maneuver	-	-	-	-	-	-	305	346	-	334	351	-
Stage 1	-	-	-	-	-	-	681	642	-	634	607	-
Stage 2	-	-	-	-	-	-	569	594	-	654	636	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	13.2	35.9
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	462	1207	-	-	1282	-	-	353
HCM Lane V/C Ratio	0.052	0.017	-	-	0.016	-	-	0.701
HCM Control Delay (s)	13.2	8	0	-	7.9	0	-	35.9
HCM Lane LOS	B	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	211	31	17	127	69	43	466	46	91	345	85
Future Volume (veh/h)	134	211	31	17	127	69	43	466	46	91	345	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	222	33	18	134	73	45	491	48	96	363	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	282	39	84	325	165	79	572	56	123	686	581
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.34	0.34	0.07	0.37	0.37
Sat Flow, veh/h	502	984	135	64	1132	574	1781	1677	164	1781	1870	1585
Grp Volume(v), veh/h	396	0	0	225	0	0	45	0	539	96	363	89
Grp Sat Flow(s),veh/h/ln	1621	0	0	1770	0	0	1781	0	1841	1781	1870	1585
Q Serve(g_s), s	7.2	0.0	0.0	0.0	0.0	0.0	1.5	0.0	16.2	3.2	9.1	2.2
Cycle Q Clear(g_c), s	13.4	0.0	0.0	6.2	0.0	0.0	1.5	0.0	16.2	3.2	9.1	2.2
Prop In Lane	0.36		0.08	0.08		0.32	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	547	0	0	574	0	0	79	0	628	123	686	581
V/C Ratio(X)	0.72	0.00	0.00	0.39	0.00	0.00	0.57	0.00	0.86	0.78	0.53	0.15
Avail Cap(c_a), veh/h	801	0	0	853	0	0	179	0	865	209	911	772
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	0.0	0.0	17.3	0.0	0.0	27.9	0.0	18.3	27.3	14.8	12.7
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.4	0.0	0.0	6.4	0.0	6.4	10.0	0.6	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	4.3	0.0	0.0	2.1	0.0	0.0	0.7	0.0	6.4	1.5	3.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	17.8	0.0	0.0	34.4	0.0	24.7	37.3	15.5	12.8
LnGrp LOS	C	A	A	B	A	A	C	A	C	D	B	B
Approach Vol, veh/h		396			225			584			548	
Approach Delay, s/veh		21.5			17.8			25.4			18.8	
Approach LOS		C			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	26.3		23.1	8.6	27.8		23.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	28.0		27.0	6.0	29.0		27.0				
Max Q Clear Time (g_c+I1), s	5.2	18.2		15.4	3.5	11.1		8.2				
Green Ext Time (p_c), s	0.0	2.1		1.7	0.0	1.9		1.0				

Intersection Summary			
HCM 6th Ctrl Delay			21.5
HCM 6th LOS			C

Intersection						
Int Delay, s/veh	3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	107	256	322	100	54	72
Future Vol, veh/h	107	256	322	100	54	72
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	113	269	339	105	57	76

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	444	0	-	0	834	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1116	-	-	-	338	703
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1116	-	-	-	298	703
Mov Cap-2 Maneuver	-	-	-	-	298	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	613	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1116	-	-	-	298	703
HCM Lane V/C Ratio	0.101	-	-	-	0.191	0.108
HCM Control Delay (s)	8.6	0	-	-	19.9	10.7
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.7	0.4

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	36	18	0	51	0	19	0	0	0	0	27
Future Vol, veh/h	12	36	18	0	51	0	19	0	0	0	0	27
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	38	19	0	54	0	20	0	0	0	0	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	57	0	0	142	128	48	128	137	54
Stage 1	-	-	-	-	-	-	74	74	-	54	54	-
Stage 2	-	-	-	-	-	-	68	54	-	74	83	-
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	1551	-	-	1547	-	-	828	763	1021	845	754	1013
Stage 1	-	-	-	-	-	-	935	833	-	958	850	-
Stage 2	-	-	-	-	-	-	942	850	-	935	826	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1547	-	-	799	756	1021	839	747	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	799	756	-	839	747	-
Stage 1	-	-	-	-	-	-	927	826	-	949	850	-
Stage 2	-	-	-	-	-	-	916	850	-	927	819	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0	9.6	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	799	1551	-	-	1547	-	-	1013
HCM Lane V/C Ratio	0.025	0.008	-	-	-	-	-	0.028
HCM Control Delay (s)	9.6	7.3	0	-	0	-	-	8.7
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	11.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	78	60	0	101	0	150	0	0	0	0	358
Future Vol, veh/h	27	78	60	0	101	0	150	0	0	0	0	358
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	82	63	0	106	0	158	0	0	0	0	377

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	106	0	0	145	0	0	465	276	114	276	307	106
Stage 1	-	-	-	-	-	-	170	170	-	106	106	-
Stage 2	-	-	-	-	-	-	295	106	-	170	201	-
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	1485	-	-	1437	-	-	508	632	939	676	607	948
Stage 1	-	-	-	-	-	-	832	758	-	900	807	-
Stage 2	-	-	-	-	-	-	713	807	-	832	735	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1485	-	-	1437	-	-	301	619	939	665	594	948
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	619	-	665	594	-
Stage 1	-	-	-	-	-	-	815	742	-	881	807	-
Stage 2	-	-	-	-	-	-	430	807	-	815	720	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	29.4	11.3
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	301	1485	-	-	1437	-	-	948
HCM Lane V/C Ratio	0.525	0.019	-	-	-	-	-	0.398
HCM Control Delay (s)	29.4	7.5	0	-	0	-	-	11.3
HCM Lane LOS	D	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	2.9	0.1	-	-	0	-	-	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	144	235	37	125	52	12
Future Volume (veh/h)	144	235	37	125	52	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	247	39	132	55	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	411	668	65	1408	174	154
Arrive On Green	1.00	1.00	0.04	0.75	0.10	0.10
Sat Flow, veh/h	641	1042	1781	1870	1781	1585
Grp Volume(v), veh/h	0	399	39	132	55	13
Grp Sat Flow(s),veh/h/ln	0	1683	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	1.7	1.5	2.3	0.6
Cycle Q Clear(g_c), s	0.0	0.0	1.7	1.5	2.3	0.6
Prop In Lane		0.62	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1079	65	1408	174	154
V/C Ratio(X)	0.00	0.37	0.60	0.09	0.32	0.08
Avail Cap(c_a), veh/h	0	1079	134	1408	379	337
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.92	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	38.0	2.6	33.6	32.9
Incr Delay (d2), s/veh	0.0	0.9	8.8	0.1	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.9	0.3	1.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.9	46.8	2.8	34.7	33.1
LnGrp LOS	A	A	D	A	C	C
Approach Vol, veh/h	399			171	68	
Approach Delay, s/veh	0.9			12.8	34.4	
Approach LOS	A			B	C	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	13.8	8.9	57.3	66.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	17.0	6.0	39.0	51.0
Max Q Clear Time (g_c+I1), s	4.3	3.7	2.0	3.5
Green Ext Time (p_c), s	0.1	0.0	2.6	0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	338	29	9	179	25	27	3	40	46	18	104
Future Volume (veh/h)	63	338	29	9	179	25	27	3	40	46	18	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	356	31	9	188	26	28	3	42	48	19	109
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	790	69	20	690	95	64	7	96	158	63	194
Arrive On Green	0.05	0.47	0.47	0.02	0.86	0.86	0.10	0.10	0.10	0.12	0.12	0.12
Sat Flow, veh/h	1781	1696	148	1781	1608	222	639	68	958	1294	512	1585
Grp Volume(v), veh/h	66	0	387	9	0	214	73	0	0	67	0	109
Grp Sat Flow(s),veh/h/ln	1781	0	1844	1781	0	1830	1666	0	0	1806	0	1585
Q Serve(g_s), s	2.9	0.0	11.4	0.4	0.0	1.7	3.3	0.0	0.0	2.7	0.0	5.2
Cycle Q Clear(g_c), s	2.9	0.0	11.4	0.4	0.0	1.7	3.3	0.0	0.0	2.7	0.0	5.2
Prop In Lane	1.00		0.08	1.00		0.12	0.38		0.58	0.72		1.00
Lane Grp Cap(c), veh/h	86	0	859	20	0	785	167	0	0	221	0	194
V/C Ratio(X)	0.77	0.00	0.45	0.45	0.00	0.27	0.44	0.00	0.00	0.30	0.00	0.56
Avail Cap(c_a), veh/h	111	0	859	111	0	785	344	0	0	372	0	327
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	0.0	14.4	38.8	0.0	3.4	33.9	0.0	0.0	32.0	0.0	33.1
Incr Delay (d2), s/veh	21.2	0.0	1.7	14.7	0.0	0.9	1.8	0.0	0.0	0.8	0.0	2.5
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	1.8	0.0	4.8	0.2	0.0	0.7	1.3	0.0	0.0	1.2	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	0.0	16.2	53.5	0.0	4.2	35.7	0.0	0.0	32.7	0.0	35.6
LnGrp LOS	E	A	B	D	A	A	D	A	A	C	A	D
Approach Vol, veh/h		453			223			73			176	
Approach Delay, s/veh		22.4			6.2			35.7			34.5	
Approach LOS		C			A			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.0	6.9	43.3		15.8	9.8	40.3				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s		5.3	2.4	13.4		7.2	4.9	3.7				
Green Ext Time (p_c), s		0.2	0.0	1.0		0.4	0.0	0.9				

Intersection Summary			
HCM 6th Ctrl Delay			21.8
HCM 6th LOS			C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	145	264	301	340	99
Future Volume (veh/h)	49	145	264	301	340	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	153	278	317	358	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	363	1214	607	542	529	471
Arrive On Green	0.34	0.34	0.34	0.34	0.30	0.30
Sat Flow, veh/h	823	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	52	153	278	317	358	104
Grp Sat Flow(s),veh/h/ln	823	1777	1777	1585	1781	1585
Q Serve(g_s), s	1.8	1.0	4.1	5.5	5.9	1.6
Cycle Q Clear(g_c), s	7.3	1.0	4.1	5.5	5.9	1.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	363	1214	607	542	529	471
V/C Ratio(X)	0.14	0.13	0.46	0.59	0.68	0.22
Avail Cap(c_a), veh/h	800	3104	1552	1384	2092	1862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.0	7.5	8.5	9.0	10.3	8.8
Incr Delay (d2), s/veh	0.2	0.0	0.5	1.0	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	1.1	1.4	1.6	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.2	7.6	9.1	10.0	11.8	9.0
LnGrp LOS	B	A	A	B	B	A
Approach Vol, veh/h		205	595		462	
Approach Delay, s/veh		8.7	9.6		11.2	
Approach LOS		A	A		B	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				17.3		15.9		17.3
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				29.0		39.0		29.0
Max Q Clear Time (g_c+I1), s				9.3		7.9		7.5
Green Ext Time (p_c), s				1.0		1.4		3.9

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	267	56	35	198	0	223	0	114	0	0	0
Future Volume (veh/h)	0	267	56	35	198	0	223	0	114	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	281	59	37	208	0	235	0	120	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	855	831	75	1517	0	321	0	164	0	5	0
Arrive On Green	0.00	0.24	0.24	0.04	0.43	0.00	0.28	0.00	0.28	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1132	0	578	0	1870	0
Grp Volume(v), veh/h	0	281	59	37	208	0	355	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1710	0	0	0	1870	0
Q Serve(g_s), s	0.0	2.7	0.8	0.8	1.5	0.0	7.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.7	0.8	0.8	1.5	0.0	7.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.66		0.34	0.00		0.00
Lane Grp Cap(c), veh/h	4	855	831	75	1517	0	485	0	0	0	5	0
V/C Ratio(X)	0.00	0.33	0.07	0.50	0.14	0.00	0.73	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	215	2055	1367	215	2055	0	1525	0	0	0	451	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	13.0	4.9	19.5	7.2	0.0	13.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	5.0	0.0	0.0	2.1	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	0.0	0.8	0.3	0.4	0.3	0.0	2.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.2	4.9	24.5	7.3	0.0	15.6	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		340			245			355			0	
Approach Delay, s/veh		11.8			9.9			15.6			0.0	
Approach LOS		B			A			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.8	7.7	16.0		0.0	0.0	23.7				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		9.8	2.8	4.7		0.0	0.0	3.5				
Green Ext Time (p_c), s		2.2	0.0	1.6		0.0	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			12.7									
HCM 6th LOS			B									

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	14	171	4	13	284	31	14	40	11	64	0	53
Future Vol, veh/h	14	171	4	13	284	31	14	40	11	64	0	53
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	180	4	14	299	33	15	42	12	67	0	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	332	0	0	184	0	0	582	570	180	583	558	316
Stage 1	-	-	-	-	-	-	210	210	-	344	344	-
Stage 2	-	-	-	-	-	-	372	360	-	239	214	-
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	1227	-	-	1391	-	-	424	431	863	424	438	724
Stage 1	-	-	-	-	-	-	792	728	-	671	637	-
Stage 2	-	-	-	-	-	-	648	626	-	764	725	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1227	-	-	1391	-	-	384	420	863	379	427	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	384	420	-	379	427	-
Stage 1	-	-	-	-	-	-	781	718	-	662	629	-
Stage 2	-	-	-	-	-	-	591	618	-	700	715	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	14.4	15
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	450	1227	-	-	1391	-	-	483
HCM Lane V/C Ratio	0.152	0.012	-	-	0.01	-	-	0.255
HCM Control Delay (s)	14.4	8	0	-	7.6	0	-	15
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	124	33	31	147	87	50	674	72	59	328	53
Future Volume (veh/h)	53	124	33	31	147	87	50	674	72	59	328	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	131	35	33	155	92	53	709	76	62	345	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	217	51	86	208	114	84	793	85	92	902	764
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.05	0.48	0.48	0.05	0.48	0.48
Sat Flow, veh/h	293	1091	259	127	1048	575	1781	1660	178	1781	1870	1585
Grp Volume(v), veh/h	222	0	0	280	0	0	53	0	785	62	345	56
Grp Sat Flow(s),veh/h/ln	1644	0	0	1749	0	0	1781	0	1838	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.9	0.0	0.0	1.9	0.0	25.7	2.3	7.7	1.3
Cycle Q Clear(g_c), s	8.0	0.0	0.0	9.9	0.0	0.0	1.9	0.0	25.7	2.3	7.7	1.3
Prop In Lane	0.25		0.16	0.12		0.33	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	394	0	0	408	0	0	84	0	879	92	902	764
V/C Ratio(X)	0.56	0.00	0.00	0.69	0.00	0.00	0.63	0.00	0.89	0.68	0.38	0.07
Avail Cap(c_a), veh/h	724	0	0	758	0	0	189	0	1112	135	1075	911
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	0.0	25.2	0.0	0.0	30.9	0.0	15.7	30.8	10.9	9.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.1	0.0	0.0	7.6	0.0	7.9	8.4	0.3	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	2.9	0.0	0.0	3.8	0.0	0.0	0.9	0.0	9.6	1.1	2.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	0.0	0.0	27.3	0.0	0.0	38.6	0.0	23.7	39.2	11.1	9.2
LnGrp LOS	C	A	A	C	A	A	D	A	C	D	B	A
Approach Vol, veh/h		222			280			838			463	
Approach Delay, s/veh		25.6			27.3			24.6			14.7	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	37.6		19.1	9.1	37.9		19.1
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	5.0	40.0		27.0	7.0	38.0		27.0
Max Q Clear Time (g_c+I1), s	4.3	27.7		10.0	3.9	9.7		11.9
Green Ext Time (p_c), s	0.0	3.9		1.0	0.0	1.9		1.2

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

Intersection						
Int Delay, s/veh	3.6					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	346	259	51	84	102
Future Vol, veh/h	70	346	259	51	84	102
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	364	273	54	88	107

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	327	0	-	0	785	273
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	512	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1233	-	-	-	361	766
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	602	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1233	-	-	-	334	766
Mov Cap-2 Maneuver	-	-	-	-	334	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	602	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1233	-	-	-	334	766
HCM Lane V/C Ratio	0.06	-	-	-	0.265	0.14
HCM Control Delay (s)	8.1	0	-	-	19.6	10.5
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1	0.5

APPENDIX F -

OPENING YEAR (2030) WITH PHASE I PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	17	12	6	27	2	8	10	8	20	6	24
Future Vol, veh/h	9	17	12	6	27	2	8	10	8	20	6	24
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	18	13	6	28	2	8	11	8	21	6	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	31	0	0	100	85	25	93	90	29
Stage 1	-	-	-	-	-	-	43	43	-	41	41	-
Stage 2	-	-	-	-	-	-	57	42	-	52	49	-
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	1583	-	-	1582	-	-	881	805	1051	891	800	1046
Stage 1	-	-	-	-	-	-	971	859	-	974	861	-
Stage 2	-	-	-	-	-	-	955	860	-	961	854	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1583	-	-	1582	-	-	848	797	1051	869	792	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	848	797	-	869	792	-
Stage 1	-	-	-	-	-	-	965	854	-	968	858	-
Stage 2	-	-	-	-	-	-	921	857	-	936	849	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	1.2	9.2	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	879	1583	-	-	1582	-	-	934
HCM Lane V/C Ratio	0.031	0.006	-	-	0.004	-	-	0.056
HCM Control Delay (s)	9.2	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	67	42	14	81	0	45	0	0	0	0	165
Future Vol, veh/h	44	67	42	14	81	0	45	0	0	0	0	165
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	71	44	15	85	0	47	0	0	0	0	174

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	85	0	0	115	0	0	387	300	93	300	322	85
Stage 1	-	-	-	-	-	-	185	185	-	115	115	-
Stage 2	-	-	-	-	-	-	202	115	-	185	207	-
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	1512	-	-	1474	-	-	572	612	964	652	595	974
Stage 1	-	-	-	-	-	-	817	747	-	890	800	-
Stage 2	-	-	-	-	-	-	800	800	-	817	731	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1512	-	-	1474	-	-	454	585	964	630	569	974
Mov Cap-2 Maneuver	-	-	-	-	-	-	454	585	-	630	569	-
Stage 1	-	-	-	-	-	-	790	722	-	861	791	-
Stage 2	-	-	-	-	-	-	650	791	-	790	707	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	1.1	13.9	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	454	1512	-	-	1474	-	-	974
HCM Lane V/C Ratio	0.104	0.031	-	-	0.01	-	-	0.178
HCM Control Delay (s)	13.9	7.5	0	-	7.5	0	-	9.5
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	164	134	199	301	128	53
Future Volume (veh/h)	164	134	199	301	128	53
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	141	209	317	135	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	526	429	178	1359	219	195
Arrive On Green	1.00	1.00	0.10	0.73	0.12	0.12
Sat Flow, veh/h	953	777	1781	1870	1781	1585
Grp Volume(v), veh/h	0	314	209	317	135	56
Grp Sat Flow(s),veh/h/ln	0	1730	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	8.0	4.5	5.8	2.6
Cycle Q Clear(g_c), s	0.0	0.0	8.0	4.5	5.8	2.6
Prop In Lane		0.45	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	955	178	1359	219	195
V/C Ratio(X)	0.00	0.33	1.17	0.23	0.62	0.29
Avail Cap(c_a), veh/h	0	955	178	1359	367	327
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	36.0	3.6	33.3	31.9
Incr Delay (d2), s/veh	0.0	0.9	121.8	0.4	2.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	9.3	1.1	2.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.9	157.8	4.0	36.1	32.7
LnGrp LOS	A	A	F	A	D	C
Approach Vol, veh/h	314			526	191	
Approach Delay, s/veh	0.9			65.1	35.1	
Approach LOS	A			E	D	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		15.9	14.0	50.1				64.1
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		16.5	8.0	37.5				51.5
Max Q Clear Time (g_c+I1), s		7.8	10.0	2.0				6.5
Green Ext Time (p_c), s		0.3	0.0	1.9				1.8

Intersection Summary	
HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	319	30	3	154	12	25	0	23	41	23	260
Future Volume (veh/h)	40	319	30	3	154	12	25	0	23	41	23	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	336	32	3	162	13	26	0	24	43	24	274
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	701	67	7	655	53	73	0	68	227	127	309
Arrive On Green	0.04	0.42	0.42	0.01	0.77	0.77	0.08	0.00	0.08	0.20	0.20	0.20
Sat Flow, veh/h	1781	1681	160	1781	1709	137	874	0	807	1163	649	1585
Grp Volume(v), veh/h	42	0	368	3	0	175	50	0	0	67	0	274
Grp Sat Flow(s),veh/h/ln	1781	0	1842	1781	0	1846	1681	0	0	1812	0	1585
Q Serve(g_s), s	1.9	0.0	11.6	0.1	0.0	2.2	2.2	0.0	0.0	2.5	0.0	13.5
Cycle Q Clear(g_c), s	1.9	0.0	11.6	0.1	0.0	2.2	2.2	0.0	0.0	2.5	0.0	13.5
Prop In Lane	1.00		0.09	1.00		0.07	0.52		0.48	0.64		1.00
Lane Grp Cap(c), veh/h	68	0	768	7	0	707	141	0	0	353	0	309
V/C Ratio(X)	0.62	0.00	0.48	0.42	0.00	0.25	0.35	0.00	0.00	0.19	0.00	0.89
Avail Cap(c_a), veh/h	134	0	768	111	0	707	347	0	0	374	0	327
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.96	0.00	0.96	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	17.0	39.6	0.0	6.0	34.6	0.0	0.0	26.9	0.0	31.3
Incr Delay (d2), s/veh	9.0	0.0	2.1	33.1	0.0	0.8	1.5	0.0	0.0	0.3	0.0	23.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	5.1	0.1	0.0	0.9	0.9	0.0	0.0	1.1	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	19.1	72.7	0.0	6.8	36.1	0.0	0.0	27.2	0.0	54.6
LnGrp LOS	D	A	B	E	A	A	D	A	A	C	A	D
Approach Vol, veh/h		410			178			50			341	
Approach Delay, s/veh		22.0			7.9			36.1			49.2	
Approach LOS		C			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.7	6.3	39.4		21.6	9.0	36.7				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	6.0	17.0				
Max Q Clear Time (g_c+I1), s		4.2	2.1	13.6		15.5	3.9	4.2				
Green Ext Time (p_c), s		0.1	0.0	0.9		0.2	0.0	0.6				

Intersection Summary			
HCM 6th Ctrl Delay			29.6
HCM 6th LOS			C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	269	335	337	99	86
Future Volume (veh/h)	70	269	335	337	99	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	283	353	355	104	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	373	1381	690	616	447	398
Arrive On Green	0.39	0.39	0.39	0.39	0.25	0.25
Sat Flow, veh/h	741	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	74	283	353	355	104	91
Grp Sat Flow(s),veh/h/ln	741	1777	1777	1585	1781	1585
Q Serve(g_s), s	2.9	1.8	5.0	5.9	1.5	1.5
Cycle Q Clear(g_c), s	8.8	1.8	5.0	5.9	1.5	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	373	1381	690	616	447	398
V/C Ratio(X)	0.20	0.20	0.51	0.58	0.23	0.23
Avail Cap(c_a), veh/h	842	3630	1815	1619	1820	1619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	6.8	7.8	8.0	9.9	9.9
Incr Delay (d2), s/veh	0.3	0.1	0.6	0.9	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	1.3	1.4	0.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.7	6.8	8.4	8.9	10.2	10.2
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		357	708		195	
Approach Delay, s/veh		7.8	8.6		10.2	
Approach LOS		A	A		B	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	18.9	14.4	18.9
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	34.0	34.0	34.0
Max Q Clear Time (g_c+I1), s	10.8	3.5	7.9
Green Ext Time (p_c), s	2.1	0.6	5.0

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	208	254	125	276	0	239	0	219	0	0	0
Future Volume (veh/h)	0	208	254	125	276	0	239	0	219	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	219	267	132	291	0	252	0	231	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	695	877	168	1448	0	314	0	288	0	4	0
Arrive On Green	0.00	0.20	0.20	0.09	0.41	0.00	0.36	0.00	0.36	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	877	0	804	0	1870	0
Grp Volume(v), veh/h	0	219	267	132	291	0	483	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1682	0	0	0	1870	0
Q Serve(g_s), s	0.0	2.7	4.6	3.7	2.7	0.0	13.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.7	4.6	3.7	2.7	0.0	13.2	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.52		0.48	0.00		0.00
Lane Grp Cap(c), veh/h	3	695	877	168	1448	0	602	0	0	0	4	0
V/C Ratio(X)	0.00	0.31	0.30	0.78	0.20	0.00	0.80	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	174	1669	1311	174	1669	0	1217	0	0	0	366	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.6	6.1	22.6	9.8	0.0	14.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.2	20.0	0.1	0.0	2.6	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	0.0	0.9	2.4	2.3	0.8	0.0	4.3	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.9	6.3	42.6	9.8	0.0	17.3	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	D	A	A	B	A	A	A	A	A
Approach Vol, veh/h		486			423			483			0	
Approach Delay, s/veh		11.5			20.1			17.3			0.0	
Approach LOS		B			C			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.3	10.8	16.0		0.0	0.0	26.8				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		15.2	5.7	6.6		0.0	0.0	4.7				
Green Ext Time (p_c), s		3.1	0.0	1.9		0.0	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	10.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	261	8	21	295	44	6	5	12	186	27	22
Future Vol, veh/h	20	261	8	21	295	44	6	5	12	186	27	22
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	275	8	22	311	46	6	5	13	196	28	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	357	0	0	283	0	0	721	718	275	708	703	334
Stage 1	-	-	-	-	-	-	317	317	-	378	378	-
Stage 2	-	-	-	-	-	-	404	401	-	330	325	-
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	1202	-	-	1279	-	-	343	355	764	350	362	708
Stage 1	-	-	-	-	-	-	694	654	-	644	615	-
Stage 2	-	-	-	-	-	-	623	601	-	683	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1202	-	-	1279	-	-	301	340	764	329	346	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	340	-	329	346	-
Stage 1	-	-	-	-	-	-	679	640	-	630	601	-
Stage 2	-	-	-	-	-	-	561	588	-	652	635	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.5	13.3	37.1
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	457	1202	-	-	1279	-	-	348
HCM Lane V/C Ratio	0.053	0.018	-	-	0.017	-	-	0.711
HCM Control Delay (s)	13.3	8	0	-	7.9	0	-	37.1
HCM Lane LOS	B	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	238	35	17	128	69	53	578	55	91	415	85
Future Volume (veh/h)	134	238	35	17	128	69	53	578	55	91	415	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	251	37	18	135	73	56	608	58	96	437	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	295	41	69	339	171	80	670	64	123	790	669
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.05	0.40	0.40	0.07	0.42	0.42
Sat Flow, veh/h	464	979	136	64	1124	567	1781	1681	160	1781	1870	1585
Grp Volume(v), veh/h	429	0	0	226	0	0	56	0	666	96	437	89
Grp Sat Flow(s),veh/h/ln	1579	0	0	1755	0	0	1781	0	1841	1781	1870	1585
Q Serve(g_s), s	12.2	0.0	0.0	0.0	0.0	0.0	2.4	0.0	26.6	4.1	13.7	2.7
Cycle Q Clear(g_c), s	20.2	0.0	0.0	8.0	0.0	0.0	2.4	0.0	26.6	4.1	13.7	2.7
Prop In Lane	0.33		0.09	0.08		0.32	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	538	0	0	580	0	0	80	0	734	123	790	669
V/C Ratio(X)	0.80	0.00	0.00	0.39	0.00	0.00	0.70	0.00	0.91	0.78	0.55	0.13
Avail Cap(c_a), veh/h	646	0	0	697	0	0	160	0	874	137	863	732
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	0.0	0.0	21.8	0.0	0.0	36.7	0.0	22.1	35.7	17.0	13.8
Incr Delay (d2), s/veh	5.9	0.0	0.0	0.4	0.0	0.0	10.4	0.0	11.8	22.7	0.6	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	7.4	0.0	0.0	2.9	0.0	0.0	1.2	0.0	11.8	2.4	5.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	0.0	22.2	0.0	0.0	47.1	0.0	33.9	58.5	17.6	13.9
LnGrp LOS	C	A	A	C	A	A	D	A	C	E	B	B
Approach Vol, veh/h		429			226			722			622	
Approach Delay, s/veh		31.7			22.2			34.9			23.4	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	37.1		29.5	9.5	38.9		29.5				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	37.0		29.0	7.0	36.0		29.0				
Max Q Clear Time (g_c+I1), s	6.1	28.6		22.2	4.4	15.7		10.0				
Green Ext Time (p_c), s	0.0	2.5		1.3	0.0	2.4		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	107	335	339	100	54	72
Future Vol, veh/h	107	335	339	100	54	72
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	113	353	357	105	57	76

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	462	0	-	0	936	357
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	579	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1099	-	-	-	294	687
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	560	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1099	-	-	-	256	687
Mov Cap-2 Maneuver	-	-	-	-	256	-
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	560	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1099	-	-	-	256	687
HCM Lane V/C Ratio	0.102	-	-	-	0.222	0.11
HCM Control Delay (s)	8.6	0	-	-	23	10.9
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.8	0.4

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	12	37	18	0	51	0	19	0	0	0	0	33
Future Vol, veh/h	12	37	18	0	51	0	19	0	0	0	0	33
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	39	19	0	54	0	20	0	0	0	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	58	0	0	147	129	49	129	138	54
Stage 1	-	-	-	-	-	-	75	75	-	54	54	-
Stage 2	-	-	-	-	-	-	72	54	-	75	84	-
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	1551	-	-	1546	-	-	821	762	1020	844	753	1013
Stage 1	-	-	-	-	-	-	934	833	-	958	850	-
Stage 2	-	-	-	-	-	-	938	850	-	934	825	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1546	-	-	787	755	1020	838	746	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	787	755	-	838	746	-
Stage 1	-	-	-	-	-	-	926	826	-	949	850	-
Stage 2	-	-	-	-	-	-	906	850	-	926	818	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0	9.7	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	787	1551	-	-	1546	-	-	1013
HCM Lane V/C Ratio	0.025	0.008	-	-	-	-	-	0.034
HCM Control Delay (s)	9.7	7.3	0	-	0	-	-	8.7
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	28.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	85	66	0	104	0	190	0	0	0	0	483
Future Vol, veh/h	30	85	66	0	104	0	190	0	0	0	0	483
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	89	69	0	109	0	200	0	0	0	0	508

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	158	0	0	551	297	124	297	331	109
Stage 1	-	-	-	-	-	-	188	188	-	109	109	-
Stage 2	-	-	-	-	-	-	363	109	-	188	222	-
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	1481	-	-	1422	-	-	445	615	927	655	588	945
Stage 1	-	-	-	-	-	-	814	745	-	896	805	-
Stage 2	-	-	-	-	-	-	656	805	-	814	720	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1481	-	-	1422	-	-	202	600	927	643	574	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	600	-	643	574	-
Stage 1	-	-	-	-	-	-	794	727	-	874	805	-
Stage 2	-	-	-	-	-	-	303	805	-	794	703	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	109.7	13.2
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	202	1481	-	-	1422	-	-	945
HCM Lane V/C Ratio	0.99	0.021	-	-	-	-	-	0.538
HCM Control Delay (s)	109.7	7.5	0	-	0	-	-	13.2
HCM Lane LOS	F	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	8.5	0.1	-	-	0	-	-	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	161	235	37	126	58	14
Future Volume (veh/h)	161	235	37	126	58	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	169	247	39	133	61	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	461	673	62	1444	168	150
Arrive On Green	1.00	1.00	0.03	0.77	0.09	0.09
Sat Flow, veh/h	686	1003	1781	1870	1781	1585
Grp Volume(v), veh/h	0	416	39	133	61	15
Grp Sat Flow(s),veh/h/ln	0	1690	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	1.9	1.6	2.9	0.8
Cycle Q Clear(g_c), s	0.0	0.0	1.9	1.6	2.9	0.8
Prop In Lane		0.59	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1134	62	1444	168	150
V/C Ratio(X)	0.00	0.37	0.63	0.09	0.36	0.10
Avail Cap(c_a), veh/h	0	1134	158	1444	376	335
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.89	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	42.9	2.5	38.2	37.2
Incr Delay (d2), s/veh	0.0	0.8	10.2	0.1	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	1.0	0.4	1.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.8	53.1	2.6	39.5	37.5
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	416			172	76	
Approach Delay, s/veh	0.8			14.1	39.1	
Approach LOS	A			B	D	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		14.5	9.1	66.4				75.5
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		19.0	8.0	45.0				59.0
Max Q Clear Time (g_c+I1), s		4.9	3.9	2.0				3.6
Green Ext Time (p_c), s		0.1	0.0	2.7				0.7

Intersection Summary		
HCM 6th Ctrl Delay		8.6
HCM 6th LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	373	31	11	215	30	27	3	60	52	20	104
Future Volume (veh/h)	69	373	31	11	215	30	27	3	60	52	20	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	393	33	12	226	32	28	3	63	55	21	109
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	865	73	26	753	107	49	5	111	144	55	174
Arrive On Green	0.05	0.51	0.51	0.03	0.94	0.94	0.10	0.10	0.10	0.11	0.11	0.11
Sat Flow, veh/h	1781	1702	143	1781	1603	227	491	53	1104	1306	499	1585
Grp Volume(v), veh/h	73	0	426	12	0	258	94	0	0	76	0	109
Grp Sat Flow(s),veh/h/ln	1781	0	1845	1781	0	1830	1647	0	0	1805	0	1585
Q Serve(g_s), s	3.6	0.0	13.3	0.6	0.0	1.1	4.9	0.0	0.0	3.5	0.0	5.9
Cycle Q Clear(g_c), s	3.6	0.0	13.3	0.6	0.0	1.1	4.9	0.0	0.0	3.5	0.0	5.9
Prop In Lane	1.00		0.08	1.00		0.12	0.30		0.67	0.72		1.00
Lane Grp Cap(c), veh/h	94	0	938	26	0	860	166	0	0	199	0	174
V/C Ratio(X)	0.78	0.00	0.45	0.47	0.00	0.30	0.57	0.00	0.00	0.38	0.00	0.63
Avail Cap(c_a), veh/h	119	0	938	99	0	860	366	0	0	333	0	292
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	14.1	43.4	0.0	1.5	38.6	0.0	0.0	37.2	0.0	38.3
Incr Delay (d2), s/veh	21.9	0.0	1.6	12.5	0.0	0.9	3.0	0.0	0.0	1.2	0.0	3.6
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	2.2	0.0	5.6	0.3	0.0	0.5	2.0	0.0	0.0	1.6	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	0.0	15.7	55.9	0.0	2.3	41.7	0.0	0.0	38.4	0.0	41.9
LnGrp LOS	E	A	B	E	A	A	D	A	A	D	A	D
Approach Vol, veh/h		499			270			94			185	
Approach Delay, s/veh		22.8			4.7			41.7			40.5	
Approach LOS		C			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.0	7.3	51.8		15.9	10.7	48.3				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		20.0	5.0	24.4		16.6	6.0	23.4				
Max Q Clear Time (g_c+I1), s		6.9	2.6	15.3		7.9	5.6	3.1				
Green Ext Time (p_c), s		0.3	0.0	1.8		0.4	0.0	1.2				

Intersection Summary			
HCM 6th Ctrl Delay			23.0
HCM 6th LOS			C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	149	314	371	426	99
Future Volume (veh/h)	51	149	314	371	426	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	157	331	391	448	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	306	1329	665	593	574	511
Arrive On Green	0.37	0.37	0.37	0.37	0.32	0.32
Sat Flow, veh/h	731	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	54	157	331	391	448	104
Grp Sat Flow(s),veh/h/ln	731	1777	1777	1585	1781	1585
Q Serve(g_s), s	2.6	1.1	5.7	8.1	9.0	1.9
Cycle Q Clear(g_c), s	10.7	1.1	5.7	8.1	9.0	1.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	306	1329	665	593	574	511
V/C Ratio(X)	0.18	0.12	0.50	0.66	0.78	0.20
Avail Cap(c_a), veh/h	569	2609	1305	1164	1984	1766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	8.1	9.5	10.3	12.1	9.7
Incr Delay (d2), s/veh	0.3	0.0	0.6	1.3	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	1.7	2.3	2.8	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.0	8.1	10.1	11.5	14.5	9.9
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h		211	722		552	
Approach Delay, s/veh		9.9	10.9		13.6	
Approach LOS		A	B		B	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	20.8	18.7	20.8
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	29.0	44.0	29.0
Max Q Clear Time (g_c+I1), s	12.7	11.0	10.1
Green Ext Time (p_c), s	1.0	1.8	4.7

Intersection Summary	
HCM 6th Ctrl Delay	11.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	304	65	37	207	0	285	0	144	0	0	0
Future Volume (veh/h)	0	304	65	37	207	0	285	0	144	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	320	68	39	218	0	300	0	152	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	780	890	76	1401	0	388	0	197	0	4	0
Arrive On Green	0.00	0.22	0.22	0.04	0.39	0.00	0.34	0.00	0.34	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1135	0	575	0	1870	0
Grp Volume(v), veh/h	0	320	68	39	218	0	452	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1710	0	0	0	1870	0
Q Serve(g_s), s	0.0	3.5	0.9	1.0	1.8	0.0	10.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.5	0.9	1.0	1.8	0.0	10.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.66		0.34	0.00		0.00
Lane Grp Cap(c), veh/h	4	780	890	76	1401	0	585	0	0	0	4	0
V/C Ratio(X)	0.00	0.41	0.08	0.51	0.16	0.00	0.77	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	196	1874	1378	196	1874	0	1390	0	0	0	411	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	15.2	4.6	21.3	8.9	0.0	13.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	5.2	0.1	0.0	2.2	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	0.0	1.1	0.4	0.4	0.5	0.0	3.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.6	4.6	26.6	9.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		388			257			452			0	
Approach Delay, s/veh		13.7			11.6			15.6			0.0	
Approach LOS		B			B			B				

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		21.6	7.9	16.0		0.0	0.0	23.9
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0
Max Q Clear Time (g_c+I1), s		12.8	3.0	5.5		0.0	0.0	3.8
Green Ext Time (p_c), s		2.9	0.0	1.8		0.0	0.0	1.1

Intersection Summary			
HCM 6th Ctrl Delay			14.0
HCM 6th LOS			B

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	178	4	14	284	35	14	51	11	82	0	69
Future Vol, veh/h	15	178	4	14	284	35	14	51	11	82	0	69
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	187	4	15	299	37	15	54	12	86	0	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	336	0	0	191	0	0	603	585	187	602	571	318
Stage 1	-	-	-	-	-	-	219	219	-	348	348	-
Stage 2	-	-	-	-	-	-	384	366	-	254	223	-
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	1223	-	-	1383	-	-	411	423	855	412	431	723
Stage 1	-	-	-	-	-	-	783	722	-	668	634	-
Stage 2	-	-	-	-	-	-	639	623	-	750	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1223	-	-	1383	-	-	362	411	855	358	419	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	362	411	-	358	419	-
Stage 1	-	-	-	-	-	-	771	711	-	658	626	-
Stage 2	-	-	-	-	-	-	567	615	-	674	708	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	15.2	16.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	433	1223	-	-	1383	-	-	465
HCM Lane V/C Ratio	0.185	0.013	-	-	0.011	-	-	0.342
HCM Control Delay (s)	15.2	8	0	-	7.6	0	-	16.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	143	38	33	153	90	62	834	87	59	389	63
Future Volume (veh/h)	62	143	38	33	153	90	62	834	87	59	389	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	151	40	35	161	95	65	878	92	62	409	66
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	192	46	69	206	113	84	935	98	80	1046	886
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.05	0.56	0.56	0.04	0.56	0.56
Sat Flow, veh/h	273	934	224	130	1002	549	1781	1665	174	1781	1870	1585
Grp Volume(v), veh/h	256	0	0	291	0	0	65	0	970	62	409	66
Grp Sat Flow(s),veh/h/ln	1431	0	0	1680	0	0	1781	0	1839	1781	1870	1585
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	46.8	3.3	11.8	1.8
Cycle Q Clear(g_c), s	16.9	0.0	0.0	15.8	0.0	0.0	3.5	0.0	46.8	3.3	11.8	1.8
Prop In Lane	0.25		0.16	0.12		0.33	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	341	0	0	387	0	0	84	0	1033	80	1046	886
V/C Ratio(X)	0.75	0.00	0.00	0.75	0.00	0.00	0.77	0.00	0.94	0.78	0.39	0.07
Avail Cap(c_a), veh/h	461	0	0	515	0	0	168	0	1154	93	1096	928
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	0.0	0.0	36.3	0.0	0.0	45.1	0.0	19.4	45.2	11.9	9.7
Incr Delay (d2), s/veh	4.6	0.0	0.0	4.3	0.0	0.0	14.0	0.0	13.5	29.2	0.2	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	5.8	0.0	0.0	6.5	0.0	0.0	1.8	0.0	19.6	2.0	4.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	0.0	0.0	40.6	0.0	0.0	59.0	0.0	33.0	74.4	12.1	9.7
LnGrp LOS	D	A	A	D	A	A	E	A	C	E	B	A
Approach Vol, veh/h		256			291			1035			537	
Approach Delay, s/veh		41.0			40.6			34.6			19.0	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	59.7		25.6	10.5	59.5		25.6				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	60.0		27.0	9.0	56.0		27.0				
Max Q Clear Time (g_c+I1), s	5.3	48.8		18.9	5.5	13.8		17.8				
Green Ext Time (p_c), s	0.0	4.9		0.8	0.0	2.4		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			32.3									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	389	295	51	84	102
Future Vol, veh/h	70	389	295	51	84	102
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	409	311	54	88	107

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	365	0	-	0	868	311
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	557	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1194	-	-	-	323	729
Stage 1	-	-	-	-	743	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1194	-	-	-	297	729
Mov Cap-2 Maneuver	-	-	-	-	297	-
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1194	-	-	-	297	729
HCM Lane V/C Ratio	0.062	-	-	-	0.298	0.147
HCM Control Delay (s)	8.2	0	-	-	22.2	10.8
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.2	0.5

APPENDIX G -

OPENING YEAR (2030) WITH PHASE I & II PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	17	12	6	27	2	8	10	8	20	6	24
Future Vol, veh/h	9	17	12	6	27	2	8	10	8	20	6	24
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	18	13	6	28	2	8	11	8	21	6	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	31	0	0	100	85	25	93	90	29
Stage 1	-	-	-	-	-	-	43	43	-	41	41	-
Stage 2	-	-	-	-	-	-	57	42	-	52	49	-
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	1583	-	-	1582	-	-	881	805	1051	891	800	1046
Stage 1	-	-	-	-	-	-	971	859	-	974	861	-
Stage 2	-	-	-	-	-	-	955	860	-	961	854	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1583	-	-	1582	-	-	848	797	1051	869	792	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	848	797	-	869	792	-
Stage 1	-	-	-	-	-	-	965	854	-	968	858	-
Stage 2	-	-	-	-	-	-	921	857	-	936	849	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	1.2	9.2	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	879	1583	-	-	1582	-	-	934
HCM Lane V/C Ratio	0.031	0.006	-	-	0.004	-	-	0.056
HCM Control Delay (s)	9.2	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	67	42	14	82	0	45	0	0	0	0	165
Future Vol, veh/h	44	67	42	14	82	0	45	0	0	0	0	165
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	71	44	15	86	0	47	0	0	0	0	174

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	86	0	0	115	0	0	388	301	93	301	323	86
Stage 1	-	-	-	-	-	-	185	185	-	116	116	-
Stage 2	-	-	-	-	-	-	203	116	-	185	207	-
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	1510	-	-	1474	-	-	571	612	964	651	595	973
Stage 1	-	-	-	-	-	-	817	747	-	889	800	-
Stage 2	-	-	-	-	-	-	799	800	-	817	731	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1510	-	-	1474	-	-	453	585	964	630	569	973
Mov Cap-2 Maneuver	-	-	-	-	-	-	453	585	-	630	569	-
Stage 1	-	-	-	-	-	-	790	722	-	860	791	-
Stage 2	-	-	-	-	-	-	649	791	-	790	707	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	1.1	13.9	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	453	1510	-	-	1474	-	-	973
HCM Lane V/C Ratio	0.105	0.031	-	-	0.01	-	-	0.179
HCM Control Delay (s)	13.9	7.5	0	-	7.5	0	-	9.5
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	164	141	199	303	136	53
Future Volume (veh/h)	164	141	199	303	136	53
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	148	209	319	143	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	439	178	1359	220	196
Arrive On Green	1.00	1.00	0.10	0.73	0.12	0.12
Sat Flow, veh/h	931	796	1781	1870	1781	1585
Grp Volume(v), veh/h	0	321	209	319	143	56
Grp Sat Flow(s),veh/h/ln	0	1727	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	8.0	4.5	6.1	2.6
Cycle Q Clear(g_c), s	0.0	0.0	8.0	4.5	6.1	2.6
Prop In Lane		0.46	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	952	178	1359	220	196
V/C Ratio(X)	0.00	0.34	1.17	0.23	0.65	0.29
Avail Cap(c_a), veh/h	0	952	178	1359	367	327
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	36.0	3.6	33.4	31.9
Incr Delay (d2), s/veh	0.0	0.9	121.8	0.4	3.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	9.3	1.1	2.8	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.9	157.8	4.0	36.6	32.6
LnGrp LOS	A	A	F	A	D	C
Approach Vol, veh/h	321			528	199	
Approach Delay, s/veh	0.9			64.9	35.5	
Approach LOS	A			E	D	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		15.9	14.0	50.1				64.1
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		16.5	8.0	37.5				51.5
Max Q Clear Time (g_c+I1), s		8.1	10.0	2.0				6.5
Green Ext Time (p_c), s		0.3	0.0	1.9				1.8

Intersection Summary			
HCM 6th Ctrl Delay			39.7
HCM 6th LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	326	31	3	163	12	29	0	23	41	23	289
Future Volume (veh/h)	42	326	31	3	163	12	29	0	23	41	23	289
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	343	33	3	172	13	31	0	24	43	24	304
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	674	65	7	629	48	84	0	65	240	134	327
Arrive On Green	0.04	0.40	0.40	0.01	0.73	0.73	0.09	0.00	0.09	0.21	0.21	0.21
Sat Flow, veh/h	1781	1680	162	1781	1717	130	953	0	737	1163	649	1585
Grp Volume(v), veh/h	44	0	376	3	0	185	55	0	0	67	0	304
Grp Sat Flow(s),veh/h/ln	1781	0	1841	1781	0	1847	1690	0	0	1812	0	1585
Q Serve(g_s), s	1.9	0.0	12.3	0.1	0.0	2.7	2.5	0.0	0.0	2.4	0.0	15.1
Cycle Q Clear(g_c), s	1.9	0.0	12.3	0.1	0.0	2.7	2.5	0.0	0.0	2.4	0.0	15.1
Prop In Lane	1.00		0.09	1.00		0.07	0.56		0.44	0.64		1.00
Lane Grp Cap(c), veh/h	69	0	739	7	0	677	149	0	0	374	0	327
V/C Ratio(X)	0.63	0.00	0.51	0.42	0.00	0.27	0.37	0.00	0.00	0.18	0.00	0.93
Avail Cap(c_a), veh/h	134	0	739	111	0	677	349	0	0	374	0	327
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.95	0.00	0.95	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	18.0	39.6	0.0	7.1	34.4	0.0	0.0	26.2	0.0	31.2
Incr Delay (d2), s/veh	9.2	0.0	2.5	32.8	0.0	0.9	1.5	0.0	0.0	0.2	0.0	32.2
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	1.0	0.0	5.4	0.1	0.0	1.0	1.0	0.0	0.0	1.0	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	20.5	72.4	0.0	8.1	35.9	0.0	0.0	26.4	0.0	63.4
LnGrp LOS	D	A	C	E	A	A	D	A	A	C	A	E
Approach Vol, veh/h		420			188			55			371	
Approach Delay, s/veh		23.3			9.1			35.9			56.7	
Approach LOS		C			A			D			E	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.1	6.3	38.1		22.5	9.1	35.3				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	18.0		16.5	6.0	17.0				
Max Q Clear Time (g_c+I1), s		4.5	2.1	14.3		17.1	3.9	4.7				
Green Ext Time (p_c), s		0.1	0.0	0.8		0.0	0.0	0.6				

Intersection Summary			
HCM 6th Ctrl Delay			33.4
HCM 6th LOS			C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	288	339	340	112	86
Future Volume (veh/h)	70	288	339	340	112	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	303	357	358	118	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	370	1392	696	621	452	403
Arrive On Green	0.39	0.39	0.39	0.39	0.25	0.25
Sat Flow, veh/h	736	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	74	303	357	358	118	91
Grp Sat Flow(s),veh/h/ln	736	1777	1777	1585	1781	1585
Q Serve(g_s), s	3.0	1.9	5.2	6.0	1.8	1.5
Cycle Q Clear(g_c), s	9.0	1.9	5.2	6.0	1.8	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	370	1392	696	621	452	403
V/C Ratio(X)	0.20	0.22	0.51	0.58	0.26	0.23
Avail Cap(c_a), veh/h	821	3568	1784	1592	1789	1592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	6.9	7.8	8.1	10.1	10.0
Incr Delay (d2), s/veh	0.3	0.1	0.6	0.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	1.4	1.4	0.5	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.9	6.9	8.4	8.9	10.4	10.3
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		377	715		209	
Approach Delay, s/veh		7.9	8.7		10.3	
Approach LOS		A	A		B	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	19.3	14.6	19.3
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	34.0	34.0	34.0
Max Q Clear Time (g_c+I1), s	11.0	3.8	8.0
Green Ext Time (p_c), s	2.3	0.6	5.1

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	224	254	126	280	0	239	0	222	0	0	0
Future Volume (veh/h)	0	224	254	126	280	0	239	0	222	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	236	267	133	295	0	252	0	234	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	692	878	170	1446	0	313	0	291	0	4	0
Arrive On Green	0.00	0.19	0.19	0.10	0.41	0.00	0.36	0.00	0.36	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	872	0	809	0	1870	0
Grp Volume(v), veh/h	0	236	267	133	295	0	486	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1681	0	0	0	1870	0
Q Serve(g_s), s	0.0	2.9	4.6	3.7	2.8	0.0	13.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.9	4.6	3.7	2.8	0.0	13.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.52		0.48	0.00		0.00
Lane Grp Cap(c), veh/h	3	692	878	170	1446	0	604	0	0	0	4	0
V/C Ratio(X)	0.00	0.34	0.30	0.78	0.20	0.00	0.80	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	173	1661	1311	173	1661	0	1212	0	0	0	364	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.8	6.1	22.7	9.8	0.0	14.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.2	20.3	0.1	0.0	2.6	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	0.0	1.0	2.4	2.3	0.8	0.0	4.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.1	6.3	43.0	9.9	0.0	17.4	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	D	A	A	B	A	A	A	A	A
Approach Vol, veh/h		503			428			486			0	
Approach Delay, s/veh		11.9			20.2			17.4			0.0	
Approach LOS		B			C			B				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.5	10.9	16.0		0.0	0.0	26.9				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		15.4	5.7	6.6		0.0	0.0	4.8				
Green Ext Time (p_c), s		3.1	0.0	2.0		0.0	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	11

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	274	8	21	298	44	6	5	14	188	27	22
Future Vol, veh/h	20	274	8	21	298	44	6	5	14	188	27	22
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	288	8	22	314	46	6	5	15	198	28	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	360	0	0	296	0	0	737	734	288	725	719	337
Stage 1	-	-	-	-	-	-	330	330	-	381	381	-
Stage 2	-	-	-	-	-	-	407	404	-	344	338	-
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	1199	-	-	1265	-	-	334	347	751	340	354	705
Stage 1	-	-	-	-	-	-	683	646	-	641	613	-
Stage 2	-	-	-	-	-	-	621	599	-	671	641	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1199	-	-	1265	-	-	293	332	751	319	339	705
Mov Cap-2 Maneuver	-	-	-	-	-	-	293	332	-	319	339	-
Stage 1	-	-	-	-	-	-	669	632	-	628	600	-
Stage 2	-	-	-	-	-	-	560	586	-	639	628	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.5	13.3	40.4
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	461	1199	-	-	1265	-	-	338
HCM Lane V/C Ratio	0.057	0.018	-	-	0.017	-	-	0.738
HCM Control Delay (s)	13.3	8.1	0	-	7.9	0	-	40.4
HCM Lane LOS	B	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	240	35	17	129	71	53	578	57	100	415	85
Future Volume (veh/h)	134	240	35	17	129	71	53	578	57	100	415	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	253	37	18	136	75	56	608	60	105	437	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	295	41	68	338	174	79	666	66	133	800	678
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.04	0.40	0.40	0.07	0.43	0.43
Sat Flow, veh/h	460	974	135	64	1115	574	1781	1675	165	1781	1870	1585
Grp Volume(v), veh/h	431	0	0	229	0	0	56	0	668	105	437	89
Grp Sat Flow(s),veh/h/ln	1569	0	0	1752	0	0	1781	0	1841	1781	1870	1585
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	0.0	2.5	0.0	27.5	4.6	14.0	2.7
Cycle Q Clear(g_c), s	21.1	0.0	0.0	8.3	0.0	0.0	2.5	0.0	27.5	4.6	14.0	2.7
Prop In Lane	0.33		0.09	0.08		0.33	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	535	0	0	580	0	0	79	0	731	133	800	678
V/C Ratio(X)	0.81	0.00	0.00	0.40	0.00	0.00	0.71	0.00	0.91	0.79	0.55	0.13
Avail Cap(c_a), veh/h	626	0	0	678	0	0	156	0	850	133	840	712
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	0.0	22.4	0.0	0.0	37.8	0.0	22.8	36.4	17.1	13.9
Incr Delay (d2), s/veh	6.6	0.0	0.0	0.4	0.0	0.0	10.9	0.0	12.9	26.1	0.7	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	7.8	0.0	0.0	3.1	0.0	0.0	1.2	0.0	12.5	2.8	5.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	0.0	0.0	22.8	0.0	0.0	48.7	0.0	35.8	62.5	17.8	14.0
LnGrp LOS	C	A	A	C	A	A	D	A	D	E	B	B
Approach Vol, veh/h		431			229			724			631	
Approach Delay, s/veh		33.2			22.8			36.8			24.7	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	37.8		30.3	9.6	40.3		30.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	37.0		29.0	7.0	36.0		29.0				
Max Q Clear Time (g_c+I1), s	6.6	29.5		23.1	4.5	16.0		10.3				
Green Ext Time (p_c), s	0.0	2.3		1.2	0.0	2.4		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			30.7									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	139	335	339	141	64	79
Future Vol, veh/h	139	335	339	141	64	79
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	146	353	357	148	67	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	505	0	-	0	1002	357
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	645	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1060	-	-	-	269	687
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1060	-	-	-	223	687
Mov Cap-2 Maneuver	-	-	-	-	223	-
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	18.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1060	-	-	-	223	687
HCM Lane V/C Ratio	0.138	-	-	-	0.302	0.121
HCM Control Delay (s)	8.9	0	-	-	28	11
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.5	-	-	-	1.2	0.4

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	12	37	18	0	51	0	19	0	0	0	0	33
Future Vol, veh/h	12	37	18	0	51	0	19	0	0	0	0	33
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	39	19	0	54	0	20	0	0	0	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	58	0	0	147	129	49	129	138	54
Stage 1	-	-	-	-	-	-	75	75	-	54	54	-
Stage 2	-	-	-	-	-	-	72	54	-	75	84	-
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	1551	-	-	1546	-	-	821	762	1020	844	753	1013
Stage 1	-	-	-	-	-	-	934	833	-	958	850	-
Stage 2	-	-	-	-	-	-	938	850	-	934	825	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1546	-	-	787	755	1020	838	746	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	787	755	-	838	746	-
Stage 1	-	-	-	-	-	-	926	826	-	949	850	-
Stage 2	-	-	-	-	-	-	906	850	-	926	818	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0	9.7	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	787	1551	-	-	1546	-	-	1013
HCM Lane V/C Ratio	0.025	0.008	-	-	-	-	-	0.034
HCM Control Delay (s)	9.7	7.3	0	-	0	-	-	8.7
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	28.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	86	66	0	104	0	190	0	0	0	0	483
Future Vol, veh/h	30	86	66	0	104	0	190	0	0	0	0	483
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	91	69	0	109	0	200	0	0	0	0	508

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	160	0	0	553	299	126	299	333	109
Stage 1	-	-	-	-	-	-	190	190	-	109	109	-
Stage 2	-	-	-	-	-	-	363	109	-	190	224	-
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	1481	-	-	1419	-	-	444	613	924	653	587	945
Stage 1	-	-	-	-	-	-	812	743	-	896	805	-
Stage 2	-	-	-	-	-	-	656	805	-	812	718	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1481	-	-	1419	-	-	202	598	924	641	573	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	598	-	641	573	-
Stage 1	-	-	-	-	-	-	793	725	-	874	805	-
Stage 2	-	-	-	-	-	-	303	805	-	793	701	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	109.7	13.2
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	202	1481	-	-	1419	-	-	945
HCM Lane V/C Ratio	0.99	0.021	-	-	-	-	-	0.538
HCM Control Delay (s)	109.7	7.5	0	-	0	-	-	13.2
HCM Lane LOS	F	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	8.5	0.1	-	-	0	-	-	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	163	257	37	127	60	14
Future Volume (veh/h)	163	257	37	127	60	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	271	39	134	63	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	438	691	62	1443	170	151
Arrive On Green	1.00	1.00	0.03	0.77	0.10	0.10
Sat Flow, veh/h	654	1031	1781	1870	1781	1585
Grp Volume(v), veh/h	0	443	39	134	63	15
Grp Sat Flow(s),veh/h/ln	0	1685	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	1.9	1.6	3.0	0.8
Cycle Q Clear(g_c), s	0.0	0.0	1.9	1.6	3.0	0.8
Prop In Lane		0.61	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1129	62	1443	170	151
V/C Ratio(X)	0.00	0.39	0.63	0.09	0.37	0.10
Avail Cap(c_a), veh/h	0	1129	158	1443	376	335
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.83	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	42.9	2.5	38.2	37.2
Incr Delay (d2), s/veh	0.0	0.9	10.2	0.1	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	1.0	0.4	1.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.9	53.1	2.7	39.5	37.5
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	443			173	78	
Approach Delay, s/veh	0.9			14.0	39.1	
Approach LOS	A			B	D	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		14.6	9.1	66.3				75.4
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		19.0	8.0	45.0				59.0
Max Q Clear Time (g_c+I1), s		5.0	3.9	2.0				3.6
Green Ext Time (p_c), s		0.1	0.0	3.0				0.7

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	397	34	11	217	30	28	3	60	52	20	110
Future Volume (veh/h)	75	397	34	11	217	30	28	3	60	52	20	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	418	36	12	228	32	29	3	63	55	21	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	862	74	26	747	105	51	5	110	144	55	175
Arrive On Green	0.06	0.51	0.51	0.03	0.93	0.93	0.10	0.10	0.10	0.11	0.11	0.11
Sat Flow, veh/h	1781	1698	146	1781	1605	225	503	52	1093	1306	499	1585
Grp Volume(v), veh/h	79	0	454	12	0	260	95	0	0	76	0	116
Grp Sat Flow(s),veh/h/ln	1781	0	1844	1781	0	1830	1648	0	0	1805	0	1585
Q Serve(g_s), s	3.9	0.0	14.5	0.6	0.0	1.2	4.9	0.0	0.0	3.5	0.0	6.3
Cycle Q Clear(g_c), s	3.9	0.0	14.5	0.6	0.0	1.2	4.9	0.0	0.0	3.5	0.0	6.3
Prop In Lane	1.00		0.08	1.00		0.12	0.31		0.66	0.72		1.00
Lane Grp Cap(c), veh/h	101	0	937	26	0	852	166	0	0	199	0	175
V/C Ratio(X)	0.78	0.00	0.48	0.47	0.00	0.31	0.57	0.00	0.00	0.38	0.00	0.66
Avail Cap(c_a), veh/h	119	0	937	99	0	852	348	0	0	333	0	292
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.9	0.0	14.5	43.4	0.0	1.7	38.6	0.0	0.0	37.2	0.0	38.4
Incr Delay (d2), s/veh	24.1	0.0	1.8	12.5	0.0	0.9	3.1	0.0	0.0	1.2	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	6.1	0.3	0.0	0.6	2.0	0.0	0.0	1.6	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	0.0	16.2	55.9	0.0	2.6	41.7	0.0	0.0	38.4	0.0	42.7
LnGrp LOS	E	A	B	E	A	A	D	A	A	D	A	D
Approach Vol, veh/h		533			272			95			192	
Approach Delay, s/veh		23.6			5.0			41.7			41.0	
Approach LOS		C			A			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.1	7.3	51.7		15.9	11.1	47.9				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		19.0	5.0	25.4		16.6	6.0	24.4				
Max Q Clear Time (g_c+I1), s		6.9	2.6	16.5		8.3	5.9	3.2				
Green Ext Time (p_c), s		0.3	0.0	1.9		0.4	0.0	1.3				

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	154	334	383	429	99
Future Volume (veh/h)	51	154	334	383	429	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	162	352	403	452	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	298	1353	677	604	575	512
Arrive On Green	0.38	0.38	0.38	0.38	0.32	0.32
Sat Flow, veh/h	709	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	54	162	352	403	452	104
Grp Sat Flow(s),veh/h/ln	709	1777	1777	1585	1781	1585
Q Serve(g_s), s	2.8	1.2	6.2	8.5	9.3	1.9
Cycle Q Clear(g_c), s	11.3	1.2	6.2	8.5	9.3	1.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	298	1353	677	604	575	512
V/C Ratio(X)	0.18	0.12	0.52	0.67	0.79	0.20
Avail Cap(c_a), veh/h	536	2545	1272	1135	1935	1722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	8.1	9.7	10.4	12.4	9.9
Incr Delay (d2), s/veh	0.3	0.0	0.6	1.3	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.3	1.9	2.4	3.0	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.4	8.2	10.3	11.7	14.9	10.1
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		216	755		556	
Approach Delay, s/veh		10.0	11.0		14.0	
Approach LOS		A	B		B	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				21.4		19.1		21.4
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				29.0		44.0		29.0
Max Q Clear Time (g_c+I1), s				13.3		11.3		10.5
Green Ext Time (p_c), s				1.1		1.8		4.9

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	309	65	40	225	0	285	0	145	0	0	0
Future Volume (veh/h)	0	309	65	40	225	0	285	0	145	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	325	68	42	237	0	300	0	153	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	777	889	81	1404	0	388	0	198	0	4	0
Arrive On Green	0.00	0.22	0.22	0.05	0.40	0.00	0.34	0.00	0.34	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1132	0	577	0	1870	0
Grp Volume(v), veh/h	0	325	68	42	237	0	453	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1710	0	0	0	1870	0
Q Serve(g_s), s	0.0	3.6	0.9	1.1	2.0	0.0	10.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.6	0.9	1.1	2.0	0.0	10.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.66		0.34	0.00		0.00
Lane Grp Cap(c), veh/h	4	777	889	81	1404	0	586	0	0	0	4	0
V/C Ratio(X)	0.00	0.42	0.08	0.52	0.17	0.00	0.77	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	195	1865	1375	195	1865	0	1383	0	0	0	409	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	15.4	4.6	21.3	9.0	0.0	13.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	5.1	0.1	0.0	2.2	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	0.0	1.1	0.4	0.5	0.5	0.0	3.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.7	4.6	26.5	9.0	0.0	15.7	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	B	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		393			279			453			0	
Approach Delay, s/veh		13.8			11.7			15.7			0.0	
Approach LOS		B			B			B				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.7	8.1	16.0		0.0	0.0	24.1				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		37.0	5.0	24.0		10.0	5.0	24.0				
Max Q Clear Time (g_c+I1), s		12.8	3.1	5.6		0.0	0.0	4.0				
Green Ext Time (p_c), s		2.9	0.0	1.8		0.0	0.0	1.2				

Intersection Summary			
HCM 6th Ctrl Delay			14.0
HCM 6th LOS			B

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	182	4	16	298	37	14	51	12	83	0	69
Future Vol, veh/h	15	182	4	16	298	37	14	51	12	83	0	69
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	192	4	17	314	39	15	54	13	87	0	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	196	0	0	628	611	192	628	596	334
Stage 1	-	-	-	-	-	-	224	224	-	368	368	-
Stage 2	-	-	-	-	-	-	404	387	-	260	228	-
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	1206	-	-	1377	-	-	395	409	850	395	417	708
Stage 1	-	-	-	-	-	-	779	718	-	652	621	-
Stage 2	-	-	-	-	-	-	623	610	-	745	715	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1206	-	-	1377	-	-	346	397	850	341	404	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	346	397	-	341	404	-
Stage 1	-	-	-	-	-	-	767	707	-	642	612	-
Stage 2	-	-	-	-	-	-	551	601	-	668	704	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	15.6	17.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	421	1206	-	-	1377	-	-	446
HCM Lane V/C Ratio	0.193	0.013	-	-	0.012	-	-	0.359
HCM Control Delay (s)	15.6	8	0	-	7.6	0	-	17.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	144	38	35	155	100	62	834	88	62	389	63
Future Volume (veh/h)	62	144	38	35	155	100	62	834	88	62	389	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	152	40	37	163	105	65	878	93	65	409	66
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	192	46	69	202	121	84	929	98	83	1045	885
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.05	0.56	0.56	0.05	0.56	0.56
Sat Flow, veh/h	261	910	216	132	957	572	1781	1663	176	1781	1870	1585
Grp Volume(v), veh/h	257	0	0	305	0	0	65	0	971	65	409	66
Grp Sat Flow(s),veh/h/ln	1387	0	0	1661	0	0	1781	0	1839	1781	1870	1585
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	3.5	0.0	48.5	3.5	12.1	1.9
Cycle Q Clear(g_c), s	18.0	0.0	0.0	17.4	0.0	0.0	3.5	0.0	48.5	3.5	12.1	1.9
Prop In Lane	0.25		0.16	0.12		0.34	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	339	0	0	392	0	0	84	0	1028	83	1045	885
V/C Ratio(X)	0.76	0.00	0.00	0.78	0.00	0.00	0.77	0.00	0.94	0.78	0.39	0.07
Avail Cap(c_a), veh/h	438	0	0	497	0	0	163	0	1123	91	1066	903
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	0.0	37.3	0.0	0.0	46.3	0.0	20.3	46.3	12.2	10.0
Incr Delay (d2), s/veh	5.6	0.0	0.0	6.0	0.0	0.0	14.0	0.0	14.8	31.9	0.2	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	6.1	0.0	0.0	7.2	0.0	0.0	1.8	0.0	20.8	2.2	4.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	0.0	43.3	0.0	0.0	60.3	0.0	35.1	78.2	12.5	10.0
LnGrp LOS	D	A	A	D	A	A	E	A	D	E	B	B
Approach Vol, veh/h		257			305			1036			540	
Approach Delay, s/veh		42.7			43.3			36.7			20.1	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	60.9		26.7	10.6	60.9		26.7				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	60.0		27.0	9.0	56.0		27.0				
Max Q Clear Time (g_c+I1), s	5.5	50.5		20.0	5.5	14.1		19.4				
Green Ext Time (p_c), s	0.0	4.4		0.7	0.0	2.4		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			34.1
HCM 6th LOS			C

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	78	389	295	60	117	134
Future Vol, veh/h	78	389	295	60	117	134
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	409	311	63	123	141

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	374	0	-	0	884	311
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	573	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1184	-	-	-	316	729
Stage 1	-	-	-	-	743	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1184	-	-	-	288	729
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	564	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1184	-	-	-	288	729
HCM Lane V/C Ratio	0.069	-	-	-	0.428	0.193
HCM Control Delay (s)	8.3	0	-	-	26.5	11.1
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2	0.7

APPENDIX H -

BUILDOUT (2035) WITH PHASE I & II PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	124

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	17	11	34	28	102	28	680	8	20	270	72
Future Vol, veh/h	53	17	11	34	28	102	28	680	8	20	270	72
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	18	12	36	29	107	29	716	8	21	284	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	30	0	0	471	344	24	653	297	83
Stage 1	-	-	-	-	-	-	136	136	-	155	155	-
Stage 2	-	-	-	-	-	-	335	208	-	498	142	-
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	1448	-	-	1583	-	-	503	~ 579	1052	380	615	976
Stage 1	-	-	-	-	-	-	867	784	-	847	769	-
Stage 2	-	-	-	-	-	-	679	730	-	554	779	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1583	-	-	272	~ 543	1052	-	576	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	272	~ 543	-	-	576	-
Stage 1	-	-	-	-	-	-	833	753	-	814	750	-
Stage 2	-	-	-	-	-	-	379	~ 712	-	26	749	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5	1.5	228.3	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	525	1448	-	-	1583	-	-	-
HCM Lane V/C Ratio	1.436	0.039	-	-	0.023	-	-	-
HCM Control Delay (s)	228.3	7.6	0	-	7.3	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	36.4	0.1	-	-	0.1	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6156.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	578	141	236	44	158	12	546	70	10	4	14	202
Future Vol, veh/h	578	141	236	44	158	12	546	70	10	4	14	202
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	608	148	248	46	166	13	575	74	11	4	15	213

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	179	0	0	396	0	0	1867	1759	272	1796	1877	173
Stage 1	-	-	-	-	-	-	1488	1488	-	265	265	-
Stage 2	-	-	-	-	-	-	379	271	-	1531	1612	-
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	1397	-	-	1163	-	-	~ 55	85	767	62	71	871
Stage 1	-	-	-	-	-	-	~ 155	188	-	740	689	-
Stage 2	-	-	-	-	-	-	643	685	-	146	163	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1397	-	-	1163	-	-	~ 14	~ 34	767	-	29	871
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 14	~ 34	-	-	29	-
Stage 1	-	-	-	-	-	-	~ 65	79	-	312	659	-
Stage 2	-	-	-	-	-	-	~ 454	655	-	~ 4	69	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.8	1.7	$ 19806	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	15	1397	-	-	1163	-	-	-
HCM Lane V/C Ratio	43.93	0.436	-	-	0.04	-	-	-
HCM Control Delay (s)	$ 19806	9.6	0	-	8.2	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	83.5	2.3	-	-	0.1	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	896	264	202	704	286	59
Future Volume (veh/h)	896	264	202	704	286	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	943	278	213	741	301	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	821	242	178	1387	282	251
Arrive On Green	1.00	1.00	0.10	0.74	0.16	0.16
Sat Flow, veh/h	1388	409	1781	1870	1781	1585
Grp Volume(v), veh/h	0	1221	213	741	301	62
Grp Sat Flow(s),veh/h/ln	0	1797	1781	1870	1781	1585
Q Serve(g_s), s	0.0	68.1	12.0	20.3	19.0	4.1
Cycle Q Clear(g_c), s	0.0	68.1	12.0	20.3	19.0	4.1
Prop In Lane		0.23	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1063	178	1387	282	251
V/C Ratio(X)	0.00	1.15	1.20	0.53	1.07	0.25
Avail Cap(c_a), veh/h	0	1063	178	1387	282	251
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.44	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	54.0	6.6	50.5	44.2
Incr Delay (d2), s/veh	0.0	72.2	129.9	1.5	72.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	21.3	11.7	6.8	14.1	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	72.2	183.9	8.1	123.0	44.7
LnGrp LOS	A	F	F	A	F	D
Approach Vol, veh/h	1221			954	363	
Approach Delay, s/veh	72.2			47.4	109.6	
Approach LOS	E			D	F	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	25.0	18.0	77.0	95.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	12.0	71.0	89.0
Max Q Clear Time (g_c+I1), s	21.0	14.0	70.1	22.3
Green Ext Time (p_c), s	0.0	0.0	0.7	5.6

Intersection Summary	
HCM 6th Ctrl Delay	68.2
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	708	33	35	900	53	60	0	269	182	23	293
Future Volume (veh/h)	40	708	33	35	900	53	60	0	269	182	23	293
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	745	35	37	947	56	63	0	141	192	24	77
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	881	41	53	866	51	70	0	156	216	27	215
Arrive On Green	0.03	0.50	0.50	0.06	0.99	0.99	0.14	0.00	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	1772	83	1781	1748	103	507	0	1134	1592	199	1585
Grp Volume(v), veh/h	42	0	780	37	0	1003	204	0	0	216	0	77
Grp Sat Flow(s),veh/h/ln	1781	0	1855	1781	0	1852	1641	0	0	1791	0	1585
Q Serve(g_s), s	2.8	0.0	43.7	2.4	0.0	59.5	14.7	0.0	0.0	14.2	0.0	5.3
Cycle Q Clear(g_c), s	2.8	0.0	43.7	2.4	0.0	59.5	14.7	0.0	0.0	14.2	0.0	5.3
Prop In Lane	1.00		0.04	1.00		0.06	0.31		0.69	0.89		1.00
Lane Grp Cap(c), veh/h	56	0	923	53	0	918	226	0	0	243	0	215
V/C Ratio(X)	0.75	0.00	0.85	0.70	0.00	1.09	0.90	0.00	0.00	0.89	0.00	0.36
Avail Cap(c_a), veh/h	74	0	923	74	0	918	226	0	0	246	0	218
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.66	0.00	0.66	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	26.2	55.9	0.0	0.5	51.0	0.0	0.0	51.0	0.0	47.1
Incr Delay (d2), s/veh	25.3	0.0	9.4	10.7	0.0	53.7	35.2	0.0	0.0	30.1	0.0	1.0
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	1.7	0.0	21.1	1.2	0.0	13.9	8.1	0.0	0.0	8.4	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.0	0.0	35.5	66.7	0.0	54.3	86.2	0.0	0.0	81.0	0.0	48.1
LnGrp LOS	F	A	D	E	A	F	F	A	A	F	A	D
Approach Vol, veh/h		822			1040			204			293	
Approach Delay, s/veh		38.0			54.7			86.2			72.4	
Approach LOS		D			D			F			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	9.5	65.7		22.3	9.8	65.5				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	58.0		16.5	5.0	58.0				
Max Q Clear Time (g_c+I1), s		16.7	4.4	45.7		16.2	4.8	61.5				
Green Ext Time (p_c), s		0.0	0.0	4.5		0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			53.8									
HCM 6th LOS			D									

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	474	519	622	300	86
Future Volume (veh/h)	120	474	519	622	300	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	499	546	655	316	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	263	2196	1098	979	381	339
Arrive On Green	0.62	0.62	0.62	0.62	0.21	0.21
Sat Flow, veh/h	466	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	126	499	546	655	316	91
Grp Sat Flow(s),veh/h/ln	466	1777	1777	1585	1781	1585
Q Serve(g_s), s	17.3	4.5	12.1	19.2	12.1	3.4
Cycle Q Clear(g_c), s	36.5	4.5	12.1	19.2	12.1	3.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	263	2196	1098	979	381	339
V/C Ratio(X)	0.48	0.23	0.50	0.67	0.83	0.27
Avail Cap(c_a), veh/h	562	4475	2237	1996	947	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	6.1	7.5	8.9	26.8	23.4
Incr Delay (d2), s/veh	1.3	0.1	0.3	0.8	4.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.2	3.8	5.5	5.2	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.1	6.1	7.9	9.7	31.5	23.8
LnGrp LOS	C	A	A	A	C	C
Approach Vol, veh/h		625	1201		407	
Approach Delay, s/veh		9.3	8.9		29.8	
Approach LOS		A	A		C	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	50.2	21.3	50.2
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	90.0	38.0	90.0
Max Q Clear Time (g_c+I1), s	38.5	14.1	21.2
Green Ext Time (p_c), s	5.7	1.2	12.6

Intersection Summary	
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	209	327	229	329	0	643	0	374	0	0	0
Future Volume (veh/h)	0	209	327	229	329	0	643	0	374	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	220	344	241	346	0	677	0	394	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	378	1160	217	984	0	674	0	392	0	2	0
Arrive On Green	0.00	0.11	0.11	0.12	0.28	0.00	0.63	0.00	0.63	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1077	0	627	0	1870	0
Grp Volume(v), veh/h	0	220	344	241	346	0	1071	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1704	0	0	0	1870	0
Q Serve(g_s), s	0.0	7.3	9.1	15.0	9.6	0.0	77.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.3	9.1	15.0	9.6	0.0	77.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.63		0.37	0.00		0.00
Lane Grp Cap(c), veh/h	1	378	1160	217	984	0	1066	0	0	0	2	0
V/C Ratio(X)	0.00	0.58	0.30	1.11	0.35	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	72	693	1301	217	984	0	1066	0	0	0	152	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	52.4	5.7	54.0	35.6	0.0	23.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.1	93.8	0.2	0.0	28.8	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	0.0	3.2	10.4	12.2	4.1	0.0	35.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	53.8	5.8	147.8	35.9	0.0	51.8	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	D	A	F	D	A	F	A	A	A	A	A
Approach Vol, veh/h		564			587			1071			0	
Approach Delay, s/veh		24.5			81.8			51.8			0.0	
Approach LOS		C			F			D				

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		83.0	21.0	19.1		0.0	0.0	40.1
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		77.0	15.0	24.0		10.0	5.0	34.0
Max Q Clear Time (g_c+I1), s		79.0	17.0	11.1		0.0	0.0	11.6
Green Ext Time (p_c), s		0.0	0.0	1.9		0.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	17.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	232	291	7	24	302	660	5	50	13	251	30	59
Future Vol, veh/h	232	291	7	24	302	660	5	50	13	251	30	59
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	244	306	7	25	318	695	5	53	14	264	32	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1013	0	0	313	0	0	1557	1857	306	1547	1517	666
Stage 1	-	-	-	-	-	-	794	794	-	716	716	-
Stage 2	-	-	-	-	-	-	763	1063	-	831	801	-
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	684	-	-	1247	-	-	92	74	734	~ 93	119	459
Stage 1	-	-	-	-	-	-	381	400	-	421	434	-
Stage 2	-	-	-	-	-	-	397	300	-	364	397	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	684	-	-	1247	-	-	32	~ 40	734	-	64	459
Mov Cap-2 Maneuver	-	-	-	-	-	-	32	~ 40	-	-	64	-
Stage 1	-	-	-	-	-	-	216	227	-	~ 239	410	-
Stage 2	-	-	-	-	-	-	299	283	-	~ 156	225	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.8	0.2	$ 440.6	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	48	684	-	-	1247	-	-	-
HCM Lane V/C Ratio	1.491	0.357	-	-	0.02	-	-	-
HCM Control Delay (s)	$ 440.6	13.2	0	-	7.9	0	-	-
HCM Lane LOS	F	B	A	-	A	A	-	-
HCM 95th %tile Q(veh)	6.9	1.6	-	-	0.1	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	275	132	48	224	73	311	1754	191	102	543	121
Future Volume (veh/h)	134	275	132	48	224	73	311	1754	191	102	543	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	289	139	51	236	77	327	1846	201	107	572	127
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	166	78	72	295	91	349	895	97	71	718	609
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.20	0.54	0.54	0.04	0.38	0.38
Sat Flow, veh/h	251	554	260	149	985	304	1781	1657	180	1781	1870	1585
Grp Volume(v), veh/h	569	0	0	364	0	0	327	0	2047	107	572	127
Grp Sat Flow(s),veh/h/ln	1066	0	0	1439	0	0	1781	0	1838	1781	1870	1585
Q Serve(g_s), s	10.3	0.0	0.0	0.0	0.0	0.0	27.1	0.0	81.0	6.0	40.7	8.0
Cycle Q Clear(g_c), s	45.0	0.0	0.0	34.7	0.0	0.0	27.1	0.0	81.0	6.0	40.7	8.0
Prop In Lane	0.25		0.24	0.14		0.21	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	350	0	0	459	0	0	349	0	992	71	718	609
V/C Ratio(X)	1.63	0.00	0.00	0.79	0.00	0.00	0.94	0.00	2.06	1.50	0.80	0.21
Avail Cap(c_a), veh/h	350	0	0	459	0	0	380	0	992	71	718	609
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.1	0.0	0.0	47.9	0.0	0.0	59.4	0.0	34.5	72.0	41.0	30.9
Incr Delay (d2), s/veh	295.1	0.0	0.0	9.2	0.0	0.0	29.3	0.0	481.6	285.6	6.2	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	41.8	0.0	0.0	13.3	0.0	0.0	14.7	0.0	165.5	8.3	19.1	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	351.1	0.0	0.0	57.1	0.0	0.0	88.7	0.0	516.1	357.6	47.2	31.1
LnGrp LOS	F	A	A	E	A	A	F	A	F	F	D	C
Approach Vol, veh/h		569			364			2374			806	
Approach Delay, s/veh		351.1			57.1			457.3			85.9	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	87.0		51.0	35.4	63.6		51.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		45.0	32.0	55.0		45.0				
Max Q Clear Time (g_c+I1), s	8.0	83.0		47.0	29.1	42.7		36.7				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.3	2.9		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			334.4									
HCM 6th LOS			F									

Intersection	
Int Delay, s/veh	33.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	139	717	1111	141	64	79
Future Vol, veh/h	139	717	1111	141	64	79
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	146	755	1169	148	67	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1317	0	-	0	2216	1169
Stage 1	-	-	-	-	1169	-
Stage 2	-	-	-	-	1047	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	525	-	-	-	~ 48	235
Stage 1	-	-	-	-	295	-
Stage 2	-	-	-	-	338	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	525	-	-	-	~ 25	235
Mov Cap-2 Maneuver	-	-	-	-	~ 25	-
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	338	-

Approach	EB		WB		SB
HCM Control Delay, s	2.4		0		$ 506.3
HCM LOS					F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	525	-	-	-	25	235
HCM Lane V/C Ratio	0.279	-	-	-	2.695	0.354
HCM Control Delay (s)	14.5	0	-	-	$ 1096	28.5
HCM Lane LOS	B	A	-	-	F	D
HCM 95th %tile Q(veh)	1.1	-	-	-	8.3	1.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	38	30	53	51	109	20	490	14	224	653	130
Future Vol, veh/h	103	38	30	53	51	109	20	490	14	224	653	130
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	40	32	56	54	115	21	516	15	236	687	137

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	169	0	0	72	0	0	908	553	56	762	512	112
Stage 1	-	-	-	-	-	-	272	272	-	224	224	-
Stage 2	-	-	-	-	-	-	636	281	-	538	288	-
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	1409	-	-	1528	-	-	256	~ 441	1011	322	~ 465	941
Stage 1	-	-	-	-	-	-	734	685	-	779	718	-
Stage 2	-	-	-	-	-	-	466	678	-	527	~ 674	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1409	-	-	1528	-	-	-	~ 389	1011	-	~ 410	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 389	-	-	~ 410	-
Stage 1	-	-	-	-	-	-	675	630	-	717	689	-
Stage 2	-	-	-	-	-	-	~ 1	650	-	~ 87	~ 620	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.7	1.9		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1409	-	-	1528	-	-	-
HCM Lane V/C Ratio	-	0.077	-	-	0.037	-	-	-
HCM Control Delay (s)	-	7.8	0	-	7.4	0	-	-
HCM Lane LOS	-	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-	0.1	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	441.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	315	224	668	8	276	9	427	33	6	12	60	574
Future Vol, veh/h	315	224	668	8	276	9	427	33	6	12	60	574
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	332	236	703	8	291	9	449	35	6	13	63	604

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	939	0	0	1897	1568	588	1584	1915	296
Stage 1	-	-	-	-	-	-	1252	1252	-	312	312	-
Stage 2	-	-	-	-	-	-	645	316	-	1272	1603	-
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	1261	-	-	730	-	-	~ 53	111	509	88	68	743
Stage 1	-	-	-	-	-	-	~ 211	244	-	699	658	-
Stage 2	-	-	-	-	-	-	461	655	-	206	165	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	730	-	-	-	38	509	~ 10	~ 23	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	38	-	~ 10	~ 23	-
Stage 1	-	-	-	-	-	-	~ 72	83	-	239	649	-
Stage 2	-	-	-	-	-	-	~ 77	646	-	40	~ 56	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	0.3		$ 1782.4
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1261	-	-	730	-	-	141
HCM Lane V/C Ratio	-	0.263	-	-	0.012	-	-	4.823
HCM Control Delay (s)	-	8.9	0	-	10	0		$ 1782.4
HCM Lane LOS	-	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	1.1	-	-	0	-	-	71

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1121	199	312	966	94	88
Future Volume (veh/h)	1121	199	312	966	94	88
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1180	209	328	1017	99	93
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	993	176	223	1528	148	132
Arrive On Green	1.00	1.00	0.13	0.82	0.08	0.08
Sat Flow, veh/h	1547	274	1781	1870	1781	1585
Grp Volume(v), veh/h	0	1389	328	1017	99	93
Grp Sat Flow(s),veh/h/ln	0	1821	1781	1870	1781	1585
Q Serve(g_s), s	0.0	68.1	15.0	26.2	6.5	6.9
Cycle Q Clear(g_c), s	0.0	68.1	15.0	26.2	6.5	6.9
Prop In Lane		0.15	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1169	223	1528	148	132
V/C Ratio(X)	0.00	1.19	1.47	0.67	0.67	0.71
Avail Cap(c_a), veh/h	0	1169	223	1528	245	218
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	52.5	4.4	53.4	53.6
Incr Delay (d2), s/veh	0.0	85.7	235.6	2.3	5.1	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	27.8	21.1	6.6	3.1	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	85.7	288.1	6.7	58.5	60.3
LnGrp LOS	A	F	F	A	E	E
Approach Vol, veh/h	1389			1345	192	
Approach Delay, s/veh	85.7			75.3	59.4	
Approach LOS	F			E	E	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	16.0	21.0	83.0	104.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	16.5	15.0	70.5	91.5
Max Q Clear Time (g_c+I1), s	8.9	17.0	70.1	28.2
Green Ext Time (p_c), s	0.3	0.0	0.3	10.2

Intersection Summary	
HCM 6th Ctrl Delay	79.2
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1003	154	88	843	128	37	2	70	247	93	93
Future Volume (veh/h)	87	1003	154	88	843	128	37	2	70	247	93	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	1056	162	93	887	135	39	2	17	260	98	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	824	126	74	825	126	83	4	36	218	82	264
Arrive On Green	0.04	0.52	0.52	0.08	1.00	1.00	0.07	0.07	0.07	0.17	0.17	0.17
Sat Flow, veh/h	1781	1584	243	1781	1586	241	1158	59	505	1311	494	1585
Grp Volume(v), veh/h	92	0	1218	93	0	1022	58	0	0	358	0	12
Grp Sat Flow(s),veh/h/ln	1781	0	1827	1781	0	1827	1722	0	0	1805	0	1585
Q Serve(g_s), s	5.0	0.0	62.4	5.0	0.0	57.9	3.9	0.0	0.0	20.0	0.0	0.8
Cycle Q Clear(g_c), s	5.0	0.0	62.4	5.0	0.0	57.9	3.9	0.0	0.0	20.0	0.0	0.8
Prop In Lane	1.00		0.13	1.00		0.13	0.67		0.29	0.73		1.00
Lane Grp Cap(c), veh/h	74	0	951	74	0	951	123	0	0	301	0	264
V/C Ratio(X)	1.24	0.00	1.28	1.25	0.00	1.07	0.47	0.00	0.00	1.19	0.00	0.05
Avail Cap(c_a), veh/h	74	0	951	74	0	951	244	0	0	301	0	264
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.69	0.00	0.69	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	28.8	55.0	0.0	0.0	53.6	0.0	0.0	50.0	0.0	42.0
Incr Delay (d2), s/veh	182.1	0.0	134.7	169.5	0.0	47.1	2.8	0.0	0.0	113.7	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	6.0	0.0	61.6	5.6	0.0	12.5	1.7	0.0	0.0	18.5	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	239.6	0.0	163.5	224.5	0.0	47.1	56.4	0.0	0.0	163.7	0.0	42.1
LnGrp LOS	F	A	F	F	A	F	E	A	A	F	A	D
Approach Vol, veh/h		1310			1115			58			370	
Approach Delay, s/veh		168.8			61.9			56.4			159.8	
Approach LOS		F			E			E			F	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.6	11.0	68.4		26.0	11.0	68.4				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		17.0	5.0	54.0		20.0	5.0	54.0				
Max Q Clear Time (g_c+I1), s		5.9	7.0	64.4		22.0	7.0	59.9				
Green Ext Time (p_c), s		0.1	0.0	0.0		0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			123.6									
HCM 6th LOS			F									

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	457	444	505	648	143
Future Volume (veh/h)	72	457	444	505	648	143
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	481	467	532	682	151
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	177	1586	793	707	740	658
Arrive On Green	0.45	0.45	0.45	0.45	0.42	0.42
Sat Flow, veh/h	564	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	76	481	467	532	682	151
Grp Sat Flow(s),veh/h/ln	564	1777	1777	1585	1781	1585
Q Serve(g_s), s	11.3	7.5	17.1	24.2	31.4	5.3
Cycle Q Clear(g_c), s	35.5	7.5	17.1	24.2	31.4	5.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	177	1586	793	707	740	658
V/C Ratio(X)	0.43	0.30	0.59	0.75	0.92	0.23
Avail Cap(c_a), veh/h	192	1681	841	750	966	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	15.4	18.0	20.0	24.0	16.4
Incr Delay (d2), s/veh	1.6	0.1	1.0	4.1	11.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.7	6.8	9.1	14.3	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.4	15.5	19.0	24.0	35.7	16.6
LnGrp LOS	D	B	B	C	D	B
Approach Vol, veh/h		557	999		833	
Approach Delay, s/veh		18.3	21.7		32.2	
Approach LOS		B	C		C	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	44.7	42.0	44.7
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	41.0	47.0	41.0
Max Q Clear Time (g_c+I1), s	37.5	33.4	26.2
Green Ext Time (p_c), s	1.2	2.5	6.1

Intersection Summary	
HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	372	693	358	263	0	369	0	224	0	0	0
Future Volume (veh/h)	0	372	693	358	263	0	369	0	224	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	392	729	377	277	0	388	0	236	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	780	962	407	1787	0	410	0	249	0	2	0
Arrive On Green	0.00	0.22	0.22	0.23	0.50	0.00	0.39	0.00	0.39	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1058	0	644	0	1870	0
Grp Volume(v), veh/h	0	392	729	377	277	0	624	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1702	0	0	0	1870	0
Q Serve(g_s), s	0.0	10.6	24.0	22.6	4.6	0.0	38.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.6	24.0	22.6	4.6	0.0	38.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.62		0.38	0.00		0.00
Lane Grp Cap(c), veh/h	2	780	962	407	1787	0	659	0	0	0	2	0
V/C Ratio(X)	0.00	0.50	0.76	0.93	0.16	0.00	0.95	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	81	780	962	440	1787	0	701	0	0	0	171	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	37.4	13.2	41.3	14.7	0.0	32.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	3.5	24.9	0.0	0.0	21.2	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	0.0	4.4	20.1	12.3	1.7	0.0	18.9	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	37.9	16.7	66.2	14.7	0.0	53.6	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	D	B	E	B	A	D	A	A	A	A	A
Approach Vol, veh/h		1121			654			624			0	
Approach Delay, s/veh		24.1			44.4			53.6			0.0	
Approach LOS		C			D			D				

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		48.3	30.9	30.0		0.0	0.0	60.9
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		45.0	27.0	24.0		10.0	5.0	46.0
Max Q Clear Time (g_c+I1), s		40.8	24.6	26.0		0.0	0.0	6.6
Green Ext Time (p_c), s		1.6	0.3	0.0		0.0	0.0	1.7

Intersection Summary			
HCM 6th Ctrl Delay			37.3
HCM 6th LOS			D

Intersection	
Int Delay, s/veh	1766.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	122	284	4	19	294	323	14	71	13	748	54	204
Future Vol, veh/h	122	284	4	19	294	323	14	71	13	748	54	204
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	128	299	4	20	309	340	15	75	14	787	57	215

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	649	0	0	303	0	0	1210	1244	299	1121	1078	479
Stage 1	-	-	-	-	-	-	555	555	-	519	519	-
Stage 2	-	-	-	-	-	-	655	689	-	602	559	-
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	937	-	-	1258	-	-	159	174	741	~ 183	219	587
Stage 1	-	-	-	-	-	-	516	513	-	~ 540	533	-
Stage 2	-	-	-	-	-	-	455	446	-	~ 486	511	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	937	-	-	1258	-	-	66	142	741	~ 92	178	587
Mov Cap-2 Maneuver	-	-	-	-	-	-	66	142	-	~ 92	178	-
Stage 1	-	-	-	-	-	-	431	429	-	~ 451	519	-
Stage 2	-	-	-	-	-	-	250	434	-	~ 329	427	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.2	89.6	$ 3764.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	134	937	-	-	1258	-	-	115
HCM Lane V/C Ratio	0.77	0.137	-	-	0.016	-	-	9.208
HCM Control Delay (s)	89.6	9.5	0	-	7.9	0		$ 3764.8
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4.6	0.5	-	-	0	-	-	121.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	225	433	137	385	93	251	1156	91	73	1689	134
Future Volume (veh/h)	118	225	433	137	385	93	251	1156	91	73	1689	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	237	456	144	405	98	264	1217	96	77	1778	141
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	129	240	95	201	48	154	844	67	83	848	719
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.09	0.49	0.49	0.05	0.45	0.45
Sat Flow, veh/h	179	380	705	193	591	140	1781	1711	135	1781	1870	1585
Grp Volume(v), veh/h	817	0	0	647	0	0	264	0	1313	77	1778	141
Grp Sat Flow(s),veh/h/ln	1264	0	0	923	0	0	1781	0	1846	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	74.0	6.5	68.0	8.0
Cycle Q Clear(g_c), s	51.0	0.0	0.0	51.0	0.0	0.0	13.0	0.0	74.0	6.5	68.0	8.0
Prop In Lane	0.15		0.56	0.22		0.15	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	457	0	0	343	0	0	154	0	911	83	848	719
V/C Ratio(X)	1.79	0.00	0.00	1.88	0.00	0.00	1.71	0.00	1.44	0.93	2.10	0.20
Avail Cap(c_a), veh/h	457	0	0	343	0	0	154	0	911	83	848	719
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	0.0	0.0	51.0	0.0	0.0	68.5	0.0	38.0	71.2	41.0	24.6
Incr Delay (d2), s/veh	362.5	0.0	0.0	409.0	0.0	0.0	345.5	0.0	205.0	74.3	497.7	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	62.9	0.0	0.0	51.8	0.0	0.0	20.6	0.0	82.6	4.6	146.3	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	413.2	0.0	0.0	459.9	0.0	0.0	414.0	0.0	243.0	145.5	538.7	24.7
LnGrp LOS	F	A	A	F	A	A	F	A	F	F	F	C
Approach Vol, veh/h		817			647			1577			1996	
Approach Delay, s/veh		413.2			459.9			271.6			487.2	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	80.0		57.0	19.0	74.0		57.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	74.0		51.0	13.0	68.0		51.0				
Max Q Clear Time (g_c+I1), s	8.5	76.0		53.0	15.0	70.0		53.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			404.2									
HCM 6th LOS			F									

Intersection	
Int Delay, s/veh	93.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	78	1127	913	60	117	134
Future Vol, veh/h	78	1127	913	60	117	134
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	1186	961	63	123	141

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1024	0	-	0	2311	961
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	1350	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	678	-	-	-	~ 42	311
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	241	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	678	-	-	-	~ 27	311
Mov Cap-2 Maneuver	-	-	-	-	~ 27	-
Stage 1	-	-	-	-	239	-
Stage 2	-	-	-	-	241	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	$ 897.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	678	-	-	-	27	311
HCM Lane V/C Ratio	0.121	-	-	-	4.561	0.454
HCM Control Delay (s)	11	0	-	$ 1896.6		25.8
HCM Lane LOS	B	A	-	-	F	D
HCM 95th %tile Q(veh)	0.4	-	-	-	15.1	2.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX I -

BUILDOUT (2035) WITH PHASE I, II & III PROJECT PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	124

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	17	11	34	28	102	28	680	8	20	270	72
Future Vol, veh/h	53	17	11	34	28	102	28	680	8	20	270	72
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	18	12	36	29	107	29	716	8	21	284	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	30	0	0	471	344	24	653	297	83
Stage 1	-	-	-	-	-	-	136	136	-	155	155	-
Stage 2	-	-	-	-	-	-	335	208	-	498	142	-
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	1448	-	-	1583	-	-	503	~ 579	1052	380	615	976
Stage 1	-	-	-	-	-	-	867	784	-	847	769	-
Stage 2	-	-	-	-	-	-	679	730	-	554	779	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1583	-	-	272	~ 543	1052	-	576	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	272	~ 543	-	-	576	-
Stage 1	-	-	-	-	-	-	833	753	-	814	750	-
Stage 2	-	-	-	-	-	-	379	~ 712	-	26	749	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5	1.5	228.3	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	525	1448	-	-	1583	-	-	-
HCM Lane V/C Ratio	1.436	0.039	-	-	0.023	-	-	-
HCM Control Delay (s)	228.3	7.6	0	-	7.3	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	36.4	0.1	-	-	0.1	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6153

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	578	141	236	44	159	12	546	70	10	4	14	202
Future Vol, veh/h	578	141	236	44	159	12	546	70	10	4	14	202
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	608	148	248	46	167	13	575	74	11	4	15	213

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	180	0	0	396	0	0	1868	1760	272	1797	1878	174
Stage 1	-	-	-	-	-	-	1488	1488	-	266	266	-
Stage 2	-	-	-	-	-	-	380	272	-	1531	1612	-
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	1396	-	-	1163	-	-	~ 55	84	767	62	71	869
Stage 1	-	-	-	-	-	-	~ 155	188	-	739	689	-
Stage 2	-	-	-	-	-	-	642	685	-	146	163	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1396	-	-	1163	-	-	~ 14	~ 34	767	-	29	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 14	~ 34	-	-	29	-
Stage 1	-	-	-	-	-	-	~ 65	79	-	311	659	-
Stage 2	-	-	-	-	-	-	~ 453	655	-	~ 4	69	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.8	1.7	$ 19806	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	15	1396	-	-	1163	-	-	-
HCM Lane V/C Ratio	43.93	0.436	-	-	0.04	-	-	-
HCM Control Delay (s)	$ 19806	9.6	0	-	8.2	0	-	-
HCM Lane LOS	F	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	83.5	2.3	-	-	0.1	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	897	270	202	706	292	59
Future Volume (veh/h)	897	270	202	706	292	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	944	284	213	743	307	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	817	246	178	1387	282	251
Arrive On Green	1.00	1.00	0.10	0.74	0.16	0.16
Sat Flow, veh/h	1380	415	1781	1870	1781	1585
Grp Volume(v), veh/h	0	1228	213	743	307	62
Grp Sat Flow(s),veh/h/ln	0	1796	1781	1870	1781	1585
Q Serve(g_s), s	0.0	65.2	12.0	20.4	19.0	4.1
Cycle Q Clear(g_c), s	0.0	65.2	12.0	20.4	19.0	4.1
Prop In Lane		0.23	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1062	178	1387	282	251
V/C Ratio(X)	0.00	1.16	1.20	0.54	1.09	0.25
Avail Cap(c_a), veh/h	0	1062	178	1387	282	251
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.42	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	54.0	6.6	50.5	44.2
Incr Delay (d2), s/veh	0.0	75.1	129.9	1.5	79.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	22.2	11.7	6.8	14.6	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	75.1	183.9	8.1	129.8	44.7
LnGrp LOS	A	F	F	A	F	D
Approach Vol, veh/h	1228			956	369	
Approach Delay, s/veh	75.1			47.3	115.5	
Approach LOS	E			D	F	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		25.0	18.0	77.0				95.0
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		19.0	12.0	71.0				89.0
Max Q Clear Time (g_c+I1), s		21.0	14.0	67.2				22.4
Green Ext Time (p_c), s		0.0	0.0	2.8				5.6

Intersection Summary		
HCM 6th Ctrl Delay		70.5
HCM 6th LOS		E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	714	34	35	908	53	63	0	269	182	23	316
Future Volume (veh/h)	41	714	34	35	908	53	63	0	269	182	23	316
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	752	36	37	956	56	66	0	147	192	24	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	880	42	53	866	51	70	0	156	216	27	215
Arrive On Green	0.03	0.50	0.50	0.06	0.99	0.99	0.14	0.00	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	1770	85	1781	1749	102	509	0	1133	1592	199	1585
Grp Volume(v), veh/h	43	0	788	37	0	1012	213	0	0	216	0	107
Grp Sat Flow(s),veh/h/ln	1781	0	1855	1781	0	1852	1641	0	0	1791	0	1585
Q Serve(g_s), s	2.9	0.0	44.5	2.4	0.0	59.4	15.4	0.0	0.0	14.2	0.0	7.5
Cycle Q Clear(g_c), s	2.9	0.0	44.5	2.4	0.0	59.4	15.4	0.0	0.0	14.2	0.0	7.5
Prop In Lane	1.00		0.05	1.00		0.06	0.31		0.69	0.89		1.00
Lane Grp Cap(c), veh/h	57	0	923	53	0	917	226	0	0	243	0	215
V/C Ratio(X)	0.76	0.00	0.85	0.70	0.00	1.10	0.94	0.00	0.00	0.89	0.00	0.50
Avail Cap(c_a), veh/h	74	0	923	74	0	917	226	0	0	246	0	218
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.65	0.00	0.65	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	26.4	55.9	0.0	0.6	51.3	0.0	0.0	51.0	0.0	48.1
Incr Delay (d2), s/veh	27.5	0.0	9.9	10.6	0.0	57.6	44.4	0.0	0.0	30.0	0.0	1.8
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	1.7	0.0	21.6	1.2	0.0	14.9	8.9	0.0	0.0	8.4	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	0.0	36.3	66.5	0.0	58.2	95.7	0.0	0.0	81.0	0.0	49.9
LnGrp LOS	F	A	D	E	A	F	F	A	A	F	A	D
Approach Vol, veh/h		831			1049			213			323	
Approach Delay, s/veh		38.8			58.5			95.7			70.7	
Approach LOS		D			E			F			E	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	9.5	65.7		22.3	9.8	65.4				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	58.0		16.5	5.0	58.0				
Max Q Clear Time (g_c+I1), s		17.4	4.4	46.5		16.2	4.9	61.4				
Green Ext Time (p_c), s		0.0	0.0	4.4		0.0	0.0	0.0				

Intersection Summary			
HCM 6th Ctrl Delay			56.6
HCM 6th LOS			E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	491	523	625	311	86
Future Volume (veh/h)	120	491	523	625	311	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	517	551	658	327	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	258	2201	1101	982	390	347
Arrive On Green	0.62	0.62	0.62	0.62	0.22	0.22
Sat Flow, veh/h	462	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	126	517	551	658	327	91
Grp Sat Flow(s),veh/h/ln	462	1777	1777	1585	1781	1585
Q Serve(g_s), s	18.1	4.8	12.7	20.1	13.0	3.5
Cycle Q Clear(g_c), s	38.2	4.8	12.7	20.1	13.0	3.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	258	2201	1101	982	390	347
V/C Ratio(X)	0.49	0.23	0.50	0.67	0.84	0.26
Avail Cap(c_a), veh/h	532	4304	2152	1920	911	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	6.3	7.8	9.2	27.8	24.0
Incr Delay (d2), s/veh	1.4	0.1	0.4	0.8	4.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.3	4.1	5.8	5.6	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.0	6.3	8.2	10.0	32.6	24.4
LnGrp LOS	C	A	A	A	C	C
Approach Vol, veh/h		643	1209		418	
Approach Delay, s/veh		9.6	9.2		30.8	
Approach LOS		A	A		C	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				52.0		22.3		52.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				90.0		38.0		90.0
Max Q Clear Time (g_c+I1), s				40.2		15.0		22.1
Green Ext Time (p_c), s				5.8		1.2		12.7

Intersection Summary		
HCM 6th Ctrl Delay		13.3
HCM 6th LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	223	327	230	333	0	643	0	376	0	0	0
Future Volume (veh/h)	0	223	327	230	333	0	643	0	376	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	235	344	242	351	0	677	0	396	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	380	1160	217	986	0	672	0	393	0	2	0
Arrive On Green	0.00	0.11	0.11	0.12	0.28	0.00	0.63	0.00	0.63	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1075	0	629	0	1870	0
Grp Volume(v), veh/h	0	235	344	242	351	0	1073	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1703	0	0	0	1870	0
Q Serve(g_s), s	0.0	7.8	9.1	15.0	9.8	0.0	77.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.8	9.1	15.0	9.8	0.0	77.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.63		0.37	0.00		0.00
Lane Grp Cap(c), veh/h	1	380	1160	217	986	0	1065	0	0	0	2	0
V/C Ratio(X)	0.00	0.62	0.30	1.12	0.36	0.00	1.01	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	72	693	1300	217	986	0	1065	0	0	0	152	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	52.6	5.6	54.1	35.7	0.0	23.1	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	0.1	95.5	0.2	0.0	29.4	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	0.0	3.4	10.4	12.3	4.1	0.0	35.7	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	54.3	5.8	149.6	35.9	0.0	52.5	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	D	A	F	D	A	F	A	A	A	A	A
Approach Vol, veh/h		579			593			1073			0	
Approach Delay, s/veh		25.5			82.3			52.5			0.0	
Approach LOS		C			F			D				
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		83.0	21.0	19.2		0.0	0.0	40.2				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		77.0	15.0	24.0		10.0	5.0	34.0				
Max Q Clear Time (g_c+I1), s		79.0	17.0	11.1		0.0	0.0	11.8				
Green Ext Time (p_c), s		0.0	0.0	2.0		0.0	0.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			53.4									
HCM 6th LOS			D									

Intersection	
Int Delay, s/veh	18.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	232	302	7	24	305	660	5	50	15	253	30	59
Future Vol, veh/h	232	302	7	24	305	660	5	50	15	253	30	59
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	244	318	7	25	321	695	5	53	16	266	32	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1016	0	0	325	0	0	1572	1872	318	1563	1532	669
Stage 1	-	-	-	-	-	-	806	806	-	719	719	-
Stage 2	-	-	-	-	-	-	766	1066	-	844	813	-
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	683	-	-	1235	-	-	89	72	723	~ 91	117	458
Stage 1	-	-	-	-	-	-	376	395	-	420	433	-
Stage 2	-	-	-	-	-	-	395	299	-	358	392	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	683	-	-	1235	-	-	31	~ 38	723	-	62	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	31	~ 38	-	-	62	-
Stage 1	-	-	-	-	-	-	212	223	-	~ 237	409	-
Stage 2	-	-	-	-	-	-	297	282	-	~ 151	221	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.6	0.2	$ 474.6	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	47	683	-	-	1235	-	-	-
HCM Lane V/C Ratio	1.568	0.358	-	-	0.02	-	-	-
HCM Control Delay (s)	$ 474.6	13.2	0	-	8	0	-	-
HCM Lane LOS	F	B	A	-	A	A	-	-
HCM 95th %tile Q(veh)	7.2	1.6	-	-	0.1	-	-	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	277	132	48	225	75	311	1754	193	110	543	121
Future Volume (veh/h)	134	277	132	48	225	75	311	1754	193	110	543	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	292	139	51	237	79	327	1846	203	116	572	127
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	166	77	72	294	93	349	894	98	71	718	609
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.20	0.54	0.54	0.04	0.38	0.38
Sat Flow, veh/h	248	552	257	148	981	310	1781	1656	182	1781	1870	1585
Grp Volume(v), veh/h	572	0	0	367	0	0	327	0	2049	116	572	127
Grp Sat Flow(s),veh/h/ln	1058	0	0	1439	0	0	1781	0	1838	1781	1870	1585
Q Serve(g_s), s	9.9	0.0	0.0	0.0	0.0	0.0	27.1	0.0	81.0	6.0	40.7	8.0
Cycle Q Clear(g_c), s	45.0	0.0	0.0	35.1	0.0	0.0	27.1	0.0	81.0	6.0	40.7	8.0
Prop In Lane	0.25		0.24	0.14		0.22	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	347	0	0	459	0	0	349	0	992	71	718	609
V/C Ratio(X)	1.65	0.00	0.00	0.80	0.00	0.00	0.94	0.00	2.06	1.63	0.80	0.21
Avail Cap(c_a), veh/h	347	0	0	459	0	0	380	0	992	71	718	609
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	0.0	0.0	48.0	0.0	0.0	59.4	0.0	34.5	72.0	41.0	30.9
Incr Delay (d2), s/veh	304.0	0.0	0.0	9.7	0.0	0.0	29.3	0.0	482.7	337.5	6.2	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	42.3	0.0	0.0	13.5	0.0	0.0	14.7	0.0	165.7	9.3	19.1	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	360.0	0.0	0.0	57.7	0.0	0.0	88.7	0.0	517.2	409.5	47.2	31.1
LnGrp LOS	F	A	A	E	A	A	F	A	F	F	D	C
Approach Vol, veh/h		572			367			2376			815	
Approach Delay, s/veh		360.0			57.7			458.2			96.3	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	87.0		51.0	35.4	63.6		51.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		45.0	32.0	55.0		45.0				
Max Q Clear Time (g_c+I1), s	8.0	83.0		47.0	29.1	42.7		37.1				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.3	2.9		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	337.6
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	60.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	167	717	1111	176	72	86
Future Vol, veh/h	167	717	1111	176	72	86
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	176	755	1169	185	76	91

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1354	0	-	0	2276	1169
Stage 1	-	-	-	-	1169	-
Stage 2	-	-	-	-	1107	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	508	-	-	-	~ 44	235
Stage 1	-	-	-	-	295	-
Stage 2	-	-	-	-	316	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	508	-	-	-	~ 18	235
Mov Cap-2 Maneuver	-	-	-	-	~ 18	-
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	316	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	$ 871.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	508	-	-	-	18	235
HCM Lane V/C Ratio	0.346	-	-	-	4.211	0.385
HCM Control Delay (s)	15.8	0	-	-	$ 1876.5	29.6
HCM Lane LOS	C	A	-	-	F	D
HCM 95th %tile Q(veh)	1.5	-	-	-	10.1	1.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	38	30	53	51	109	20	490	14	224	653	130
Future Vol, veh/h	103	38	30	53	51	109	20	490	14	224	653	130
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	40	32	56	54	115	21	516	15	236	687	137

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	169	0	0	72	0	0	908	553	56	762	512	112
Stage 1	-	-	-	-	-	-	272	272	-	224	224	-
Stage 2	-	-	-	-	-	-	636	281	-	538	288	-
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	1409	-	-	1528	-	-	256	~ 441	1011	322	~ 465	941
Stage 1	-	-	-	-	-	-	734	685	-	779	718	-
Stage 2	-	-	-	-	-	-	466	678	-	527	~ 674	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1409	-	-	1528	-	-	-	~ 389	1011	-	~ 410	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 389	-	-	~ 410	-
Stage 1	-	-	-	-	-	-	675	630	-	717	689	-
Stage 2	-	-	-	-	-	-	~ 1	650	-	~ 87	~ 620	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.7	1.9		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1409	-	-	1528	-	-	-
HCM Lane V/C Ratio	-	0.077	-	-	0.037	-	-	-
HCM Control Delay (s)	-	7.8	0	-	7.4	0	-	-
HCM Lane LOS	-	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-	0.1	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	479

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	315	225	668	8	277	9	427	33	6	12	60	574
Future Vol, veh/h	315	225	668	8	277	9	427	33	6	12	60	574
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	332	237	703	8	292	9	449	35	6	13	63	604

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	301	0	0	940	0	0	1899	1570	589	1586	1917	297
Stage 1	-	-	-	-	-	-	1253	1253	-	313	313	-
Stage 2	-	-	-	-	-	-	646	317	-	1273	1604	-
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	1260	-	-	729	-	-	~ 53	111	508	87	67	742
Stage 1	-	-	-	-	-	-	~ 211	244	-	698	657	-
Stage 2	-	-	-	-	-	-	460	654	-	205	165	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1260	-	-	729	-	-	-	37	508	~ 8	~ 23	742
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	37	-	~ 8	~ 23	-
Stage 1	-	-	-	-	-	-	~ 72	83	-	238	648	-
Stage 2	-	-	-	-	-	-	~ 76	645	-	40	~ 56	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	0.3		$ 1933.7
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1260	-	-	729	-	-	132
HCM Lane V/C Ratio	-	0.263	-	-	0.012	-	-	5.152
HCM Control Delay (s)	-	8.9	0	-	10	0		$ 1933.7
HCM Lane LOS	-	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	1.1	-	-	0	-	-	72

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1123	217	312	967	96	88
Future Volume (veh/h)	1123	217	312	967	96	88
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1182	228	328	1018	101	93
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	978	189	223	1528	148	132
Arrive On Green	1.00	1.00	0.13	0.82	0.08	0.08
Sat Flow, veh/h	1524	294	1781	1870	1781	1585
Grp Volume(v), veh/h	0	1410	328	1018	101	93
Grp Sat Flow(s),veh/h/ln	0	1817	1781	1870	1781	1585
Q Serve(g_s), s	0.0	72.3	15.0	26.3	6.6	6.9
Cycle Q Clear(g_c), s	0.0	72.3	15.0	26.3	6.6	6.9
Prop In Lane		0.16	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1166	223	1528	148	132
V/C Ratio(X)	0.00	1.21	1.47	0.67	0.68	0.71
Avail Cap(c_a), veh/h	0	1166	223	1528	245	218
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	52.5	4.4	53.5	53.6
Incr Delay (d2), s/veh	0.0	94.8	235.6	2.3	5.4	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	30.7	21.1	6.7	3.2	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	94.8	288.1	6.7	58.9	60.3
LnGrp LOS	A	F	F	A	E	E
Approach Vol, veh/h	1410			1346	194	
Approach Delay, s/veh	94.8			75.3	59.6	
Approach LOS	F			E	E	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		16.0	21.0	83.0				104.0
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		16.5	15.0	70.5				91.5
Max Q Clear Time (g_c+I1), s		8.9	17.0	74.3				28.3
Green Ext Time (p_c), s		0.3	0.0	0.0				10.2

Intersection Summary			
HCM 6th Ctrl Delay			83.6
HCM 6th LOS			F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	1023	157	88	845	128	38	2	70	247	93	99
Future Volume (veh/h)	92	1023	157	88	845	128	38	2	70	247	93	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	1077	165	93	889	135	40	2	18	260	98	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	823	126	74	824	125	83	4	37	218	82	264
Arrive On Green	0.04	0.52	0.52	0.08	1.00	1.00	0.07	0.07	0.07	0.17	0.17	0.17
Sat Flow, veh/h	1781	1584	243	1781	1586	241	1147	57	516	1311	494	1585
Grp Volume(v), veh/h	97	0	1242	93	0	1024	60	0	0	358	0	12
Grp Sat Flow(s),veh/h/ln	1781	0	1827	1781	0	1827	1720	0	0	1805	0	1585
Q Serve(g_s), s	5.0	0.0	62.4	5.0	0.0	62.4	4.0	0.0	0.0	20.0	0.0	0.8
Cycle Q Clear(g_c), s	5.0	0.0	62.4	5.0	0.0	62.4	4.0	0.0	0.0	20.0	0.0	0.8
Prop In Lane	1.00		0.13	1.00		0.13	0.67		0.30	0.73		1.00
Lane Grp Cap(c), veh/h	74	0	949	74	0	949	124	0	0	301	0	264
V/C Ratio(X)	1.31	0.00	1.31	1.25	0.00	1.08	0.48	0.00	0.00	1.19	0.00	0.05
Avail Cap(c_a), veh/h	74	0	949	74	0	949	258	0	0	301	0	264
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.68	0.00	0.68	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	28.8	55.0	0.0	0.0	53.5	0.0	0.0	50.0	0.0	42.0
Incr Delay (d2), s/veh	207.0	0.0	146.5	168.9	0.0	48.3	2.9	0.0	0.0	113.7	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	6.5	0.0	64.6	5.6	0.0	12.7	1.8	0.0	0.0	18.5	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	264.5	0.0	175.3	223.9	0.0	48.3	56.4	0.0	0.0	163.7	0.0	42.1
LnGrp LOS	F	A	F	F	A	F	E	A	A	F	A	D
Approach Vol, veh/h		1339			1117			60			370	
Approach Delay, s/veh		181.7			63.0			56.4			159.8	
Approach LOS		F			E			E			F	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.6	11.0	68.4		26.0	11.0	68.4				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		18.0	5.0	53.0		20.0	5.0	53.0				
Max Q Clear Time (g_c+I1), s		6.0	7.0	64.4		22.0	7.0	64.4				
Green Ext Time (p_c), s		0.1	0.0	0.0		0.0	0.0	0.0				

Intersection Summary			
HCM 6th Ctrl Delay			130.4
HCM 6th LOS			F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	464	462	515	651	143
Future Volume (veh/h)	72	464	462	515	651	143
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	488	486	542	685	151
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	171	1598	799	713	740	659
Arrive On Green	0.45	0.45	0.45	0.45	0.42	0.42
Sat Flow, veh/h	549	3647	1870	1585	1781	1585
Grp Volume(v), veh/h	76	488	486	542	685	151
Grp Sat Flow(s),veh/h/ln	549	1777	1777	1585	1781	1585
Q Serve(g_s), s	12.0	7.8	18.4	25.5	32.5	5.5
Cycle Q Clear(g_c), s	37.4	7.8	18.4	25.5	32.5	5.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	171	1598	799	713	740	659
V/C Ratio(X)	0.45	0.31	0.61	0.76	0.93	0.23
Avail Cap(c_a), veh/h	177	1637	819	730	941	837
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	15.6	18.6	20.5	24.7	16.8
Incr Delay (d2), s/veh	1.8	0.1	1.3	4.6	12.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.9	7.4	9.7	15.0	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.9	15.7	19.8	25.1	37.3	17.0
LnGrp LOS	D	B	B	C	D	B
Approach Vol, veh/h		564	1028		836	
Approach Delay, s/veh		18.7	22.6		33.6	
Approach LOS		B	C		C	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				46.0		43.0		46.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				41.0		47.0		41.0
Max Q Clear Time (g_c+I1), s				39.4		34.5		27.5
Green Ext Time (p_c), s				0.6		2.5		6.0

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	378	693	360	279	0	369	0	225	0	0	0
Future Volume (veh/h)	0	378	693	360	279	0	369	0	225	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	398	729	379	294	0	388	0	237	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	777	964	406	1782	0	411	0	251	0	2	0
Arrive On Green	0.00	0.22	0.22	0.23	0.50	0.00	0.39	0.00	0.39	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1056	0	645	0	1870	0
Grp Volume(v), veh/h	0	398	729	379	294	0	625	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1701	0	0	0	1870	0
Q Serve(g_s), s	0.0	10.8	24.0	22.9	4.9	0.0	38.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.8	24.0	22.9	4.9	0.0	38.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.62		0.38	0.00		0.00
Lane Grp Cap(c), veh/h	2	777	964	406	1782	0	663	0	0	0	2	0
V/C Ratio(X)	0.00	0.51	0.76	0.93	0.17	0.00	0.94	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	81	777	964	422	1782	0	713	0	0	0	170	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	37.8	13.1	41.6	14.9	0.0	32.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	3.5	27.2	0.0	0.0	20.3	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	0.0	4.5	20.2	12.7	1.9	0.0	18.8	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.3	16.6	68.7	14.9	0.0	52.7	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	D	B	E	B	A	D	A	A	A	A	A
Approach Vol, veh/h		1127			673			625			0	
Approach Delay, s/veh		24.3			45.2			52.7			0.0	
Approach LOS		C			D			D				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		48.8	31.1	30.0		0.0	0.0	61.1				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		46.0	26.0	24.0		10.0	5.0	45.0				
Max Q Clear Time (g_c+I1), s		40.9	24.9	26.0		0.0	0.0	6.9				
Green Ext Time (p_c), s		1.8	0.2	0.0		0.0	0.0	1.8				

Intersection Summary			
HCM 6th Ctrl Delay			37.4
HCM 6th LOS			D

Intersection	
Int Delay, s/veh	1918.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	122	288	4	21	306	325	14	71	14	749	54	204
Future Vol, veh/h	122	288	4	21	306	325	14	71	14	749	54	204
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	-	-	200	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	128	303	4	22	322	342	15	75	15	788	57	215

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	664	0	0	307	0	0	1232	1267	303	1143	1100	493
Stage 1	-	-	-	-	-	-	559	559	-	537	537	-
Stage 2	-	-	-	-	-	-	673	708	-	606	563	-
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	925	-	-	1254	-	-	154	169	737	~ 177	212	576
Stage 1	-	-	-	-	-	-	513	511	-	~ 528	523	-
Stage 2	-	-	-	-	-	-	445	438	-	~ 484	509	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	925	-	-	1254	-	-	62	137	737	~ 85	171	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	62	137	-	~ 85	171	-
Stage 1	-	-	-	-	-	-	427	426	-	~ 440	507	-
Stage 2	-	-	-	-	-	-	240	425	-	~ 326	424	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.3	97.5	$ 4126.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	130	925	-	-	1254	-	-	106
HCM Lane V/C Ratio	0.802	0.139	-	-	0.018	-	-	10
HCM Control Delay (s)	97.5	9.5	0	-	7.9	0		$ 4126.4
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4.8	0.5	-	-	0.1	-	-	122.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	226	433	139	387	102	251	1156	92	76	1689	134
Future Volume (veh/h)	118	226	433	139	387	102	251	1156	92	76	1689	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	238	456	146	407	107	264	1217	97	80	1778	141
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	132	244	96	201	52	154	821	65	95	835	708
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.48	0.48	0.05	0.45	0.45
Sat Flow, veh/h	178	380	703	192	581	149	1781	1710	136	1781	1870	1585
Grp Volume(v), veh/h	818	0	0	660	0	0	264	0	1314	80	1778	141
Grp Sat Flow(s),veh/h/ln	1261	0	0	922	0	0	1781	0	1846	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	72.0	6.7	67.0	8.1
Cycle Q Clear(g_c), s	52.0	0.0	0.0	52.0	0.0	0.0	13.0	0.0	72.0	6.7	67.0	8.1
Prop In Lane	0.15		0.56	0.22		0.16	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	465	0	0	349	0	0	154	0	886	95	835	708
V/C Ratio(X)	1.76	0.00	0.00	1.89	0.00	0.00	1.71	0.00	1.48	0.84	2.13	0.20
Avail Cap(c_a), veh/h	465	0	0	349	0	0	154	0	886	95	835	708
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	0.0	0.0	50.5	0.0	0.0	68.5	0.0	39.0	70.4	41.5	25.2
Incr Delay (d2), s/veh	350.7	0.0	0.0	411.9	0.0	0.0	345.5	0.0	223.4	46.1	511.7	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	62.3	0.0	0.0	52.9	0.0	0.0	20.6	0.0	85.1	4.2	147.5	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	400.9	0.0	0.0	462.4	0.0	0.0	414.0	0.0	262.4	116.5	553.2	25.3
LnGrp LOS	F	A	A	F	A	A	F	A	F	F	F	C
Approach Vol, veh/h		818			660			1578			1999	
Approach Delay, s/veh		400.9			462.4			287.8			498.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	78.0		58.0	19.0	73.0		58.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	72.0		52.0	13.0	67.0		52.0				
Max Q Clear Time (g_c+I1), s	8.7	74.0		54.0	15.0	69.0		54.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			412.2									
HCM 6th LOS			F									

Intersection	
Int Delay, s/veh	160.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	88	1127	913	69	145	162
Future Vol, veh/h	88	1127	913	69	145	162
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	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	1186	961	73	153	171

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1034	0	-	0	2333	961
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	1372	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	672	-	-	-	~ 41	311
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	236	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	672	-	-	-	~ 24	311
Mov Cap-2 Maneuver	-	-	-	-	~ 24	-
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	236	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	$ 1306.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	672	-	-	-	24	311
HCM Lane V/C Ratio	0.138	-	-	-	6.36	0.548
HCM Control Delay (s)	11.2	0	-	$ 2733.3		29.8
HCM Lane LOS	B	A	-	-	F	D
HCM 95th %tile Q(veh)	0.5	-	-	-	19.1	3.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX J -

INTERSECTION QUEUE ANALYSIS WORKSHEETS

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	70	58	24	101	37
Average Queue (ft)	31	36	8	57	19
95th Queue (ft)	76	78	32	114	47
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	34	48	4	83	49	77	89
Average Queue (ft)	22	20	1	39	29	42	54
95th Queue (ft)	41	61	8	90	57	87	98
Link Distance (ft)		327		1082	526	1304	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	170		500				700
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	SB	SB
Directions Served	LT	R	L	R
Maximum Queue (ft)	67	4	51	28
Average Queue (ft)	34	1	24	21
95th Queue (ft)	78	7	56	35
Link Distance (ft)	438	327	382	382
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	92	68	38	65	25
Average Queue (ft)	49	37	14	40	12
95th Queue (ft)	105	80	42	75	35
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	68	115	24	100	60	60	62
Average Queue (ft)	40	57	8	48	33	38	39
95th Queue (ft)	83	127	31	105	74	70	69
Link Distance (ft)		327		1082	526	1304	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	170		500				700
Storage Blk Time (%)		0					
Queuing Penalty (veh)		0					

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	WB	SB	SB
Directions Served	LT	T	R	L	R
Maximum Queue (ft)	50	4	4	54	40
Average Queue (ft)	21	1	1	38	26
95th Queue (ft)	57	7	7	66	45
Link Distance (ft)	438	327	327	382	382
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	91	129	46	104	33
Average Queue (ft)	56	79	28	73	15
95th Queue (ft)	112	138	59	126	40
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)		1			
Queuing Penalty (veh)		1			

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	TR	LTR	LT	R
Maximum Queue (ft)	42	108	88	66	52	82
Average Queue (ft)	22	54	42	38	31	55
95th Queue (ft)	45	134	95	76	60	87
Link Distance (ft)		327	1082	526	1304	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	170					700
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	SB	SB
Directions Served	LT	R	L	R
Maximum Queue (ft)	79	7	47	34
Average Queue (ft)	42	1	26	20
95th Queue (ft)	96	10	50	41
Link Distance (ft)	438	327	382	382
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 1

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	102	55	48	60	25
Average Queue (ft)	48	35	17	39	5
95th Queue (ft)	112	68	56	73	23
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	64	166	21	94	62	67	49
Average Queue (ft)	38	70	8	57	36	35	34
95th Queue (ft)	72	175	29	110	72	76	51
Link Distance (ft)		327		1082	526	1304	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	170		500				700
Storage Blk Time (%)		1					
Queuing Penalty (veh)		1					

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	SB	SB
Directions Served	LT	R	L	R
Maximum Queue (ft)	57	4	61	50
Average Queue (ft)	23	1	37	28
95th Queue (ft)	63	7	82	53
Link Distance (ft)	438	327	382	382
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 1

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	130	165	148	150	34
Average Queue (ft)	67	124	65	97	21
95th Queue (ft)	143	193	187	161	44
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)		7	0		
Queuing Penalty (veh)		21	0		

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	53	120	18	80	64	60	98
Average Queue (ft)	32	67	4	43	33	37	64
95th Queue (ft)	66	137	21	92	79	80	109
Link Distance (ft)		327		1082	526	1304	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	170		500				700
Storage Blk Time (%)		0					
Queuing Penalty (veh)		0					

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	SB	SB
Directions Served	LT	R	L	R
Maximum Queue (ft)	105	11	54	47
Average Queue (ft)	54	4	31	29
95th Queue (ft)	129	16	61	51
Link Distance (ft)	438	327	382	382
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 21

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	87	54	29	80	33
Average Queue (ft)	46	29	9	42	15
95th Queue (ft)	101	66	32	88	41
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	88	212	17	106	88	81	62
Average Queue (ft)	42	108	8	55	51	51	43
95th Queue (ft)	107	242	28	115	93	93	74
Link Distance (ft)		327		1082	526	1304	
Upstream Blk Time (%)		0					
Queuing Penalty (veh)		0					
Storage Bay Dist (ft)	170		500				700
Storage Blk Time (%)		3					
Queuing Penalty (veh)		2					

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	SB	SB
Directions Served	LT	R	L	R
Maximum Queue (ft)	76	15	73	49
Average Queue (ft)	34	3	44	31
95th Queue (ft)	85	15	79	52
Link Distance (ft)	438	327	382	382
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 3

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	607	187	251	342	62
Average Queue (ft)	361	143	146	267	40
95th Queue (ft)	738	226	310	412	77
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)		19	4		
Queuing Penalty (veh)		136	7		

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	122	308	71	441	391	218	191
Average Queue (ft)	39	224	32	275	304	158	126
95th Queue (ft)	136	368	80	480	565	281	227
Link Distance (ft)		327		1082	526	1304	
Upstream Blk Time (%)		2			7		
Queuing Penalty (veh)		16			0		
Storage Bay Dist (ft)	170		500				700
Storage Blk Time (%)		11		1			
Queuing Penalty (veh)		4		0			

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	WB	SB	SB
Directions Served	LT	T	R	L	R
Maximum Queue (ft)	856	3	18	272	42
Average Queue (ft)	587	1	4	158	30
95th Queue (ft)	1108	6	19	302	53
Link Distance (ft)	2060	327	327	381	381
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 164

Intersection: 3: SR-86 NB Ramps & Airport Blvd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	1002	210	265	112	79
Average Queue (ft)	607	159	156	61	47
95th Queue (ft)	1199	238	331	120	91
Link Distance (ft)	1082		536	1004	
Upstream Blk Time (%)	2				
Queuing Penalty (veh)	33				
Storage Bay Dist (ft)		150			575
Storage Blk Time (%)		23	4		
Queuing Penalty (veh)		218	13		

Intersection: 4: Desert Cactus Dr/SR-86 SB Ramps & Airport Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	182	341	156	431	98	323	40
Average Queue (ft)	74	331	77	329	57	229	31
95th Queue (ft)	192	354	301	533	101	347	50
Link Distance (ft)		327		1082	526	1304	
Upstream Blk Time (%)		26					
Queuing Penalty (veh)		332					
Storage Bay Dist (ft)	170		500				700
Storage Blk Time (%)		47		2			
Queuing Penalty (veh)		44		2			

Intersection: 9: Airport Blvd & Project Dwy

Movement	EB	WB	WB	SB	SB
Directions Served	LT	T	R	L	R
Maximum Queue (ft)	1274	4	4	388	286
Average Queue (ft)	741	1	1	282	159
95th Queue (ft)	1526	7	7	467	421
Link Distance (ft)	2060	327	327	381	381
Upstream Blk Time (%)				26	21
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 641

APPENDIX K -

RECOMMENDED IMPROVEMENTS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	259	8	19	295	39	6	5	12	186	27	22
Future Volume (veh/h)	20	259	8	19	295	39	6	5	12	186	27	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	273	8	20	311	41	6	5	13	196	28	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	371	339	26	409	54	150	123	207	395	45	31
Arrive On Green	0.21	0.21	0.21	0.27	0.27	0.27	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	133	1731	1585	98	1529	202	233	545	919	1134	200	137
Grp Volume(v), veh/h	294	0	8	372	0	0	24	0	0	247	0	0
Grp Sat Flow(s),veh/h/ln	1864	0	1585	1829	0	0	1697	0	0	1471	0	0
Q Serve(g_s), s	6.8	0.0	0.2	8.6	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0
Cycle Q Clear(g_c), s	6.8	0.0	0.2	8.6	0.0	0.0	0.5	0.0	0.0	7.1	0.0	0.0
Prop In Lane	0.07		1.00	0.05		0.11	0.25		0.54	0.79		0.09
Lane Grp Cap(c), veh/h	399	0	339	489	0	0	479	0	0	471	0	0
V/C Ratio(X)	0.74	0.00	0.02	0.76	0.00	0.00	0.05	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	1057	0	899	1229	0	0	1132	0	0	1076	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.9	0.0	14.3	15.5	0.0	0.0	14.0	0.0	0.0	16.5	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.9	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	2.4	0.0	0.1	2.8	0.0	0.0	0.2	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	14.3	18.0	0.0	0.0	14.1	0.0	0.0	17.4	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		302			372			24			247	
Approach Delay, s/veh		19.4			18.0			14.1			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.8		14.3		14.8		16.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5		26.1		29.5		30.9				
Max Q Clear Time (g_c+I1), s		2.5		8.8		9.1		10.6				
Green Ext Time (p_c), s		0.1		1.3		1.2		1.8				

Intersection Summary		
HCM 6th Ctrl Delay		18.2
HCM 6th LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	171	4	13	284	31	14	40	11	64	0	53
Future Volume (veh/h)	14	171	4	13	284	31	14	40	11	64	0	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	180	4	14	299	33	15	42	12	67	0	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	266	245	20	434	48	171	187	47	280	20	107
Arrive On Green	0.15	0.15	0.15	0.27	0.27	0.27	0.15	0.15	0.15	0.15	0.00	0.15
Sat Flow, veh/h	143	1720	1585	74	1586	175	227	1211	303	698	127	690
Grp Volume(v), veh/h	195	0	4	346	0	0	69	0	0	123	0	0
Grp Sat Flow(s),veh/h/ln	1863	0	1585	1835	0	0	1742	0	0	1516	0	0
Q Serve(g_s), s	3.2	0.0	0.1	5.5	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.1	5.5	0.0	0.0	1.1	0.0	0.0	2.3	0.0	0.0
Prop In Lane	0.08		1.00	0.04		0.10	0.22		0.17	0.54		0.46
Lane Grp Cap(c), veh/h	288	0	245	502	0	0	405	0	0	406	0	0
V/C Ratio(X)	0.68	0.00	0.02	0.69	0.00	0.00	0.17	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	1411	0	1200	2127	0	0	1415	0	0	1279	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.9	0.0	11.6	10.5	0.0	0.0	12.0	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	1.7	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.3	0.0	0.0	0.3	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	0.0	11.6	12.2	0.0	0.0	12.2	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		199			346			69			123	
Approach Delay, s/veh		15.6			12.2			12.2			12.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		9.5		9.5		13.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		24.5		24.5		37.5				
Max Q Clear Time (g_c+I1), s		3.1		5.2		4.3		7.5				
Green Ext Time (p_c), s		0.2		0.8		0.5		1.8				

Intersection Summary			
HCM 6th Ctrl Delay			13.2
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	67	42	14	82	0	45	0	0	0	0	165
Future Volume (veh/h)	44	67	42	14	82	0	45	0	0	0	0	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	71	44	15	86	0	47	0	0	0	0	174
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	105	65	28	160	0	439	0	0	0	0	348
Arrive On Green	0.14	0.14	0.14	0.10	0.10	0.00	0.22	0.00	0.00	0.00	0.00	0.22
Sat Flow, veh/h	502	776	481	276	1581	0	680	0	0	0	0	1585
Grp Volume(v), veh/h	161	0	0	101	0	0	47	0	0	0	0	174
Grp Sat Flow(s),veh/h/ln	1759	0	0	1857	0	0	680	0	0	0	0	1585
Q Serve(g_s), s	2.2	0.0	0.0	1.3	0.0	0.0	0.9	0.0	0.0	0.0	0.0	2.4
Cycle Q Clear(g_c), s	2.2	0.0	0.0	1.3	0.0	0.0	3.3	0.0	0.0	0.0	0.0	2.4
Prop In Lane	0.29		0.27	0.15		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	238	0	0	188	0	0	439	0	0	0	0	348
V/C Ratio(X)	0.68	0.00	0.00	0.54	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.50
Avail Cap(c_a), veh/h	2163	0	0	2059	0	0	1565	0	0	0	0	1822
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	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	10.2	0.0	0.0	10.6	0.0	0.0	9.9	0.0	0.0	0.0	0.0	8.5
Incr Delay (d2), s/veh	3.4	0.0	0.0	2.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.1
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	0.6	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	0.0	13.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	9.6
LnGrp LOS	B	A	A	B	A	A	B	A	A	A	A	A
Approach Vol, veh/h		161			101			47			174	
Approach Delay, s/veh		13.6			13.0			10.0			9.6	
Approach LOS		B			B			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.9		7.9		9.9		7.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		28.5		30.5		28.5		27.5				
Max Q Clear Time (g_c+I1), s		5.3		4.2		4.4		3.3				
Green Ext Time (p_c), s		0.2		0.8		1.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			11.7									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	274	8	21	298	44	6	5	14	188	27	22
Future Volume (veh/h)	20	274	8	21	298	44	6	5	14	188	27	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	288	8	22	314	46	6	5	15	198	28	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	384	351	28	407	60	139	114	220	392	44	31
Arrive On Green	0.22	0.22	0.22	0.27	0.27	0.27	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	127	1737	1585	105	1501	220	207	509	976	1139	195	136
Grp Volume(v), veh/h	309	0	8	382	0	0	26	0	0	249	0	0
Grp Sat Flow(s),veh/h/ln	1864	0	1585	1826	0	0	1692	0	0	1470	0	0
Q Serve(g_s), s	7.4	0.0	0.2	9.2	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0
Cycle Q Clear(g_c), s	7.4	0.0	0.2	9.2	0.0	0.0	0.6	0.0	0.0	7.5	0.0	0.0
Prop In Lane	0.07		1.00	0.06		0.12	0.23		0.58	0.80		0.09
Lane Grp Cap(c), veh/h	412	0	351	495	0	0	473	0	0	466	0	0
V/C Ratio(X)	0.75	0.00	0.02	0.77	0.00	0.00	0.05	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	996	0	847	1128	0	0	1156	0	0	1097	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	0.0	14.5	16.0	0.0	0.0	14.6	0.0	0.0	17.2	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	1.0	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	2.6	0.0	0.1	3.1	0.0	0.0	0.2	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	0.0	14.6	18.6	0.0	0.0	14.6	0.0	0.0	18.1	0.0	0.0
LnGrp LOS	C	A	B	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		317			382			26			249	
Approach Delay, s/veh		20.0			18.6			14.6			18.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	15.2	15.1	15.2	17.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	31.5	25.5	31.5	29.5
Max Q Clear Time (g_c+I1), s	2.6	9.4	9.5	11.2
Green Ext Time (p_c), s	0.1	1.3	1.2	1.8

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	86	66	0	104	0	190	0	0	0	0	483
Future Volume (veh/h)	30	86	66	0	104	0	190	0	0	0	0	483
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	91	69	0	109	0	200	0	0	0	0	508
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	122	92	0	150	0	389	0	0	0	0	810
Arrive On Green	0.15	0.15	0.15	0.00	0.08	0.00	0.51	0.00	0.00	0.00	0.00	0.51
Sat Flow, veh/h	291	826	626	0	1870	0	489	0	0	0	0	1585
Grp Volume(v), veh/h	192	0	0	0	109	0	200	0	0	0	0	508
Grp Sat Flow(s),veh/h/ln	1743	0	0	0	1870	0	489	0	0	0	0	1585
Q Serve(g_s), s	5.4	0.0	0.0	0.0	2.9	0.0	10.7	0.0	0.0	0.0	0.0	11.9
Cycle Q Clear(g_c), s	5.4	0.0	0.0	0.0	2.9	0.0	22.6	0.0	0.0	0.0	0.0	11.9
Prop In Lane	0.17		0.36	0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	256	0	0	0	150	0	389	0	0	0	0	810
V/C Ratio(X)	0.75	0.00	0.00	0.00	0.73	0.00	0.51	0.00	0.00	0.00	0.00	0.63
Avail Cap(c_a), veh/h	619	0	0	0	664	0	797	0	0	0	0	1534
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	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	0.0	0.0	0.0	23.2	0.0	17.2	0.0	0.0	0.0	0.0	9.1
Incr Delay (d2), s/veh	4.4	0.0	0.0	0.0	6.5	0.0	1.1	0.0	0.0	0.0	0.0	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	2.2	0.0	0.0	0.0	1.3	0.0	1.9	0.0	0.0	0.0	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	0.0	0.0	0.0	29.7	0.0	18.3	0.0	0.0	0.0	0.0	9.9
LnGrp LOS	C	A	A	A	C	A	B	A	A	A	A	A
Approach Vol, veh/h		192			109			200			508	
Approach Delay, s/veh		25.4			29.7			18.3			9.9	
Approach LOS		C			C			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.8		12.1		30.8		8.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		49.9		18.3		49.9		18.3				
Max Q Clear Time (g_c+I1), s		24.6		7.4		13.9		4.9				
Green Ext Time (p_c), s		1.7		0.7		3.8		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			16.6
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	182	4	16	298	37	14	51	12	83	0	69
Future Volume (veh/h)	15	182	4	16	298	37	14	51	12	83	0	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	192	4	17	314	39	15	54	13	87	0	73
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	280	258	24	442	55	150	224	48	277	21	118
Arrive On Green	0.16	0.16	0.16	0.28	0.28	0.28	0.17	0.17	0.17	0.17	0.00	0.17
Sat Flow, veh/h	143	1720	1585	84	1554	193	176	1310	280	702	121	691
Grp Volume(v), veh/h	208	0	4	370	0	0	82	0	0	160	0	0
Grp Sat Flow(s),veh/h/ln	1863	0	1585	1831	0	0	1766	0	0	1514	0	0
Q Serve(g_s), s	3.7	0.0	0.1	6.4	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	0.1	6.4	0.0	0.0	1.4	0.0	0.0	3.3	0.0	0.0
Prop In Lane	0.08		1.00	0.05		0.11	0.18		0.16	0.54		0.46
Lane Grp Cap(c), veh/h	304	0	258	521	0	0	423	0	0	416	0	0
V/C Ratio(X)	0.68	0.00	0.02	0.71	0.00	0.00	0.19	0.00	0.00	0.38	0.00	0.00
Avail Cap(c_a), veh/h	1289	0	1097	1887	0	0	1353	0	0	1205	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.0	0.0	12.4	11.4	0.0	0.0	12.7	0.0	0.0	13.5	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	1.8	0.0	0.0	0.2	0.0	0.0	0.6	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	1.2	0.0	0.0	1.7	0.0	0.0	0.4	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	0.0	12.5	13.2	0.0	0.0	13.0	0.0	0.0	14.0	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		212			370			82			160	
Approach Delay, s/veh		16.6			13.2			13.0			14.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		10.6		10.3		10.6		14.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		25.5		24.5		25.5		36.5
Max Q Clear Time (g_c+I1), s		3.4		5.7		5.3		8.4
Green Ext Time (p_c), s		0.3		0.9		0.8		1.9

Intersection Summary		
HCM 6th Ctrl Delay		14.2
HCM 6th LOS		B

Intersection	
Intersection Delay, s/veh	23.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Vol, veh/h	53	17	11	34	28	102	28	680	8	20	270	72
Future Vol, veh/h	53	17	11	34	28	102	28	680	8	20	270	72
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	18	12	36	29	107	29	716	8	21	284	76
Number of Lanes	1	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	12.5	13.2	32.4	14.1
HCM LOS	B	B	D	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	97%	0%	61%	0%	22%	0%	100%	56%
Vol Right, %	0%	0%	3%	0%	39%	0%	78%	0%	0%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	453	235	53	28	34	130	20	180	162
LT Vol	28	0	0	53	0	34	0	20	0	0
Through Vol	0	453	227	0	17	0	28	0	180	90
RT Vol	0	0	8	0	11	0	102	0	0	72
Lane Flow Rate	29	477	247	56	29	36	137	21	189	171
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.059	0.892	0.46	0.138	0.067	0.086	0.288	0.047	0.393	0.338
Departure Headway (Hd)	7.24	6.733	6.708	8.937	8.153	8.64	7.582	7.97	7.461	7.145
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	495	539	538	401	439	415	473	450	483	503
Service Time	4.977	4.469	4.445	6.69	5.906	6.389	5.331	5.711	5.203	4.886
HCM Lane V/C Ratio	0.059	0.885	0.459	0.14	0.066	0.087	0.29	0.047	0.391	0.34
HCM Control Delay	10.4	42.7	15.1	13.1	11.5	12.2	13.4	11.1	15	13.5
HCM Lane LOS	B	E	C	B	B	B	B	B	B	B
HCM 95th-tile Q	0.2	10.2	2.4	0.5	0.2	0.3	1.2	0.1	1.8	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	578	141	236	44	159	12	546	70	10	4	14	202
Future Volume (veh/h)	578	141	236	44	159	12	546	70	10	4	14	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	578	141	125	44	159	12	546	70	10	4	14	87
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	590	619	1004	51	186	14	539	484	69	23	82	615
Arrive On Green	0.33	0.33	0.33	0.14	0.14	0.14	0.30	0.30	0.30	0.06	0.06	0.06
Sat Flow, veh/h	1781	1870	1585	375	1356	102	1781	1601	229	411	1439	1585
Grp Volume(v), veh/h	578	141	125	215	0	0	546	0	80	18	0	87
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1833	0	0	1781	0	1829	1850	0	1585
Q Serve(g_s), s	33.5	5.7	3.3	11.9	0.0	0.0	31.5	0.0	3.3	1.0	0.0	3.7
Cycle Q Clear(g_c), s	33.5	5.7	3.3	11.9	0.0	0.0	31.5	0.0	3.3	1.0	0.0	3.7
Prop In Lane	1.00		1.00	0.20		0.06	1.00		0.13	0.22		1.00
Lane Grp Cap(c), veh/h	590	619	1004	251	0	0	539	0	553	105	0	615
V/C Ratio(X)	0.98	0.23	0.12	0.86	0.00	0.00	1.01	0.00	0.14	0.17	0.00	0.14
Avail Cap(c_a), veh/h	590	619	1004	317	0	0	539	0	553	320	0	799
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	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.5	25.2	7.6	44.0	0.0	0.0	36.3	0.0	26.5	46.8	0.0	20.6
Incr Delay (d2), s/veh	31.8	0.2	0.1	16.9	0.0	0.0	42.2	0.0	0.1	0.8	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	18.7	2.4	2.2	6.3	0.0	0.0	19.3	0.0	1.4	0.5	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.3	25.4	7.6	60.9	0.0	0.0	78.6	0.0	26.6	47.6	0.0	20.7
LnGrp LOS	E	C	A	E	A	A	F	A	C	D	A	C
Approach Vol, veh/h		844			215			626			105	
Approach Delay, s/veh		50.8			60.9			71.9			25.3	
Approach LOS		D			E			E			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		39.0		10.4		18.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		31.5		34.5		18.0		18.0				
Max Q Clear Time (g_c+I1), s		33.5		35.5		5.7		13.9				
Green Ext Time (p_c), s		0.0		0.0		0.2		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			57.9
HCM 6th LOS			E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	897	270	202	706	292	59
Future Volume (veh/h)	897	270	202	706	292	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	944	284	213	743	307	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1013	859	223	1340	327	291
Arrive On Green	1.00	1.00	0.13	0.72	0.18	0.18
Sat Flow, veh/h	1870	1585	1781	1870	1781	1585
Grp Volume(v), veh/h	944	284	213	743	307	62
Grp Sat Flow(s),veh/h/ln	1870	1585	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	14.3	22.4	20.4	4.0
Cycle Q Clear(g_c), s	0.0	0.0	14.3	22.4	20.4	4.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1013	859	223	1340	327	291
V/C Ratio(X)	0.93	0.33	0.96	0.55	0.94	0.21
Avail Cap(c_a), veh/h	1013	859	223	1340	327	291
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.47	0.47	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	52.2	8.0	48.3	41.6
Incr Delay (d2), s/veh	2.0	0.1	30.5	0.8	34.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	8.1	7.5	12.1	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.0	0.1	82.7	8.8	82.8	42.0
LnGrp LOS	A	A	F	A	F	D
Approach Vol, veh/h	1228			956	369	
Approach Delay, s/veh	1.6			25.2	75.9	
Approach LOS	A			C	E	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		28.0	21.0	71.0				92.0
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		22.0	15.0	65.0				86.0
Max Q Clear Time (g_c+I1), s		22.4	16.3	2.0				24.4
Green Ext Time (p_c), s		0.0	0.0	10.2				5.6

Intersection Summary		
HCM 6th Ctrl Delay		21.2
HCM 6th LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	714	34	35	908	53	63	0	269	182	23	316
Future Volume (veh/h)	41	714	34	35	908	53	63	0	269	182	23	316
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	752	36	37	956	56	66	0	147	209	0	131
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	932	45	53	1789	105	70	0	156	379	0	169
Arrive On Green	0.06	1.00	1.00	0.06	1.00	1.00	0.14	0.00	0.14	0.11	0.00	0.11
Sat Flow, veh/h	1781	1770	85	1781	3411	200	509	0	1133	3563	0	1585
Grp Volume(v), veh/h	43	0	788	37	498	514	213	0	0	209	0	131
Grp Sat Flow(s),veh/h/ln	1781	0	1855	1781	1777	1834	1641	0	0	1781	0	1585
Q Serve(g_s), s	2.9	0.0	0.0	2.4	0.0	0.0	15.4	0.0	0.0	6.7	0.0	9.7
Cycle Q Clear(g_c), s	2.9	0.0	0.0	2.4	0.0	0.0	15.4	0.0	0.0	6.7	0.0	9.7
Prop In Lane	1.00		0.05	1.00		0.11	0.31		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	57	0	977	53	932	962	226	0	0	379	0	169
V/C Ratio(X)	0.76	0.00	0.81	0.70	0.53	0.53	0.94	0.00	0.00	0.55	0.00	0.78
Avail Cap(c_a), veh/h	74	0	977	74	932	962	226	0	0	950	0	423
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.00	0.09	0.69	0.69	0.69	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.7	0.0	0.0	55.9	0.0	0.0	51.3	0.0	0.0	50.9	0.0	52.2
Incr Delay (d2), s/veh	3.0	0.0	0.7	11.2	1.5	1.5	44.4	0.0	0.0	1.3	0.0	7.5
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	1.3	0.0	0.2	1.2	0.4	0.4	8.9	0.0	0.0	3.1	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	0.0	0.7	67.1	1.5	1.5	95.7	0.0	0.0	52.2	0.0	59.7
LnGrp LOS	E	A	A	E	A	A	F	A	A	D	A	E
Approach Vol, veh/h		831			1049			213			340	
Approach Delay, s/veh		3.7			3.8			95.7			55.1	
Approach LOS		A			A			F			E	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.5	9.5	69.2		18.8	9.8	68.9
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		16.5	5.0	42.5		32.0	5.0	42.5
Max Q Clear Time (g_c+I1), s		17.4	4.4	2.0		11.7	4.9	2.0
Green Ext Time (p_c), s		0.0	0.0	7.1		1.1	0.0	7.0

Intersection Summary		
HCM 6th Ctrl Delay		19.0
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	302	7	24	305	660	5	50	15	253	30	59
Future Volume (veh/h)	232	302	7	24	305	660	5	50	15	253	30	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	244	318	7	25	321	417	5	53	16	266	32	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	730	816	47	475	686	15	160	48	318	244	76
Arrive On Green	0.16	0.39	0.39	0.03	0.25	0.25	0.12	0.12	0.12	0.18	0.18	0.18
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	121	1285	388	1781	1366	427
Grp Volume(v), veh/h	244	318	7	25	321	417	74	0	0	266	0	42
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1794	0	0	1781	0	1793
Q Serve(g_s), s	10.7	10.0	0.2	1.1	12.4	16.3	3.0	0.0	0.0	11.6	0.0	1.6
Cycle Q Clear(g_c), s	10.7	10.0	0.2	1.1	12.4	16.3	3.0	0.0	0.0	11.6	0.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	0.07		0.22	1.00		0.24
Lane Grp Cap(c), veh/h	290	730	816	47	475	686	223	0	0	318	0	321
V/C Ratio(X)	0.84	0.44	0.01	0.53	0.68	0.61	0.33	0.00	0.00	0.84	0.00	0.13
Avail Cap(c_a), veh/h	499	1015	1058	131	629	816	469	0	0	599	0	603
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	1.00
Uniform Delay (d), s/veh	32.6	18.0	9.5	38.6	27.0	17.5	32.1	0.0	0.0	31.8	0.0	27.7
Incr Delay (d2), s/veh	6.5	0.4	0.0	8.8	1.8	0.9	0.9	0.0	0.0	5.7	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	4.7	3.8	0.1	0.6	5.1	7.3	1.3	0.0	0.0	5.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	18.4	9.5	47.4	28.8	18.5	33.0	0.0	0.0	37.6	0.0	27.9
LnGrp LOS	D	B	A	D	C	B	C	A	A	D	A	C
Approach Vol, veh/h		569			763			74			308	
Approach Delay, s/veh		27.2			23.8			33.0			36.3	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	6.6	37.3		20.4	17.6	26.4				
Change Period (Y+Rc), s		6.0	4.5	6.0		6.0	4.5	6.0				
Max Green Setting (Gmax), s		21.0	5.9	43.6		27.0	22.5	27.0				
Max Q Clear Time (g_c+I1), s		5.0	3.1	12.0		13.6	12.7	18.3				
Green Ext Time (p_c), s		0.2	0.0	1.6		0.8	0.4	2.1				
Intersection Summary												
HCM 6th Ctrl Delay			27.6									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	277	132	48	225	75	311	1754	193	110	543	121
Future Volume (veh/h)	134	277	132	48	225	75	311	1754	193	110	543	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	292	139	51	237	79	327	1846	203	116	572	127
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	421	357	138	593	193	359	1806	195	119	1224	271
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.20	0.56	0.56	0.07	0.42	0.42
Sat Flow, veh/h	1064	1870	1585	957	2636	857	1781	3235	349	1781	2892	640
Grp Volume(v), veh/h	141	292	139	51	158	158	327	998	1051	116	351	348
Grp Sat Flow(s),veh/h/ln	1064	1870	1585	957	1777	1716	1781	1777	1808	1781	1777	1755
Q Serve(g_s), s	15.7	17.2	8.9	6.2	9.1	9.4	21.5	67.0	67.0	7.8	17.0	17.1
Cycle Q Clear(g_c), s	25.1	17.2	8.9	23.4	9.1	9.4	21.5	67.0	67.0	7.8	17.0	17.1
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.19	1.00		0.36
Lane Grp Cap(c), veh/h	216	421	357	138	400	386	359	992	1009	119	752	743
V/C Ratio(X)	0.65	0.69	0.39	0.37	0.39	0.41	0.91	1.01	1.04	0.98	0.47	0.47
Avail Cap(c_a), veh/h	216	421	357	138	400	386	505	992	1009	119	752	743
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	50.4	42.7	39.5	53.5	39.5	39.7	46.8	26.5	26.5	55.9	24.9	24.9
Incr Delay (d2), s/veh	6.9	4.9	0.7	1.6	0.6	0.7	16.2	30.1	39.6	75.1	0.5	0.5
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	4.4	8.1	3.4	1.5	3.8	3.9	10.7	32.3	35.6	5.8	6.8	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	47.6	40.2	55.1	40.2	40.4	63.0	56.6	66.1	131.0	25.3	25.4
LnGrp LOS	E	D	D	E	D	D	E	F	F	F	C	C
Approach Vol, veh/h		572			367			2376			815	
Approach Delay, s/veh		48.2			42.3			61.7			40.4	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	73.0		33.0	30.2	56.8		33.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	67.0		27.0	34.0	41.0		27.0				
Max Q Clear Time (g_c+I1), s	9.8	69.0		27.1	23.5	19.1		25.4				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.7	3.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			53.9									
HCM 6th LOS			D									

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	167	717	1111	176	72	86
Future Volume (veh/h)	167	717	1111	176	72	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	176	755	1169	185	76	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	198	775	1528	1295	148	132
Arrive On Green	0.82	0.82	1.00	1.00	0.08	0.08
Sat Flow, veh/h	198	949	1870	1585	1781	1585
Grp Volume(v), veh/h	931	0	1169	185	76	91
Grp Sat Flow(s),veh/h/ln	1147	0	1870	1585	1781	1585
Q Serve(g_s), s	88.6	0.0	0.0	0.0	4.9	6.7
Cycle Q Clear(g_c), s	93.7	0.0	0.0	0.0	4.9	6.7
Prop In Lane	0.19			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	973	0	1528	1295	148	132
V/C Ratio(X)	0.96	0.00	0.77	0.14	0.51	0.69
Avail Cap(c_a), veh/h	973	0	1528	1295	267	238
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.63	0.63	1.00	1.00
Uniform Delay (d), s/veh	9.0	0.0	0.0	0.0	52.7	53.5
Incr Delay (d2), s/veh	20.1	0.0	2.4	0.1	2.7	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.5	0.0	1.0	0.1	2.3	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.2	0.0	2.4	0.1	55.4	59.9
LnGrp LOS	C	A	A	A	E	E
Approach Vol, veh/h		931	1354		167	
Approach Delay, s/veh		29.2	2.1		57.9	
Approach LOS		C	A		E	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	104.0	16.0	104.0
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	90.0	18.0	90.0
Max Q Clear Time (g_c+I1), s	95.7	8.7	2.0
Green Ext Time (p_c), s	0.0	0.3	19.5

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	50
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	38	30	53	51	109	20	490	14	224	653	130
Future Vol, veh/h	103	38	30	53	51	109	20	490	14	224	653	130
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	40	32	56	54	115	21	516	15	236	687	137
Number of Lanes	1	1	0	1	1	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	18.5	20.8	42.5	65.4
HCM LOS	C	C	E	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	100%	92%	0%	56%	0%	32%	0%	100%	63%
Vol Right, %	0%	0%	8%	0%	44%	0%	68%	0%	0%	37%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	327	177	103	68	53	160	224	435	348
LT Vol	20	0	0	103	0	53	0	224	0	0
Through Vol	0	327	163	0	38	0	51	0	435	218
RT Vol	0	0	14	0	30	0	109	0	0	130
Lane Flow Rate	21	344	187	108	72	56	168	236	458	366
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.058	0.898	0.485	0.339	0.208	0.172	0.474	0.6	1.101	0.852
Departure Headway (Hd)	10.193	9.676	9.619	11.578	10.749	11.412	10.413	9.167	8.651	8.381
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	353	378	377	312	336	316	349	394	422	432
Service Time	7.893	7.376	7.319	9.278	8.449	9.112	8.113	6.92	6.404	6.133
HCM Lane V/C Ratio	0.059	0.91	0.496	0.346	0.214	0.177	0.481	0.599	1.085	0.847
HCM Control Delay	13.5	56	21	20.1	16.2	16.5	22.2	24.8	103.6	43.7
HCM Lane LOS	B	F	C	C	C	C	C	C	F	E
HCM 95th-tile Q	0.2	9.1	2.6	1.5	0.8	0.6	2.4	3.8	15.9	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	225	668	8	277	9	427	33	6	12	60	574
Future Volume (veh/h)	315	225	668	8	277	9	427	33	6	12	60	574
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	332	237	368	8	292	9	449	35	6	13	63	515
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	408	775	9	322	10	482	421	72	52	252	606
Arrive On Green	0.22	0.22	0.22	0.18	0.18	0.18	0.27	0.27	0.27	0.16	0.16	0.16
Sat Flow, veh/h	1781	1870	1585	48	1756	54	1781	1556	267	317	1537	1585
Grp Volume(v), veh/h	332	237	368	309	0	0	449	0	41	76	0	515
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1858	0	0	1781	0	1822	1854	0	1585
Q Serve(g_s), s	19.7	12.5	17.0	17.9	0.0	0.0	27.0	0.0	1.8	3.9	0.0	18.0
Cycle Q Clear(g_c), s	19.7	12.5	17.0	17.9	0.0	0.0	27.0	0.0	1.8	3.9	0.0	18.0
Prop In Lane	1.00		1.00	0.03		0.03	1.00		0.15	0.17		1.00
Lane Grp Cap(c), veh/h	389	408	775	341	0	0	482	0	493	304	0	606
V/C Ratio(X)	0.85	0.58	0.47	0.91	0.00	0.00	0.93	0.00	0.08	0.25	0.00	0.85
Avail Cap(c_a), veh/h	470	494	848	364	0	0	543	0	556	304	0	606
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	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.3	38.4	18.7	43.9	0.0	0.0	39.0	0.0	29.9	40.0	0.0	26.5
Incr Delay (d2), s/veh	12.3	1.3	0.5	24.8	0.0	0.0	21.6	0.0	0.1	0.4	0.0	11.1
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	9.6	5.7	9.8	10.1	0.0	0.0	14.2	0.0	0.8	1.8	0.0	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	39.8	19.1	68.7	0.0	0.0	60.6	0.0	29.9	40.5	0.0	37.6
LnGrp LOS	D	D	B	E	A	A	E	A	C	D	A	D
Approach Vol, veh/h		937			309			490			591	
Approach Delay, s/veh		36.6			68.7			58.1			38.0	
Approach LOS		D			E			E			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.2		28.5		22.5		24.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		33.5		29.0		18.0		21.5				
Max Q Clear Time (g_c+I1), s		29.0		21.7		20.0		19.9				
Green Ext Time (p_c), s		0.7		2.3		0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			45.7									
HCM 6th LOS			D									

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1123	217	312	967	96	88
Future Volume (veh/h)	1123	217	312	967	96	88
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1182	228	328	1018	101	93
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1247	1057	178	1528	148	132
Arrive On Green	1.00	1.00	0.10	0.82	0.08	0.08
Sat Flow, veh/h	1870	1585	1781	1870	1781	1585
Grp Volume(v), veh/h	1182	228	328	1018	101	93
Grp Sat Flow(s),veh/h/ln	1870	1585	1781	1870	1781	1585
Q Serve(g_s), s	0.0	0.0	12.0	26.3	6.6	6.9
Cycle Q Clear(g_c), s	0.0	0.0	12.0	26.3	6.6	6.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1247	1057	178	1528	148	132
V/C Ratio(X)	0.95	0.22	1.84	0.67	0.68	0.71
Avail Cap(c_a), veh/h	1247	1057	178	1528	282	251
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.38	0.38	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	54.0	4.4	53.5	53.6
Incr Delay (d2), s/veh	2.2	0.0	386.8	0.9	5.4	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	24.4	6.1	3.2	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.2	0.0	440.8	5.3	58.9	60.3
LnGrp LOS	A	A	F	A	E	E
Approach Vol, veh/h	1410			1346	194	
Approach Delay, s/veh	1.8			111.4	59.6	
Approach LOS	A			F	E	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		16.0	18.0	86.0				104.0
Change Period (Y+Rc), s		6.0	6.0	6.0				6.0
Max Green Setting (Gmax), s		19.0	12.0	71.0				89.0
Max Q Clear Time (g_c+I1), s		8.9	14.0	2.0				28.3
Green Ext Time (p_c), s		0.4	0.0	16.6				10.2

Intersection Summary	
HCM 6th Ctrl Delay	55.6
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	1023	157	88	845	128	38	2	70	247	93	99
Future Volume (veh/h)	92	1023	157	88	845	128	38	2	70	247	93	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	1077	165	93	889	97	40	2	-62	179	211	-153
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	1060	162	74	2108	230	0	476	238	248	261	221
Arrive On Green	0.04	0.45	0.45	0.08	1.00	1.00	0.00	0.00	0.00	0.14	0.14	0.00
Sat Flow, veh/h	1781	1584	243	1781	3231	353	-2566	-128	3977	1781	1870	1585
Grp Volume(v), veh/h	97	0	1242	93	489	497	0	0	0	179	211	-153
Grp Sat Flow(s),veh/h/ln	1781	0	1827	1781	1777	1807	0	0	0	1781	1870	1585
Q Serve(g_s), s	6.5	0.0	80.3	5.0	0.0	0.0	0.0	0.0	0.0	11.5	13.1	0.0
Cycle Q Clear(g_c), s	6.5	0.0	80.3	5.0	0.0	0.0	0.0	0.0	0.0	11.5	13.1	0.0
Prop In Lane	1.00		0.13	1.00		0.20	-2.00		3.10	1.00		1.00
Lane Grp Cap(c), veh/h	104	0	1222	74	1159	1179	0	0	0	248	261	221
V/C Ratio(X)	0.93	0.00	1.02	1.25	0.42	0.42	0.00	0.00	0.00	0.72	0.81	-0.69
Avail Cap(c_a), veh/h	104	0	1222	74	1159	1179	0	0	0	490	514	436
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.00	0.09	0.68	0.68	0.68	0.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.4	0.0	33.1	55.0	0.0	0.0	0.0	0.0	0.0	49.4	50.1	0.0
Incr Delay (d2), s/veh	13.5	0.0	12.3	168.9	0.8	0.8	0.0	0.0	0.0	3.9	5.9	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	3.4	0.0	40.7	5.6	0.2	0.2	0.0	0.0	0.0	5.4	6.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.9	0.0	45.4	223.9	0.8	0.8	0.0	0.0	0.0	53.3	56.0	0.0
LnGrp LOS	E	A	F	F	A	A	A	A	A	D	E	A
Approach Vol, veh/h		1339			1079			0			237	
Approach Delay, s/veh		47.3			20.0			0.0			90.2	
Approach LOS		D			B						F	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		0.0	11.0	86.3		22.7	13.0	84.3				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		16.5	5.0	41.5		33.0	7.0	39.5				
Max Q Clear Time (g_c+I1), s		0.0	7.0	82.3		15.1	8.5	2.0				
Green Ext Time (p_c), s		0.0	0.0	0.0		1.6	0.0	6.7				
Intersection Summary												
HCM 6th Ctrl Delay			40.0									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	288	4	21	306	325	14	71	14	749	54	204
Future Volume (veh/h)	122	288	4	21	306	325	14	71	14	749	54	204
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	303	4	22	322	342	15	75	15	788	57	215
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	324	427	171	324	914	25	124	25	719	139	523
Arrive On Green	0.10	0.17	0.17	0.10	0.17	0.17	0.10	0.10	0.10	0.40	0.40	0.40
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	259	1293	259	1781	343	1294
Grp Volume(v), veh/h	128	303	4	22	322	342	105	0	0	788	0	272
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1811	0	0	1781	0	1637
Q Serve(g_s), s	7.3	16.6	0.2	1.2	17.9	12.1	5.8	0.0	0.0	42.0	0.0	12.4
Cycle Q Clear(g_c), s	7.3	16.6	0.2	1.2	17.9	12.1	5.8	0.0	0.0	42.0	0.0	12.4
Prop In Lane	1.00		1.00	1.00		1.00	0.14		0.14	1.00		0.79
Lane Grp Cap(c), veh/h	171	324	427	171	324	914	174	0	0	719	0	661
V/C Ratio(X)	0.75	0.94	0.01	0.13	0.99	0.37	0.60	0.00	0.00	1.10	0.00	0.41
Avail Cap(c_a), veh/h	308	324	427	308	324	914	313	0	0	719	0	661
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	1.00
Uniform Delay (d), s/veh	45.8	42.4	27.8	43.0	43.0	11.9	45.1	0.0	0.0	31.0	0.0	22.2
Incr Delay (d2), s/veh	6.4	33.7	0.0	0.3	48.5	0.3	3.3	0.0	0.0	62.6	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	3.3	10.2	0.1	0.5	12.1	8.6	2.7	0.0	0.0	29.0	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	76.1	27.8	43.3	91.5	12.1	48.4	0.0	0.0	93.6	0.0	22.6
LnGrp LOS	D	E	C	D	F	B	D	A	A	F	A	C
Approach Vol, veh/h		435			686			105			1060	
Approach Delay, s/veh		68.6			50.4			48.4			75.4	
Approach LOS		E			D			D			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	16.0	24.0		48.0	16.0	24.0				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0	6.0	6.0				
Max Green Setting (Gmax), s		18.0	18.0	18.0		42.0	18.0	18.0				
Max Q Clear Time (g_c+I1), s		7.8	3.2	18.6		44.0	9.3	19.9				
Green Ext Time (p_c), s		0.3	0.0	0.0		0.0	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			65.4									
HCM 6th LOS			E									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	226	433	139	387	102	251	1156	92	76	1689	134
Future Volume (veh/h)	118	226	433	139	387	102	251	1156	92	76	1689	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	238	336	146	407	86	264	1217	92	80	1778	136
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	421	357	154	658	138	238	1902	144	102	1646	124
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.13	0.57	0.57	0.06	0.49	0.49
Sat Flow, veh/h	904	1870	1585	839	2924	613	1781	3349	253	1781	3349	253
Grp Volume(v), veh/h	124	238	336	146	246	247	264	645	664	80	933	981
Grp Sat Flow(s),veh/h/ln	904	1870	1585	839	1777	1760	1781	1777	1825	1781	1777	1825
Q Serve(g_s), s	11.8	13.6	25.0	13.4	14.9	15.2	16.0	29.5	29.7	5.3	59.0	59.0
Cycle Q Clear(g_c), s	27.0	13.6	25.0	27.0	14.9	15.2	16.0	29.5	29.7	5.3	59.0	59.0
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.14	1.00		0.14
Lane Grp Cap(c), veh/h	149	421	357	154	400	396	238	1009	1036	102	874	897
V/C Ratio(X)	0.83	0.57	0.94	0.95	0.62	0.62	1.11	0.64	0.64	0.79	1.07	1.09
Avail Cap(c_a), veh/h	149	421	357	154	400	396	238	1009	1036	178	874	897
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	55.8	41.3	45.7	55.7	41.8	41.9	52.0	17.6	17.6	55.8	30.5	30.5
Incr Delay (d2), s/veh	31.3	1.8	33.0	57.1	2.8	3.0	91.6	1.4	1.3	12.4	50.4	58.7
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	4.9	6.2	12.6	6.7	6.5	6.6	12.9	10.9	11.3	2.6	34.5	37.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	43.1	78.7	112.8	44.6	45.0	143.6	18.9	19.0	68.2	80.9	89.2
LnGrp LOS	F	D	E	F	D	D	F	B	B	E	F	F
Approach Vol, veh/h		698			639			1573			1994	
Approach Delay, s/veh		68.0			60.3			39.9			84.5	
Approach LOS		E			E			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	74.1		33.0	22.0	65.0		33.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	12.0	63.0		27.0	16.0	59.0		27.0				
Max Q Clear Time (g_c+I1), s	7.3	31.7		29.0	18.0	61.0		29.0				
Green Ext Time (p_c), s	0.1	9.1		0.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			64.7
HCM 6th LOS			E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	1127	913	69	145	162
Future Volume (veh/h)	88	1127	913	69	145	162
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	1186	961	73	153	171
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	108	1189	1449	1228	223	199
Arrive On Green	0.77	0.77	1.00	1.00	0.13	0.13
Sat Flow, veh/h	98	1534	1870	1585	1781	1585
Grp Volume(v), veh/h	1279	0	961	73	153	171
Grp Sat Flow(s),veh/h/ln	1632	0	1870	1585	1781	1585
Q Serve(g_s), s	78.8	0.0	0.0	0.0	9.9	12.7
Cycle Q Clear(g_c), s	93.0	0.0	0.0	0.0	9.9	12.7
Prop In Lane	0.07			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1297	0	1449	1228	223	199
V/C Ratio(X)	0.99	0.00	0.66	0.06	0.69	0.86
Avail Cap(c_a), veh/h	1297	0	1449	1228	267	238
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.46	0.46	1.00	1.00
Uniform Delay (d), s/veh	13.0	0.0	0.0	0.0	50.2	51.5
Incr Delay (d2), s/veh	21.9	0.0	1.1	0.0	5.6	23.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	33.7	0.0	0.4	0.0	4.7	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.0	0.0	1.1	0.0	55.8	74.4
LnGrp LOS	C	A	A	A	E	E
Approach Vol, veh/h		1279	1034		324	
Approach Delay, s/veh		35.0	1.0		65.6	
Approach LOS		C	A		E	

Timer - Assigned Phs	4	6	8
Phs Duration (G+Y+Rc), s	99.0	21.0	99.0
Change Period (Y+Rc), s	6.0	6.0	6.0
Max Green Setting (Gmax), s	90.0	18.0	90.0
Max Q Clear Time (g_c+I1), s	95.0	14.7	2.0
Green Ext Time (p_c), s	0.0	0.3	11.3

Intersection Summary	
HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

APPENDIX L -

SIGNAL WARRANT ANALYSIS WORKSHEETS

California MUTCD 2014 Edition
(FHWA's MUTCD 2009 Edition, including Rev 1 and 2
as amended for use in California)

Scenario: Opening Year 2025 Conditions
Major Approach: Airport Boulevard
Minor Approach: Tyler Street

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

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 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 or 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

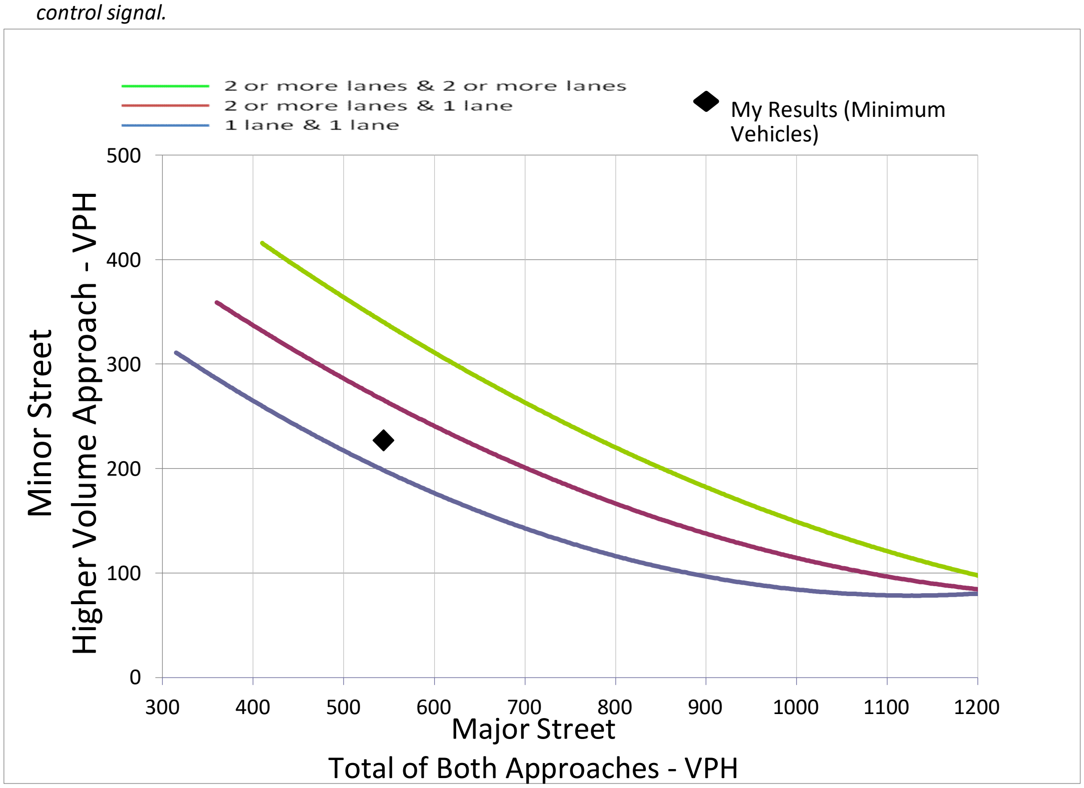
APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☑	☐	544
Higher Approach - Minor Street	☑	☐	227

ENTER CORRECT HOURS

ENTER PEAK HOUR VOL.

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.



California MUTCD 2014 Edition
(FHWA's MUTCD 2009 Edition, including Rev 1 and 2
as amended for use in California)

Scenario: Opening Year 2030 with Phase I Conditions
Major Approach: Filmore Street
Minor Approach: Airport Boulevard

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

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 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 or 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

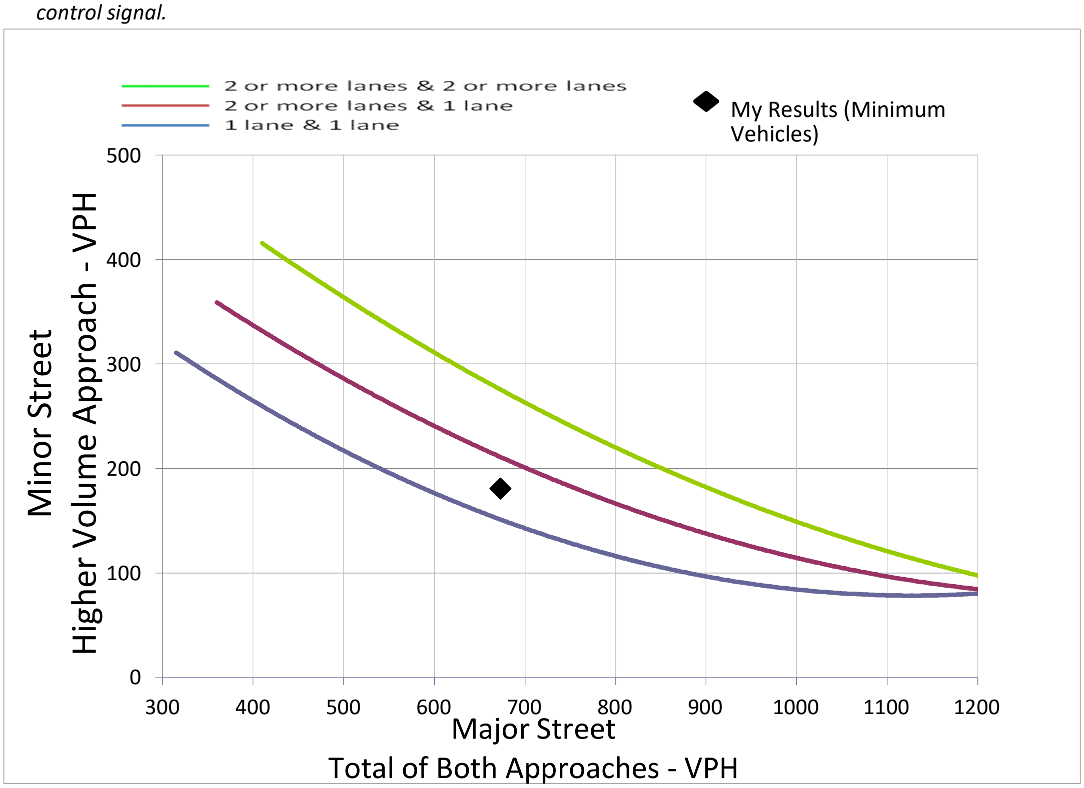
APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☑	☐	673
Higher Approach - Minor Street	☑	☐	181

ENTER CORRECT HOURS

ENTER PEAK HOUR VOL.

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.



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

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 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 or 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

SATISFIED ☑ YES ☐ NO

Part B

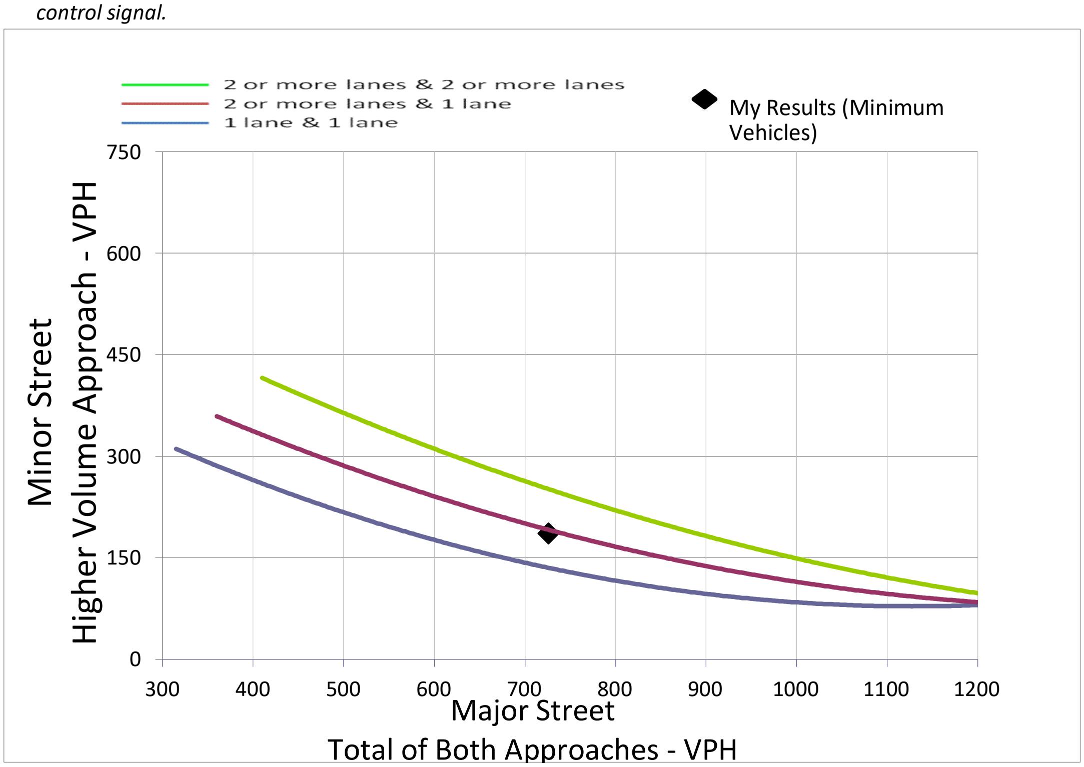
APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☑	☐	726
Higher Approach - Minor Street	☑	☐	186

← ENTER CORRECT HOURS

ENTER PEAK HOUR VOL.

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.



California MUTCD 2014 Edition
(FHWA's MUTCD 2009 Edition, including Rev 1 and 2
as amended for use in California)

Scenario: Opening Year 2030 with Project Conditions
Major Approach: Airport Boulevard
Minor Approach: Project Driveway

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

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 one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u>	☐ YES ☐ NO
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane or traffic or 150 vph for two moving lanes; <u>AND</u>	☐ 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

SATISFIED ☑ YES ☐ NO

Part B

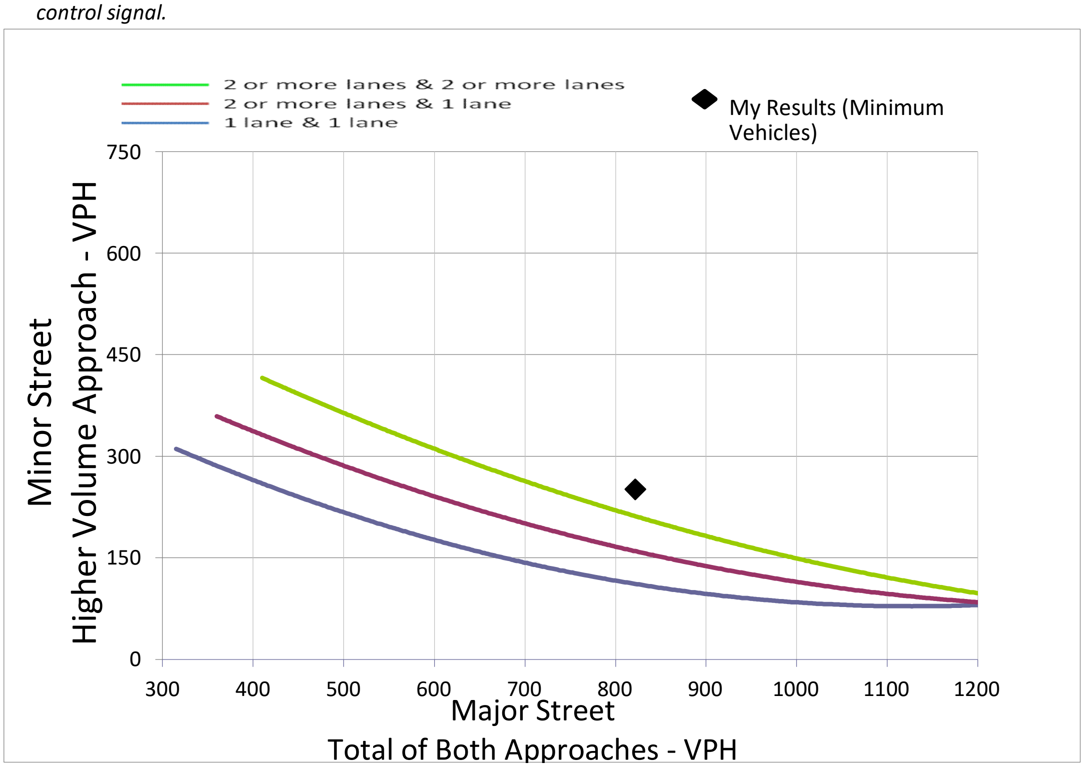
APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☑	☐	822
Higher Approach - Minor Street	☑	☐	251

← ENTER CORRECT HOURS

ENTER PEAK HOUR VOL.

The plotted point falls above the applicable curve in Figure 4C-3 (Urban Areas)	☑ YES ☐ NO
<u>OR</u> 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.



California MUTCD 2014 Edition
(FHWA's MUTCD 2009 Edition, including Rev 1 and 2
as amended for use in California)

Scenario: Buildout 2035 with Phase I II Conditions
Major Approach: Airport Boulevard
Minor Approach: Driveway

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

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 one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u>	☐ YES ☐ NO
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane or traffic or 150 vph for two moving lanes; <u>AND</u>	☐ 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

SATISFIED ☒ YES ☐ NO

Part B

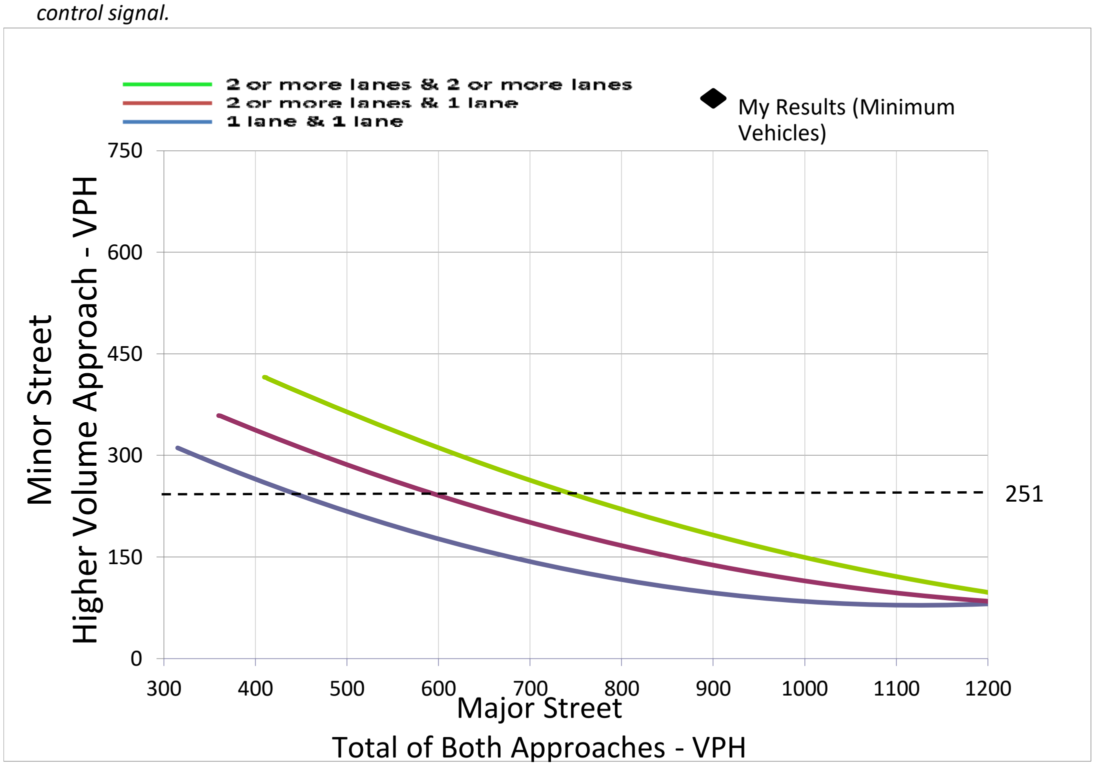
APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☒	☐	2178
Higher Approach - Minor Street	☒	☐	251

ENTER CORRECT HOURS

ENTER PEAK HOUR VOL.

The plotted point falls above the applicable curve in Figure 4C-3 (Urban Areas)	☒ YES ☐ NO
<u>OR</u> 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.



APPENDIX M -

VEHICLE MILES TRAVELED

FEHR PEERS

DRAFT MEMORANDUM

Date: August 17, 2020

To: George Ghossain, MPA, MS, P.E

From: Paul Herrmann, P.E.
Biling Liu

Subject: Coachella Airport Business Park VMT Assessment Memo

OC20-0738

Fehr & Peers has completed quantifying Vehicle Miles Traveled (VMT) for the Business Park Project (Project) in the City of Coachella, California. This VMT analysis is consistent with requirements of Senate Bill 743 (SB 743) and the Office of Planning and Research's (OPR's) Technical Advisory. Our work to quantify VMT for the Project included use of the most recent versions of the Riverside Transportation Analysis Model (RIVTAM).

The remainder of this memorandum is divided into seven sections: Regulatory Setting, Project Description, Modeling Methodology, Analysis Methodology, Model Inputs, VMT Analysis, and Conclusions.

Regulatory Setting

SB 743, passed in 2013, requires that, VMT be the primary metric used to identify transportation impacts under the California Environmental Quality Act (CEQA). At the time of this assessment, the City of Coachella has not defined a VMT methodology or adopted thresholds of significance related to VMT. This assessment was completed based on compliance with recommendations in OPR's Technical Advisory, which provides recommendations related to VMT analysis and reduction targets. The OPR Technical Advisory does not provide specific guidance on industrial land uses, of which is the majority use of the mixed-use project site. For purposes of this assessment, a net increase in regional VMT per service population[1] is assumed to result in a significant transportation impact.

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[1] The sum of the population and employment within an area is known as the service population.

Project Description

Located at the northwest corner of the State Route 86 (SR-86) interchange with Airport Boulevard, the Project includes the new construction of the following uses:

- 250 KSF large warehouse
- 96 KSF small warehouse
- 138 KSF self-storage
- 77 KSF brick yard
- 81 KSF small business/office
- 9 KSF retail

The proposed project will be accessed via a signalized driveway on Airport Boulevard. The Project estimates that 788 employees will work on-site each weekday. **Table 1** summarizes the land use assumptions by land use categories consistent with the RIVTAM model input employment categories.

Table 1: Project Land Use Inputs

Type	Size	Employment
Retail	9 KSF	21
Office	81 KSF	325
Warehouse	561 KSF	442
Total	***651 KSF***	***788***

Source: Project Team, 2020

Modeling Methodology

RIVTAM was run for the "with project" and "without project" scenarios using the latest version of the model. The following modeling parameters, consistent with the model documentation were used in the assessment:

- The RIVTAM roadway network and land use data sets were updated to be consistent with the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) with a base year of 2012 and future year of 2040[2]
    - o This includes the coding of the recently constructed Airport Boulevard interchange at SR-86.
- RIVTAM assignment parameters were set to run up-to five loops with a minimum convergence

[2] Please note that SCAG is currently in the process of adopting the 2020 RTP/SCS; however, since it has not yet been adopted, that data is not available for use in this assessment.

criteria[3] of 0.01

- The population and employment inputs were updated in the Socio-Economic Data (SED), truck and Coachella Valley Association of Governments (CVAG) module input files to represent the project
- RIVTAM model runs included the CVAG module enabled

Analysis Methodology

The methodology used to estimate a net change in regional VMT is referred to as the Boundary Method. This methodology aggregates all model link distances within the specified boundary and multiplies those distances by their forecasted daily traffic volume on the links.

When reviewing boundary method results, two key considerations need to be addressed:

- Boundary size – if the boundary size is too small, then the analysis may not be accounting for the full effects of the project on VMT. Conversely, if the boundary is too big, then model noise[4] is captured in the VMT estimates and may cloud the effect of the project on VMT. Additionally, if the boundary is too big, then it is difficult to identify the change in VMT since individual projects change total VMT in the model very slightly. It has been our experience that using the City Boundary or the sub-regional boundary provides the appropriate combination of boundary size that is large enough to capture the project effect on VMT while not being so large that model noise occurring long distances from the site cloud the VMT effects of the project.
- Population and employment control totals – If the project is incorporated into the model by adding the land use on top of the SED data already included in the model, then total VMT must be divided by the population and employment to "normalize" the effect of the project when doing "no project" to "with project" comparisons.

For purposes of this assessment, an appropriate regional boundary for identifying significant impacts would be the City boundary or sub-regional (CVAG) boundary. Since the Project is on the edge of the City limits,

[3] Convergence criteria refers to the acceptable difference in the traffic volumes produced by different loops of the vehicle assignment. A convergence criteria of 0.01 indicates that the model is producing similar outputs with an allowance of 1% difference between each loop. This criteria is outlined in the model documentation as the recommended convergence criteria for the model.

[4] The RIVTAM model can result in traffic assignment variations between model runs in areas far from the applied model modifications due to the iterations of traffic distribution during model assignment loops. This is referred to as "model noise." An example of model noise would be adding ten homes to the City of Rancho Mirage and seeing traffic volumes change on numerous roadways in Imperial County, Los Angeles County, and Orange County.

a five- and ten-mile radius boundary around the City were also utilized to draw conclusions.

Estimates were performed for base and future year and linearly interpolated to estimate the baseline 2020 scenario. Consistent with the Office of Planning and Research's (OPR's) Technical Advisory, total VMT and VMT per service population is shown for comparative purposes.

Model Inputs

The RIVTAM model inputs are based on population and employment totals. The approximate daily employment for the project was input into the Traffic Analysis Zone (TAZ) that represents the project location in the model. The Project estimates approximately 788 employees each weekday will work on-site. The SED for the project TAZ and surrounding regions used in the analysis is shown in **Table 2**.

Table 2: RIVTAM Model Input Assumptions

	Project TAZ[1]		Coachella		CVAG		Riverside County	
Model Scenario	**Pop**	**Emp**	**Pop**	**Emp**	**Pop**	**Emp**	**Pop**	**Emp**
Base Year No Project	0	248	41,971	8,602	454,979	152,973	2,244,929	616,687
Base Year With Project	0	1,036	41,971	9,390	454,979	153,761	2,244,929	617,475
Future Year No Project	0	374	95,858	14,994	722,044	306,954	3,183,378	1,174,500
Future Year With Project	0	1,162	95,858	15,782	722,044	307,742	3,183,378	1,175,288

Notes:
1. The project is located in TAZ 4844
Source: Riverside Transportation Analysis Model (RIVTAM).

VMT Analysis

VMT for the comparable regions is summarized in **Table 3**. As shown, VMT slightly increases throughout each region in the base year and future year model runs with the increased employment included in the model. This increase is expected with any increase in population or employment in a region which is why it is recommended to normalize VMT by the service population. When comparing the VMT per service population across the various regions, there are decreases across all regions.

Conclusions

The VMT per service population is expected to decrease within the City of Coachella boundary, a 5-mile buffer of the City of Coachella, a 10-mile buffer of the City of Coachella, and the CVAG boundary. Therefore, the project is anticipated to result in a less-than-significant transportation impact related to VMT.

Table 3: Regional VMT Estimates

Year	Coachella			5-Mile Buffer of Coachella			10-Mile Buffer of Coachella			CVAG		
	VMT	SP	VMT/SP	VMT	SP	VMT/SP	VMT	SP	VMT/SP	VMT	SP	VMT/SP
2012 No Project	539,185	50,573	10.66	2,733,799	159,987	17.09	5,097,400	285,640	17.85	12,264,233	607,952	20.17
2012 With Project	545,381	51,361	10.62	2,741,885	160,775	17.05	5,105,122	286,428	17.82	12,275,343	608,740	20.17
Change			*-0.04*			*-0.03*			*-0.02*			*-0.01*
2020 No Project	718,774	67,796	10.60	3,492,724	193,971	18.01	6,200,457	338,255	18.33	14,881,615	728,251	20.43
2020 With Project	725,215	68,584	10.57	3,499,630	194,759	17.97	6,207,277	339,043	18.31	14,890,746	729,039	20.43
Change			*-0.03*			*-0.04*			*-0.02*			*-0.01*
2040 No Project	1,167,746	110,852	10.53	5,390,034	278,930	19.32	8,958,101	469,794	19.07	21,425,068	1,028,998	20.82
2040 With Project	1,174,800	111,640	10.52	5,393,992	279,718	19.28	8,962,665	470,582	19.05	21,429,255	1,029,786	20.81
Change			*-0.01*			*-0.04*			*-0.02*			*-0.01*

Notes:
1. SP = Service Population (sum of population and employment within the region).
2. VMT/SP = VMT per Service Population.
Source: Fehr & Peers, 2020.