APPENDIX A

STORM WATER QUALITY MANAGEMENT PLAN

Priority Development Project (PDP)
Storm Water Quality Management Plan (SWQMP)

7-ELEVEN OTAY MESA

Site Development Permit No.: 96-7731

Project No.: 553296; Internal Order No.: 24007314

☐ **Check if electing for offsite alternative compliance**

REGISTERED PROFESSIONAL ENGINEER
TRAVIS P. VINCENT JR
C37356
CIVIL
STATE OF CALIFORNIA

Engineer of Work:

Travis P. Vincent Jr.

Provide Wet Signature and Stamp Above Line

Prepared For:

7-Eleven Inc.

3200 Hackberry Rd.

Irving, TX 75063

(714) 970-2095

Prepared By:

CORE STATES GROUP

4240 EAST JURUPA STREET, SUITE 402

ONTARIO, CA 91761

(909) 467-8940

Date:

August 20, 2019

Approved by: City of San Diego Date

The City of SAN DIEGO

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Project Name:

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Project Name:

- Attachment 3: Structural BMP Maintenance Plan
    - Maintenance Agreement (Form DS-3247) (when applicable)
- Attachment 4: Copy of Plan Sheets Showing Permanent Storm Water BMPs
- Attachment 5: Project's Drainage Report
- Attachment 6: Project's Geotechnical and Groundwater Investigation Report

Acronyms

APN	Assessor's Parcel Number
ASBS	Area of Special Biological Significance
BMP	Best Management Practice
CEQA	California Environmental Quality Act
CGP	Construction General Permit
DCV	Design Capture Volume
DMA	Drainage Management Areas
ESA	Environmentally Sensitive Area
GLU	Geomorphic Landscape Unit
GW	Ground Water
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
HU	Harvest and Use
INF	Infiltration
LID	Low Impact Development
LUP	Linear Underground/Overhead Projects
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
POC	Pollutant of Concern
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWPPP	Stormwater Pollutant Protection Plan
SWQMP	Storm Water Quality Management Plan
TMDL	Total Maximum Daily Load
WMAA	Watershed Management Area Analysis
WPCP	Water Pollution Control Program
WQIP	Water Quality Improvement Plan

Certification Page

Project Name:
Permit Application

I hereby declare that I am the Engineer in Responsible Charge of design of storm water BMPs for this project, and that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the requirements of the Storm Water Standards, which is based on the requirements of SDRWQCB Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100 (MS4 Permit).

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water Standards. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable source control and site design BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

Tran P Vinc J

Engineer of Work's Signature

37356

PE#

6/30/20

Expiration Date

Travis P. Vincent Jr.

Print Name

Core States Group

Company

August 20, 2019

Date

REGISTERED PROFESSIONAL ENGINEER
TRAVIS P. VINCENT JR.
C 37356
EXP. 6/30/20
CIVIL
STATE OF CALIFORNIA

Engineer's Stamp

Project Name:

Submittal Record

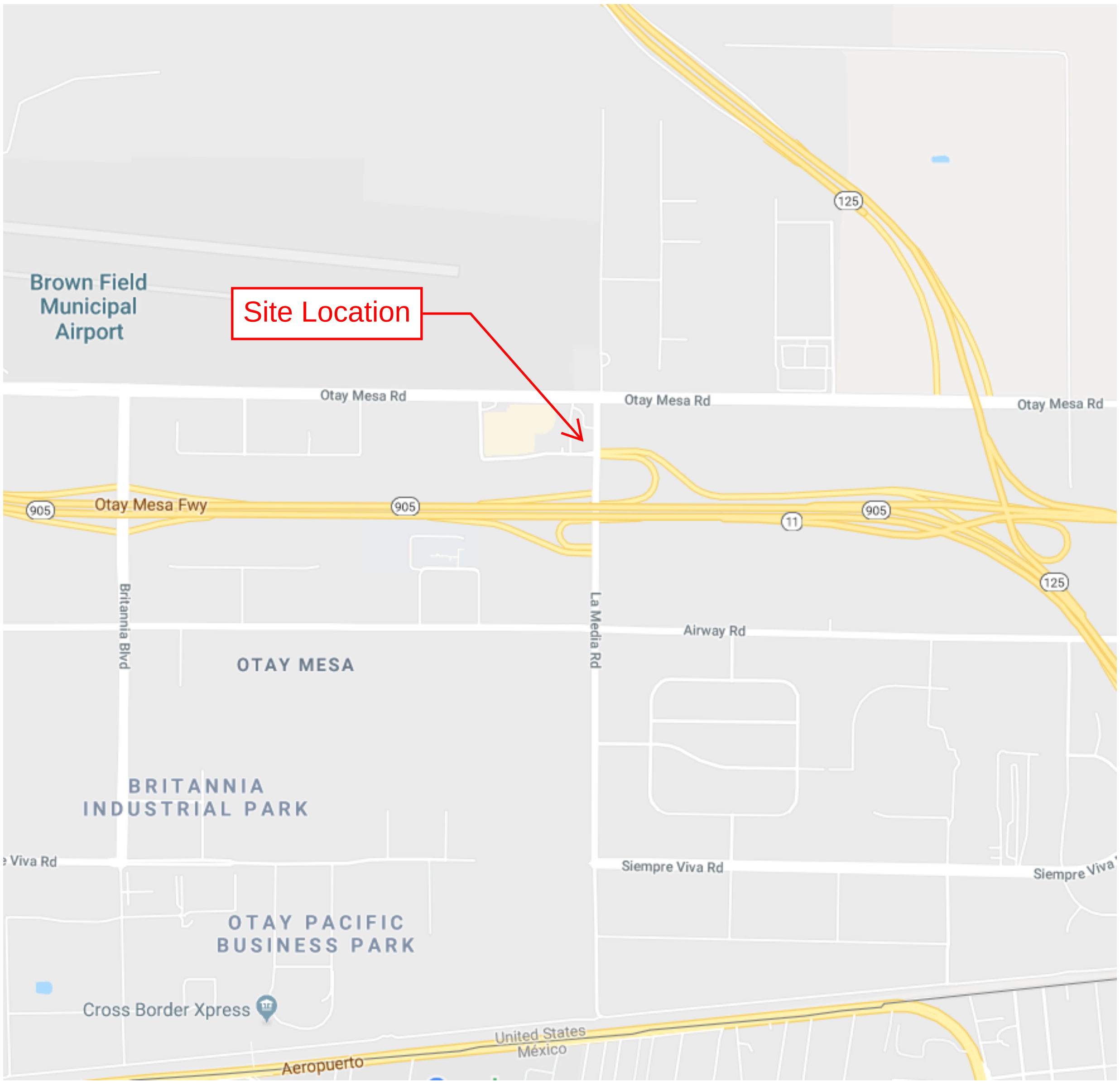
Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In last column indicate changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments.

Submittal Number	Date	Project Status	Changes
1	8/14/19	**Preliminary Design/Planning/CEQA** **Final Design**	**Initial Submittal**
2		**Preliminary Design/Planning/CEQA** **Final Design**	
3		**Preliminary Design/Planning/CEQA** **Final Design**	
4		**Preliminary Design/Planning/CEQA** **Final Design**	

Project Name:

Project Vicinity Map

Project Name: 7-ELEVEN OTAY MESA
Permit Application 96-7731



City of San Diego Form DS-560
Storm Water Requirements Applicability Checklist

Attach DS-560 form.

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Applicability of Permanent, Post-Construction Storm Water BMP Requirements			Form I-1
Project Identification			
Project Name: 7-ELEVEN OTAY MESA			
Permit Application Number: 96-7731			Date: August 7, 2019
Determination of Requirements			
The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short summary of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements. Answer each step below, starting with **Step 1** and progressing through each step until reaching "Stop". Refer to the manual sections and/or separate forms referenced in each step below.			
Step	**Answer**	**Progression**	
Step 1: Is the project a "development project"? See Section 1.3 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Go to **Step 2**.	
	☐ No	**Stop**. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.	
Discussion / justification if the project is not a "development project" (e.g., the project includes *only* interior remodels within an existing building):			
Step 2: Is the project a Standard Project, PDP, or PDP Exempt? To answer this item, see Section 1.4 of the manual in its entirety for guidance AND complete Form DS-560, Storm Water Requirements Applicability Checklist.	☐ Standard Project	**Stop.** Standard Project requirements apply	
	☐ PDP	PDP requirements apply, including PDP SWQMP. Go to **Step 3**.	
	PDP Exempt	**Stop.** Standard Project requirements apply. Provide discussion and list any additional requirements below.	
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:			

Project Name:

<table>
<tr><th colspan="3">Form I-1 Page 2 of 2</th></tr>
<tr><th>Step</th><th>Answer</th><th>Progression</th></tr>
<tr><td rowspan="2">Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval?
See Section 1.10 of the manual (Part 1 of Storm Water Standards) for guidance.</td><td>☐ Yes</td><td>Consult the City Engineer to determine requirements.
Provide discussion and identify requirements below. Go to Step 4.</td></tr>
<tr><td>☐ No</td><td>BMP Design Manual PDP requirements apply. Go to Step 4.</td></tr>
<tr><td colspan="3">Discussion / justification of prior lawful approval, and identify requirements (<u>not required if prior lawful approval does not apply</u>):</td></tr>
<tr><td rowspan="2">Step 4. Do hydromodification control requirements apply?
See Section 1.6 of the manual (Part 1 of Storm Water Standards) for guidance.</td><td>☐ Yes</td><td>PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to Step 5.</td></tr>
<tr><td>☐ No</td><td>Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.</td></tr>
<tr><td colspan="3">Discussion / justification if hydromodification control requirements do <u>not</u> apply:</td></tr>
<tr><td rowspan="2">Step 5. Does protection of critical coarse sediment yield areas apply?
See Section 6.2 of the manual (Part 1 of Storm Water Standards) for guidance.</td><td>☐ Yes</td><td>Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.</td></tr>
<tr><td>☐ No</td><td>Management measures not required for protection of critical coarse sediment yield areas.
Provide brief discussion below.
Stop.</td></tr>
<tr><td colspan="3">Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply:</td></tr>
</table>

HMP Exemption Exhibit

Attach a HMP Exemption Exhibit that shows direct storm water runoff discharge from the project site to HMP exempt area. Include project area, applicable underground storm drain line and/or concrete lined channels, outfall information and exempt waterbody. Reference applicable drawing number(s).

Exhibit must be provided on 11"x17" or larger paper.

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Project Name:

Site Information Checklist For PDPs	Form I-3B
Project Summary Information	
Project Name	7-ELEVEN OTAY MESA
Project Address	8395 Otay Mesa Road San Diego, CA 92154
Assessor's Parcel Number(s) (APN(s))	6461113200 & 6461113300
Permit Application Number	96-7731
Project Watershed	Select One: ☐ San Dieguito River ☐ Penasquitos ☐ Mission Bay ☐ San Diego River ☐ San Diego Bay ☐ Tijuana River
Hydrologic subarea name with Numeric Identifier up to two decimal places (9XX.XX)	Tijuana Valley 911.1
Project Area (total area of Assessor's Parcel(s) associated with the project or total area of the right-of-way)	3.07 Acres (133,729 Square Feet)
Area to be disturbed by the project (Project Footprint)	1.34 Acres (58,070 Square Feet)
Project Proposed Impervious Area (subset of Project Footprint)	0.87 Acres (37,937 Square Feet)
Project Proposed Pervious Area (subset of Project Footprint)	0.47 Acres (20,133 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Project Area.	
The proposed increase or decrease in impervious area in the proposed condition as compared to the pre-project condition	61.5 %

Form I-3B Page 2 of 11
Description of Existing Site Condition and Drainage Patterns
Current Status of the Site (select all that apply): ☐Existing development ☐Previously graded but not built out ☐Agricultural or other non-impervious use ☑Vacant, undeveloped/natural Description / Additional Information:
Existing Land Cover Includes (select all that apply): ☐Vegetative Cover ☑Non-Vegetated Pervious Areas ☐Impervious Areas Description / Additional Information:
Underlying Soil belongs to Hydrologic Soil Group (select all that apply): ☐NRCS Type A ☐NRCS Type B ☐NRCS Type C ☑NRCS Type D
Approximate Depth to Groundwater: ☐ Groundwater Depth < 5 feet ☐ 5 feet < Groundwater Depth < 10 feet ☐ 10 feet < Groundwater Depth < 20 feet ☐ Groundwater Depth > 20 feet
Existing Natural Hydrologic Features (select all that apply): ☐Watercourses ☐Seeps ☐Springs ☐Wetlands ☑None Description / Additional Information:

Form I-3B Page 3 of 11
Description of Existing Site Topography and Drainage
How is storm water runoff conveyed from the site? At a minimum, this description should answer: 1. Whether existing drainage conveyance is natural or urban; 2. If runoff from offsite is conveyed through the site? If yes, quantification of all offsite drainage areas, design flows, and locations where offsite flows enter the project site and summarize how such flows are conveyed through the site; 3. Provide details regarding existing project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, and natural and constructed channels; 4. Identify all discharge locations from the existing project along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.
Descriptions/Additional Information
Currently the existing natural lot is in undeveloped condition with Hydrologic Soil Group Type D. The runoff will sheet flow and enter the underground storm system through the catch basins on St. Andrews Ave. and La Media Rd. The underground storm system will convey the storm water and discharge it into Otay Mesa Creek and Tijuana River. The approximate tributary drainage area is 1.6 ac, and the estimated peak flow for a 100-Year storm event is 10.02 cfs.

Project Name:

Form I-3B Page 4 of 11
Description of Proposed Site Development and Drainage Patterns
Project Description / Proposed Land Use and/or Activities: The construction of a new fuel canopy and five (5) dispensers and approximately 870 sf building addition to the existing convenience store
List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features): Existing pavement to be milled and overlayed, new fueling canopy and five (5) dispensers, ac pavement driveaway, concrete driveway entrance, accessible curb ramp, and a sidewalk connection.
List/describe proposed pervious features of the project (e.g., landscape areas): New trees and planting around the site along with a biofiltration with partial retention basin on the southeast corner of the site.
Does the project include grading and changes to site topography? ☐ Yes ☐ No Description / Additional Information: Project proposes grading 100% of the site

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Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)? ☐ Yes ☐ No If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural and constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations. Description / Additional Information: The proposed project will retain the existing drainage pattern and will not cause negative impact to any adjacent properties, as shown on the attached DMA exhibits. The runoff sheet flows toward the southeast corner of the lot into a new biofiltration with partial retention basin for treatment. Portion of the treated water will infiltrate into the soil, the rest will be discharged via an underdrain which connects to the existing catch basin on St Andrews Ave. The storm water enters the underground hardened conveyance channel under St. Andrews Ave. and discharges into Otay Mesa Creek and then Tijuana River. A circular orifice will be utilized to control the outflow rate from the underdrain to meet the hydromodification requirements. Surface runoff generated in the fueling area will be collected by a trench drain and treated by a oil / water separator before discharging into the existing sanitary sewer system on St. Andrews Ave.

Project Name:

Form I-3B Page 6 of 11
Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply): ☑Onsite storm drain inlets ☐Interior floor drains and elevator shaft sump pumps ☐Interior parking garages ☑Need for future indoor & structural pest control ☑Landscape/outdoor pesticide use ☐Pools, spas, ponds, decorative fountains, and other water features ☑Food service ☑Refuse areas ☐Industrial processes ☐Outdoor storage of equipment or materials ☐Vehicle and equipment cleaning ☐Vehicle/equipment repair and maintenance ☑Fuel dispensing areas ☐Loading docks ☐Fire sprinkler test water ☐Miscellaneous drain or wash water ☑Plazas, sidewalks, and parking lots Description/Additional Information:

Form I-3B Page 7 of 11
Identification and Narrative of Receiving Water
Narrative describing flow path from discharge location(s), through urban storm conveyance system, to receiving creeks, rivers, and lagoons and ultimate discharge location to Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable) The storm water enteres the underground hardened conveyance channel under St. Andrews Ave. and discharge to Otay Mesa Creek and Tijuana River.
Provide a summary of all beneficial uses of receiving waters downstream of the project discharge locations The beneficial uses include (AGR), (AQUA), (BIOL), (COLD), (COMM), (REC-1), (EST), (FRSH), (PRO), (PROC), (MAR), (MIGR), (MUN), (NAV), (REC-2), (RARE), (SHELL), (WARM), (SPWN), (WILD)
Identify all ASBS (areas of special biological significance) receiving waters downstream of the project discharge locations The site drains to Tijuana River, there are no areas of ASBS downstream of project.
Provide distance from project outfall location to impaired or sensitive receiving waters The distance is 11 miles.
Summarize information regarding the proximity of the permanent, post-construction storm water BMPs to the City's Multi-Habitat Planning Area and environmentally sensitive lands The post-construction storm water BMP is located 3 miles northwest of the City's Multi-Habitat Planning Area, it does not drain to it.

Project Name:

Form I-3B Page 8 of 11		
Identification of Receiving Water Pollutants of Concern		
List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:		
303(d) Impaired Water Body (Refer to Appendix K)	Pollutant(s)/Stressor(s) (Refer to Appendix K)	TMDLs/WQIP Highest Priority Pollutant (Refer to Table 1-4 in Chapter 1)
Tijuana River	Eutrophic, Indicator Bacteria,	Coliform Bacteria, Nutrients,
	Low Dissolved Oxygen,	Trace Metals, Pesticides,
	Pesticides, Phosphorus,	Miscellaneous Toxics, Low
	Sedimentation/Siltation,	Dissolved Oxygen, trash, TDS,
	Selenium, Solids, Surfactants,	Nitrates, Petroleum, MTBE,
	Synthetic Organics, Total	and Solvents
	Nitrogen as N, Toxicity, Trace	
	Elements Trash	

Identification of Project Site Pollutants*			
*Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated) Identify pollutants anticipated from the project site based on all proposed use(s) of the site (see Appendix B.6):			
Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	☐	☑	☐
Nutrients	☐	☑	☐
Heavy Metals	☐	☑	☐
Organic Compounds	☐	☑	☐
Trash & Debris	☐	☑	☐
Oxygen Demanding Substances	☐	☑	☐
Oil & Grease	☐	☑	☐
Bacteria & Viruses	☐	☑	☐
Pesticides	☐	☑	☐

Form I-3B Page 9 of 11
Hydromodification Management Requirements
Do hydromodification management requirements apply (see Section 1.6)? ☐ Yes, hydromodification management flow control structural BMPs required. ☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. ☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. ☐ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides. Description / Additional Information (to be provided if a 'No' answer has been selected above): San Diego Hydrology Model is utilized to demonstrate the proposed development will meet the hydromodification requirements. Note: If "No" answer has been selected the SWQMP must include an exhibit that shows the storm water conveyance system from the project site to an exempt water body. The exhibit should include details about the conveyance system and the outfall to the exempt water body.
Critical Coarse Sediment Yield Areas* ***This Section only required if hydromodification management requirements apply**
Based on Section 6.2 and Appendix H does CCSYA exist on the project footprint or in the upstream area draining through the project footprint? ☐ Yes ☐ No Discussion / Additional Information: Potential Critical Coarse Sediment Yield Areas maps are provided. Project site is not located in the potential critical coarse sediment yield area.

Form I-3B Page 10 of 11
Flow Control for Post-Project Runoff* ***This Section only required if hydromodification management requirements apply**
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit. The proposed project will have one single point of compliance (POC 1) which is located at the southeast corner of the site at the connection point to the existing catch basin. After the infiltration stone storage layer is filled, the treated runoff will be discharged to the existing underground storm system through the catch basin on St. Andrews Ave that conveys runoff to Otay Mesa Creek and Tijuana River. Surface runoff from the fueling pad area will be collected by a trench drain and treated by a oil / water separator before discharging into the existing sanitary sewer system on St. Andrews Ave. Refer to Post DMA exhibit for BMPs and POC 1 location.
Has a geomorphic assessment been performed for the receiving channel(s)? ☐ No, the low flow threshold is $0.1Q_2$ (default low flow threshold) ☐ Yes, the result is the low flow threshold is $0.1Q_2$ ☐ Yes, the result is the low flow threshold is $0.3Q_2$ ☐ Yes, the result is the low flow threshold is $0.5Q_2$ If a geomorphic assessment has been performed, provide title, date, and preparer: N/A
Discussion / Additional Information: (optional) Refer to Drainage Study Report and San Diego Hydrology Model Report for detailed analysis

Form I-3B Page 11 of 11
Other Site Requirements and Constraints
When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements. N/A
Optional Additional Information or Continuation of Previous Sections As Needed
This space provided for additional information or continuation of information from previous sections as needed. N/A

Project Name:

Source Control BMP Checklist for PDPs			Form I-4B
Source Control BMPs			
All development projects must implement source control BMPs where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of the Storm Water Standards) for information to implement source control BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.			
Source Control Requirement	**Applied?**		
4.2.1 Prevention of Illicit Discharges into the MS4	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.1 not implemented:			
4.2.2 Storm Drain Stenciling or Signage	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.2 not implemented:			
4.2.3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.3 not implemented:			
4.2.4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.4 not implemented:			
4.2.5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.5 not implemented:			

Project Name:

Form I-4B Page 2 of 2			
Source Control Requirement	**Applied?**		
4.2.6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
On-site storm drain inlets	☐ Yes	☐ No	☐ N/A
Interior floor drains and elevator shaft sump pumps	☐ Yes	☐ No	☐ N/A
Interior parking garages	☐ Yes	☐ No	☐ N/A
Need for future indoor & structural pest control	☐ Yes	☐ No	☐ N/A
Landscape/Outdoor Pesticide Use	☐ Yes	☐ No	☐ N/A
Pools, spas, ponds, decorative fountains, and other water features	☐ Yes	☐ No	☐ N/A
Food service	☐ Yes	☐ No	☐ N/A
Refuse areas	☐ Yes	☐ No	☐ N/A
Industrial processes	☐ Yes	☐ No	☐ N/A
Outdoor storage of equipment or materials	☐ Yes	☐ No	☐ N/A
Vehicle/Equipment Repair and Maintenance	☐ Yes	☐ No	☐ N/A
Fuel Dispensing Areas	☐ Yes	☐ No	☐ N/A
Loading Docks	☐ Yes	☐ No	☐ N/A
Fire Sprinkler Test Water	☐ Yes	☐ No	☐ N/A
Miscellaneous Drain or Wash Water	☐ Yes	☐ No	☐ N/A
Plazas, sidewalks, and parking lots	☐ Yes	☐ No	☐ N/A
SC-6A: Large Trash Generating Facilities	☐ Yes	☐ No	☐ N/A
SC-6B: Animal Facilities	☐ Yes	☐ No	☐ N/A
SC-6C: Plant Nurseries and Garden Centers	☐ Yes	☐ No	☐ N/A
SC-6D: Automotive Facilities	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

Project Name:

Site Design BMP Checklist for PDPs			Form I-5B
Site Design BMPs			
All development projects must implement site design BMPs where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of Storm Water Standards) for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided. A site map with implemented site design BMPs must be included at the end of this checklist.			
Site Design Requirement	**Applied?**		
4.3.1 Maintain Natural Drainage Pathways and Hydrologic Features	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.1 not implemented: The existing site is undeveloped and will be re-graded to accommodate the new fuel station and biofiltration with partial retention basin will be added to provide water treatment.			
1-1 Are existing natural drainage pathways and hydrologic features mapped on the site map?	☐ Yes	☐ No	☐ N/A
1-2 Are trees implemented? If yes, are they shown on the site map?	☐ Yes	☐ No	☐ N/A
1-3 Implemented trees meet the design criteria in 4.3.1 Fact Sheet (e.g. soil volume, maximum credit, etc.)?	☐ Yes	☐ No	☐ N/A
1-4 Is tree credit volume calculated using Appendix B.2.2.1 and SD-1 Fact Sheet in Appendix E?	☐ Yes	☐ No	☐ N/A
4.3.2 Have natural areas, soils and vegetation been conserved?	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.2 not implemented:			

Form I-5B Page 2 of 4			
Site Design Requirement	**Applied?**		
4.3.3 Minimize Impervious Area	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.3 not implemented:			
4.3.4 Minimize Soil Compaction	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.4 not implemented:			
4.3.5 Impervious Area Dispersion	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.5 not implemented:			
5-1 Is the pervious area receiving runon from impervious area identified on the site map?	☐ Yes	☐ No	☐ N/A
5-2 Does the pervious area satisfy the design criteria in 4.3.5 Fact Sheet in Appendix E (e.g. maximum slope, minimum length, etc.)	☐ Yes	☐ No	☐ N/A
5-3 Is impervious area dispersion credit volume calculated using Appendix B.2.1.1 and 4.3.5 Fact Sheet in Appendix E?	☐ Yes	☐ No	☐ N/A

Form I-5B Page 3 of 4			
Site Design Requirement	Applied?		
4.3.6 Runoff Collection	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.6 not implemented:			
6a-1 Are green roofs implemented in accordance with design criteria in 4.3.6A Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☐ N/A
6a-2 Is the green roof credit volume calculated using Appendix B.2.1.2 and 4.3.6A Fact Sheet in Appendix E?	☐ Yes	☐ No	☐ N/A
6b-1 Are permeable pavements implemented in accordance with design criteria in 4.3.6B Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☐ N/A
6b-2 Is the permeable pavement credit volume calculated using Appendix B.2.1.3 and 4.3.6B Fact Sheet in Appendix E?	☐ Yes	☐ No	☐ N/A
4.3.7 Landscaping with Native or Drought Tolerant Species	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.7 not implemented:			
4.3.8 Harvest and Use Precipitation	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.8 not implemented: Biofiltration with partial retention basin will be used to reduce storm runoff, therefore harvesting and re-use of storm water will not be proposed.			
8-1 Are rain barrels implemented in accordance with design criteria in 4.3.8 Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☐ N/A
8-2 Is the rain barrel credit volume calculated using Appendix B.2.2.2 and 4.3.8 Fact Sheet in Appendix E?	☐ Yes	☐ No	☐ N/A

Project Name:

Form I-5B Page 4 of 4
Insert Site Map with all site design BMPs identified:
See attached DMA exhibit

Project Name:

Summary of PDP Structural BMPs	Form I-6
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual, Part 1 of Storm Water Standards). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s). PDP structural BMPs must be verified by the City at the completion of construction. This includes requiring the project owner or project owner's representative to certify construction of the structural BMPs (complete Form DS-563). PDP structural BMPs must be maintained into perpetuity (see Chapter 7 of the BMP Design Manual). Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).	
Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. Because of the low infiltration rate (0.27in/hr measured, 0.15in/hr after applying safety factor) of the site soil, full infiltration is not feasible and therefore biofiltration with partial retention treatment facility is selected for this project. The proposed site will drain the runoff towards the biofiltration with partial retention basin at the south east corner of the site via surface flow. The proposed basin will provide both water quality treatment and flow control treatment. The basin will be covered by a 18" thick engineered soil media layer in compliance to the City's standards for biofiltration. A 12" stone storage layer under the engineered soil will provide the necessary space for the water to infiltrate into the natural soil. A 12" perforated underdrain will sit in the stone storage layer to convey the treated water after the stone storage is filled. A 1.5" diameter circular orifice is proposed to control the outflow for smaller storm events, and a 18" riser and overflow pipe are proposed to handle bigger storm events. The discharge will enter the underground storm system through the catch basin on St. Andrew Ave and convey to Otay Mesa Creek and Tijuana River. See Worksheet B.5-1 for BMP sizing calculations. (Continue on page 2 as necessary.)	

Project Name:

Form I-6 Page 2 of
(Continued from page 1)

Project Name:

Form I-6 Page 3 of (Copy as many as needed)	
Structural BMP Summary Information	
Structural BMP ID No.	
Construction Plan Sheet No.	
Type of Structural BMP: ☐ Retention by harvest and use (e.g. HU-1, cistern) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification form DS-563	Core States Group, Travis Vincent PE C37356 (909) 467-8940
Who will be the final owner of this BMP?	7-Eleven, INC.
Who will maintain this BMP into perpetuity?	7-Eleven, INC.
What is the funding mechanism for maintenance?	7-Eleven, INC.

Project Name:

Form I-6 Page 4 of (Copy as many as needed)
Structural BMP ID No.
Construction Plan Sheet No.
Discussion (as needed; must include worksheets showing BMP sizing calculations in the SWQMPs):

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Discussion (as needed; must include worksheets showing BMP sizing calculations in the SWQMPs):

Note: If additional copies of Form I-6 are needed to list all BMPs, insert extra sheets in Attachment 1

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Attachment 1
Backup For PDP Pollutant Control BMPs

This is the cover sheet for Attachment 1.

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Project Name:

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist.	☒ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☑ Included on DMA Exhibit in Attachment 1a ☐ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☐ Included ☑ Not included because the entire project will use infiltration BMPs
Attachment 1d	Infiltration Feasibility Information. Contents of Attachment 1d depend on the infiltration condition: • No Infiltration Condition: o Infiltration Feasibility Condition Letter (*Note: must be stamped and signed by licensed geotechnical engineer*) o Form I-8A (optional) o Form I-8B (optional) • Partial Infiltration Condition: o Infiltration Feasibility Condition Letter (*Note: must be stamped and signed by licensed geotechnical engineer*) o Form I-8A o Form I-8B • Full Infiltration Condition: o Form I-8A o Form I-8B o Worksheet C.4-3 o Form I-9 Refer to Appendices C and D of the BMP Design Manual for guidance.	☑ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines and site design credit calculations	☑ Included

Project Name:

Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

- [x] Underlying hydrologic soil group
- [x] Approximate depth to groundwater
- [ ] Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- [ ] Critical coarse sediment yield areas to be protected
- [x] Existing topography and impervious areas
- [x] Existing and proposed site drainage network and connections to drainage offsite
- [x] Proposed grading
- [x] Proposed impervious features
- [ ] Proposed design features and surface treatments used to minimize imperviousness
- [x] Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- [x] Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
- [x] Structural BMPs (identify location, type of BMP, size/detail, and include cross-section)

Project Name:

Tabular Summary of DMAs							Worksheet B-1		
DMA Unique Identifier	Area (acres)	Impervious Area (acres)	% Imp	HSG	Area Weighted Runoff Coefficient	DCV (cubic feet)	Treated By (BMP ID)	Pollutant Control Type	Drains to (POC ID)
Summary of DMA Information (Must match project description and SWQMP Narrative)									
No. of DMAs	Total DMA Area (acres)	Total Impervious Area (acres)	% Imp		Area Weighted Runoff Coefficient	Total DCV (cubic feet)	Total Area Treated (acres)		No. of POCs
1	1.69	1.19	70.4		0.73	2,463	1.69		1

Where: DMA = Drainage Management Area; Imp = Imperviousness; HSG = Hydrologic Soil Group; DCV= Design Capture Volume; BMP = Best Management Practice; POC = Point of Compliance; ID = identifier; No. = Number

Appendix E

BMP Design Fact Sheets

The following fact sheets were developed to assist the project applicants with designing BMPs to meet the storm water obligations:

MS4 Category	Manual Category	Design Fact Sheet
Source Control	Source Control	SC: Source Control BMP Requirements SC-6A: Large Trash Generating Facilities SC-6B: Animal Facilities SC-6C: Plant Nurseries and Garden Centers
		SC-6D: Automotive-related Uses
Site Design	Site Design	SD-1: Trees SD-4: Amended Soils SD-5: Impervious Area Dispersion SD-6A: Green Roofs SD-6B: Permeable Pavement (Site Design BMP) SD-8: Rain Barrels
	Harvest and Use	HU-1: Cistern
Retention	Infiltration	INF-1: Infiltration Basins INF-2: Bioretention INF-3: Permeable Pavement (Pollutant Control) INF-4: Dry Wells
	Partial Retention	PR-1: Biofiltration with Partial Retention
Biofiltration	Biofiltration	BF-1: Biofiltration BF-2: Nutrient Sensitive Media Design BF-3: Proprietary Biofiltration
Flow-thru Treatment Control	Flow-thru Treatment Control with Alternative Compliance	FT-1: Vegetated Swales FT-2: Media Filters FT-3: Sand Filters FT-4: Dry Extended Detention Basin FT-5: Proprietary Flow-thru Treatment Control
		PL: Plant List

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E.1. Source Control BMP Requirements

Worksheet E.1-1: Source Control BMP Requirements

How to comply: Projects shall comply with this requirement by implementing all source control BMPs listed in this section that are applicable to their project. Applicability shall be determined through consideration of the development project's features and anticipated pollutant sources. Appendix E.1 provides guidance for identifying source control BMPs applicable to a project. Checklist I.4 in Appendix I shall be used to document compliance with source control BMP requirements.

How to use this worksheet:

1. Review Column 1 and identify which of these potential sources of storm water pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your project site plan.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in a table in your project-specific storm water management report. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternatives.

If These Sources Will Be on the Project Site …	… Then Your SWQMP Shall Consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
☒ A. Onsite storm drain inlets ❑ Not Applicable	☒ Locations of inlets.	☒ Mark all inlets with the words "No Dumping! Flows to Bay" or similar.	☒ Maintain and periodically repaint or replace inlet markings. ☒ Provide storm water pollution prevention information to new site owners, lessees, or operators. ☒ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com. ❑ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
☐ B. Interior floor drains and elevator shaft sump pumps ☒ Not Applicable		☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
☐ C. Interior parking garages ☒ Not Applicable		☐ State that parking garage floor drains will be plumbed to the sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
☐ D1. Need for future indoor & structural pest control ☒ Not Applicable		☐ Note building design features that discourage entry of pests.	☐ Provide Integrated Pest Management information to owners, lessees, and operators.

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
☒ D2. Landscape/ Outdoor Pesticide Use ❑ Not Applicable	❑ Show locations of existing trees or areas of shrubs and ground cover to be undisturbed and retained. ☒ Show self-retaining landscape areas, if any. ☒ Show storm water treatment facilities.	❑ State that final landscape plans will accomplish all of the following. ❑ Preserve existing drought tolerant trees, shrubs, and ground cover to the maximum extent possible. ☒ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution. ☒ Where landscaped areas are used to retain or detain storm water, specify plants that are tolerant of periodic saturated soil conditions. ☒ Consider using pest-resistant plants, especially adjacent to hardscape. ☒ To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	☒ Maintain landscaping using minimum or no pesticides. ☒ See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com. ❑ Provide IPM information to new owners, lessees and operators.

If These Sources Will Be on the Project Site …	**… Then Your SWQMP shall consider These Source Control BMPs**		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
❑ E. Pools, spas, ponds, decorative fountains, and other water features. ☒ Not Applicable	❑ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	❑ If the local municipality requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	❑ See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.
❑ F. Food service ☒ Not Applicable	❑ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ❑ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	❑ Describe the location and features of the designated cleaning area. ❑ Describe the items to be cleaned in this facility and how it has been sized to ensure that the largest items can be accommodated.	

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
❑ G. Refuse areas ☒ Not Applicable	❑ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ❑ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. Also show how the designated area will be protected from wind dispersal. ❑ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	❑ State how site refuse will be handled and provide supporting detail to what is shown on plans. ❑ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	❑ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
☐ H. Industrial processes. ☒ Not Applicable	☐ Show process area.	☐ If industrial processes are to be located onsite, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."	☐ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.
☐ I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.) ☒ Not Applicable	☐ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or runoff from area and protected from wind dispersal. ☐ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ☐ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	☐ Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release Prevention Program ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank	☐ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
❑ J. Vehicle and Equipment Cleaning ☒ Not Applicable	❑ Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle /equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited onsite and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.	❑ If a car wash area is not provided, describe measures taken to discourage onsite car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): ❑ Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. ❑ Car dealerships and similar may rinse cars with water only. ❑ See Fact Sheet SC-21, "Vehicle and Equipment Cleaning," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
❑ K. Vehicle/Equipment Repair and Maintenance ☒ Not Applicable	❑ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to protect from rainfall, run-on runoff, and wind dispersal. ❑ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. ❑ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	❑ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. ❑ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ❑ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the report, note that all of the following restrictions apply to use the site: ❑ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. ❑ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. ❑ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
☒ L. Fuel Dispensing Areas ❑ Not Applicable	☒ Fueling areas[1] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are (1) graded at the minimum slope necessary to prevent ponding; and (2) separated from the rest of the site by a grade break that prevents run-on of storm water to the MEP. ☒ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area1.] The canopy [or cover] shall not drain onto the fueling area.		☒ The property owner shall dry sweep the fueling area routinely. ☒ See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.

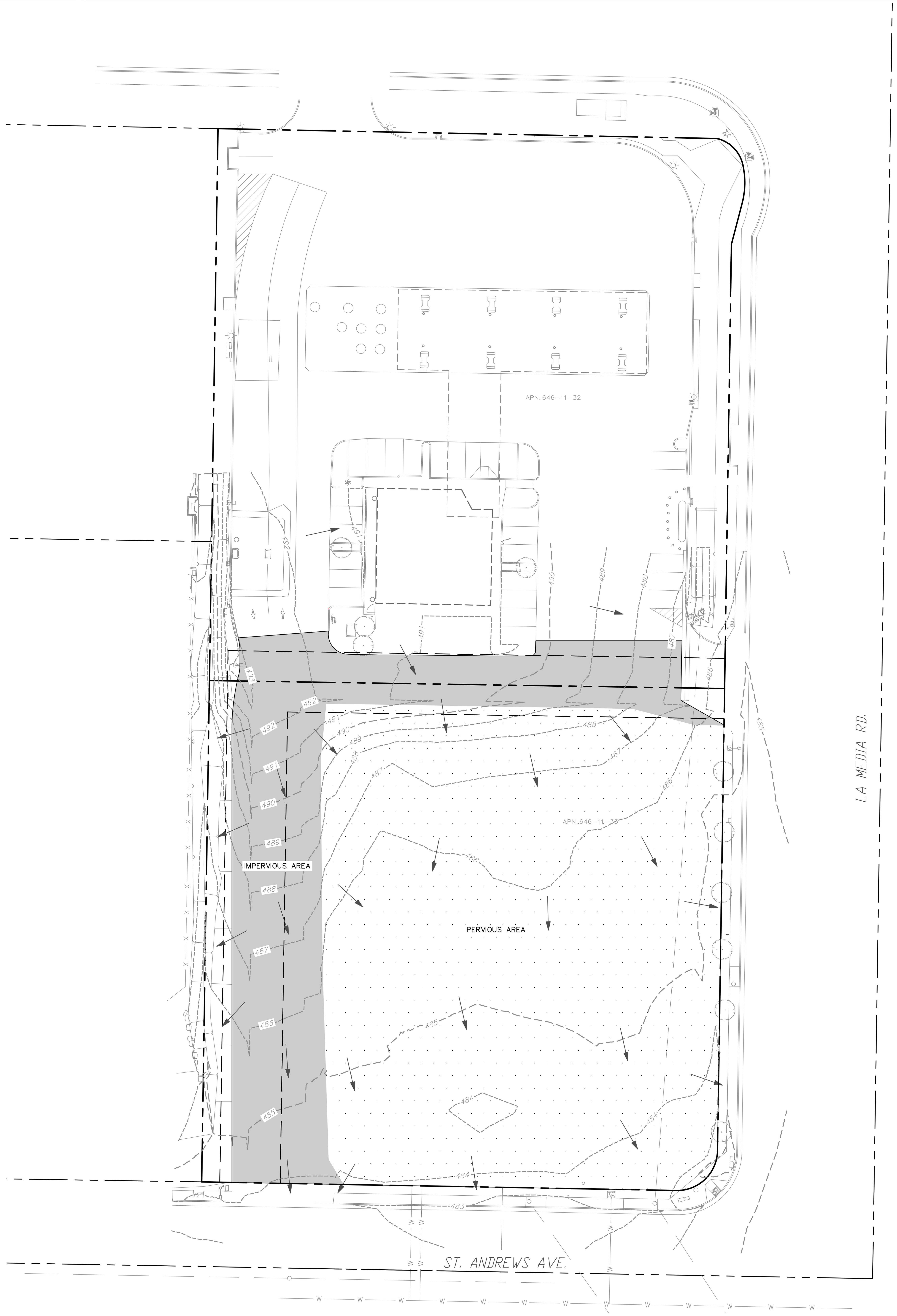
The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
M. Loading Docks ☒ Not Applicable	❑ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct storm water away from the loading area. Water from loading dock areas should be drained to the sanitary sewer where feasible. Direct connections to storm drains from depressed loading docks are prohibited. ❑ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. ❑ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		❑ Move loaded and unloaded items indoors as soon as possible. ❑ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
❑ N. Fire Sprinkler Test Water ☒ Not Applicable		❑ Provide a means to drain fire sprinkler test water to the sanitary sewer.	❑ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.

O. Miscellaneous Drain or Wash Water ❑ Boiler drain lines ❑ Condensate drain lines ❑ Rooftop equipment ❑ Drainage sumps ❑ Roofing, gutters, and trim ☒ Not Applicable		❑ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ❑ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ❑ Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ❑ Any drainage sumps onsite shall feature a sediment sump to reduce the quantity of sediment in pumped water. ❑ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	

If These Sources Will Be on the Project Site …	… Then Your SWQMP shall consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
❑ P. Plazas, sidewalks, and parking lots. ☒ Not Applicable			❑ Plazas, sidewalks, and parking lots shall be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.



EXISTING DRAINAGE SUMMARY:

THE EXISTING SITE IS IN UNDEVELOPED CONDITION WITH LOW INFILTRATION RATE. THE SURFACE RUNOFF WILL SHEET FLOW AND DISCHARGE ONTO LA MEDIA RD. & ST. ANDREWS AVE. AND THEN COLLECTED BY THE EXISTING CATCH BASINS. THE RUNOFF WILL ENTER THE UNDERGROUND CONVEYANCE CHANNEL AND DISCHARGE TO OTAY MESA CREEK AND TIJUANA RIVER.

Pre-Project Runoff Volume:

V= C x d x A x 3,630

C=0.36 ; d=0.55in ; A=1.69ac

V= 0.36 x 0.55 x 1.69 x 3,630= 1,214 cubic feet

SOIL TYPE NOTE:
THE ENTIRE SITE IS CLASSIFIED AS TYPE D PER NRCS.

CCSYA NOTE:
THE PROJECT IS NOT WITHIN OR DOESN'T RECEIVE OR DRAINS FROM CRITICAL COARSE SEDIMENT YIELD AREAS.

GROUNDWATER NOTE:
THERE IS NO GROUNDWATER ON THE SITE OR 1,000 FEET RADIUS FROM THE SITE PER GEOTRACKER GAMA GROUNDWATER.

PROPOSED LEGEND

- PROPERTY LINE
- ASPHALT PAVEMENT
- DIRT
- EXISTING CONTOUR
- FLOW ARROW
- STANDARD CURB
- LANDSCAPING
- AREA UNDER CANOPY
- DMA BOUNDARY

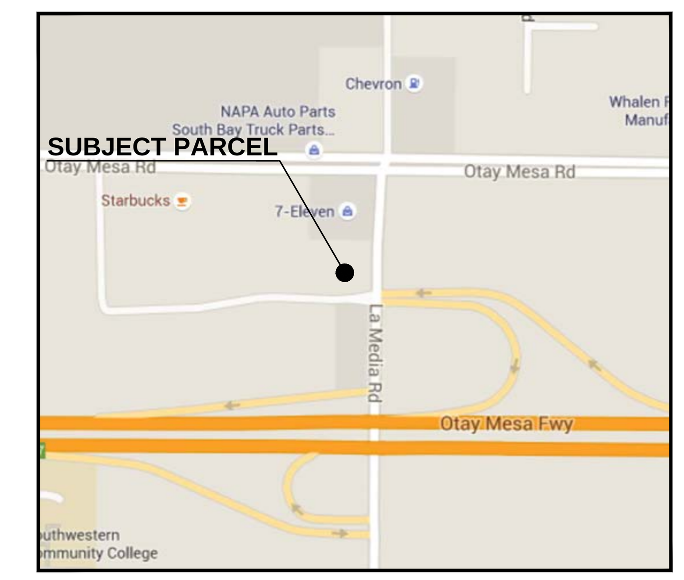
SITE DATA TABLE

LAND USE

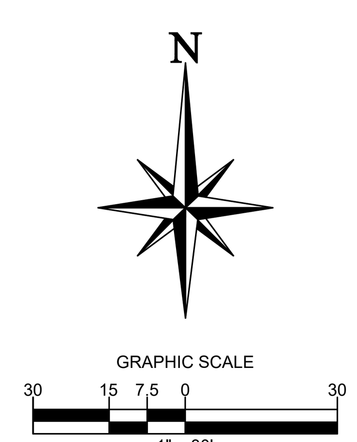
PARCEL APN No.:	6461113200 & 6461113300
CURRENT ZONING:	I L - 3 -1
EXISTING USE:	GAS STATION AND CONVENIENCE STORE & VACANT LOT
OVERALL PARCELS (BOTH GAS STATION AND VACANT LOT)	
TOTAL PARCEL AREA:	133,842 SF/ 3.07 AC
EXISTING IMPERVIOUS AREA	66,669 SF/ 1.53 AC (49.84%)
EXISTING OPEN SPACE	67,173 SF/ 4.54 AC (50.16%)
VACANT LOT PARCEL AREA:	63,677 SF/ 1.46 AC
EXISTING IMPERVIOUS AREA	6,341 SF/ 0.15 AC (10.27%)
EXISTING OPEN SPACE	57,336 SF/ 1.31 AC (89.73%)

BUILDING DATA

CONSTRUCTION TYPE:	IIB
OCCUPANCY	GROUP U
EXISTING BUILDING:	3,095 SF
FAR:	
EXISTING	0.02
REQUIRED SETBACKS:	
FRONT (OTAY MESA)	15 FEET
SIDE (LA MEDIA)	20 FEET
SIDE (WEST)	20 FEET
REAR	15 FEET



LOCATION MAP
NOT TO SCALE



7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

PRE-PROJECT
DMA EXHIBIT

CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 467-8909
santi@core-eng.com

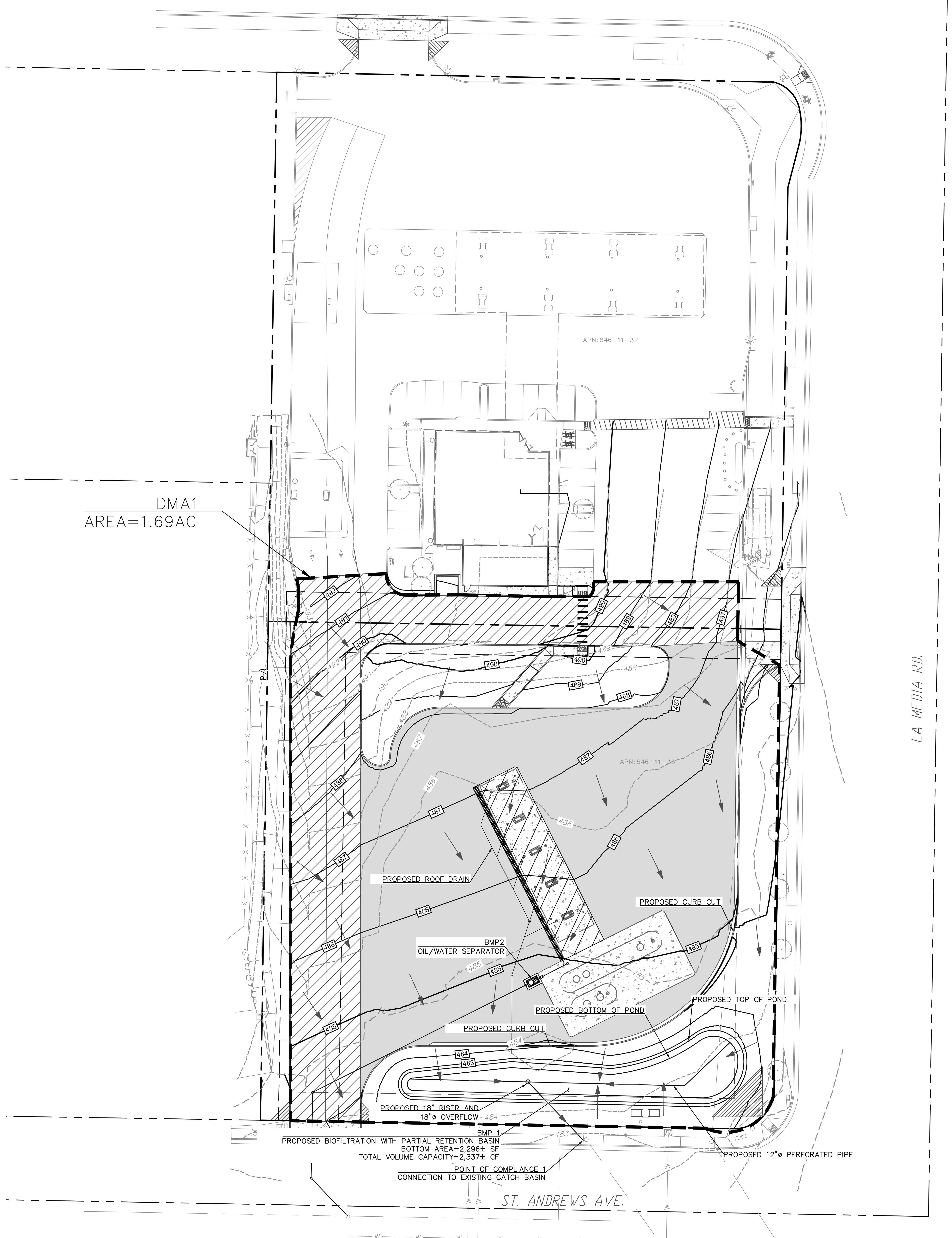
ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	AS SHOWN
Date:	03-28-18
Drawn By:	RM
Checked By:	TV

PRE DMA

Drawing: P:\7-Eleven\FL\San Diego, CA 32290 – SEI-16380.0155 FL\Vault\Civil\Construction Plans\DMA Plan.dwg ;DMA 1
User: NSIU
Last Modified: Mar. 30, 18 – 13:36
Plot Date/Time: Apr. 20, 18 – 11:57:12



GRAPHIC SCALE
1" = 30'

PROPOSED DRAINAGE SUMMARY:

THE PROPOSED PROJECT WILL INCREASE THE IMPERVIOUS AREA AND THE BIOFILTRATION WITH PARTIAL RETENTION POND IS PROPOSED TO REMEDY THE INCREASE OF SURFACE RUNOFF. THE SURFACE RUNOFF WILL SHEET FLOW TOWARD THE SOUTHEAST CORNER OF THE SITE AND ENTER THE DETENTION POND THROUGH CURB OPENINGS. THE ENGINEERED SOIL MEDIA WILL FILTER THE STORM WATER. THE WATER THEN ENTER THE LOWER LAYER OF THE POND WHICH PROVIDE 12" OF STONE STORAGE FOR INFILTRATION. AN UNDERDRAIN WITH ORIFICE IS UTILIZED TO CONTROL THE OUTFLOW RATE FOR SMALLER STORM EVENTS, AND THE RISER AND OVERFLOW ARE PROVIDED TO HANDLE THE PEAK FLOW RATE OF BIGGER STORM EVENTS.

DMA 1 DESIGN CAPTURE VOLUME CALCULATION :

V= C x d x A x 3,630

C=0.73 ; d=0.55in ; A=1.69ac

V= 0.73 x 0.55 x 1.69 x 3,630= 2,463 cubic feet

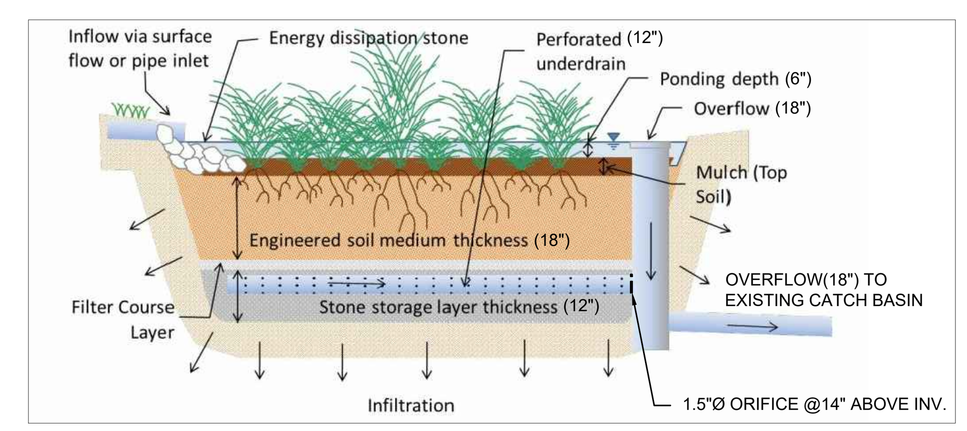
SWQMP DATA		
	REQUIRED (CF)	PROPOSED (CF)
DCV	2,463	–
RETENTION	–	1,419
INFILTRATION	–	918
TOTAL STORAGE	–	2,337
TOTAL FILTERED	–	22960 (IN24HR)

SURFACE POND VOLUME CALCULATION:
SURFACE POND CAPACITY IS ESTIMATED BY COMPUTER PROGRAM (AUTOCAD CIVIL 3D). SEE TABLE IN ATTACHMENT 1 FOR DETAILS.

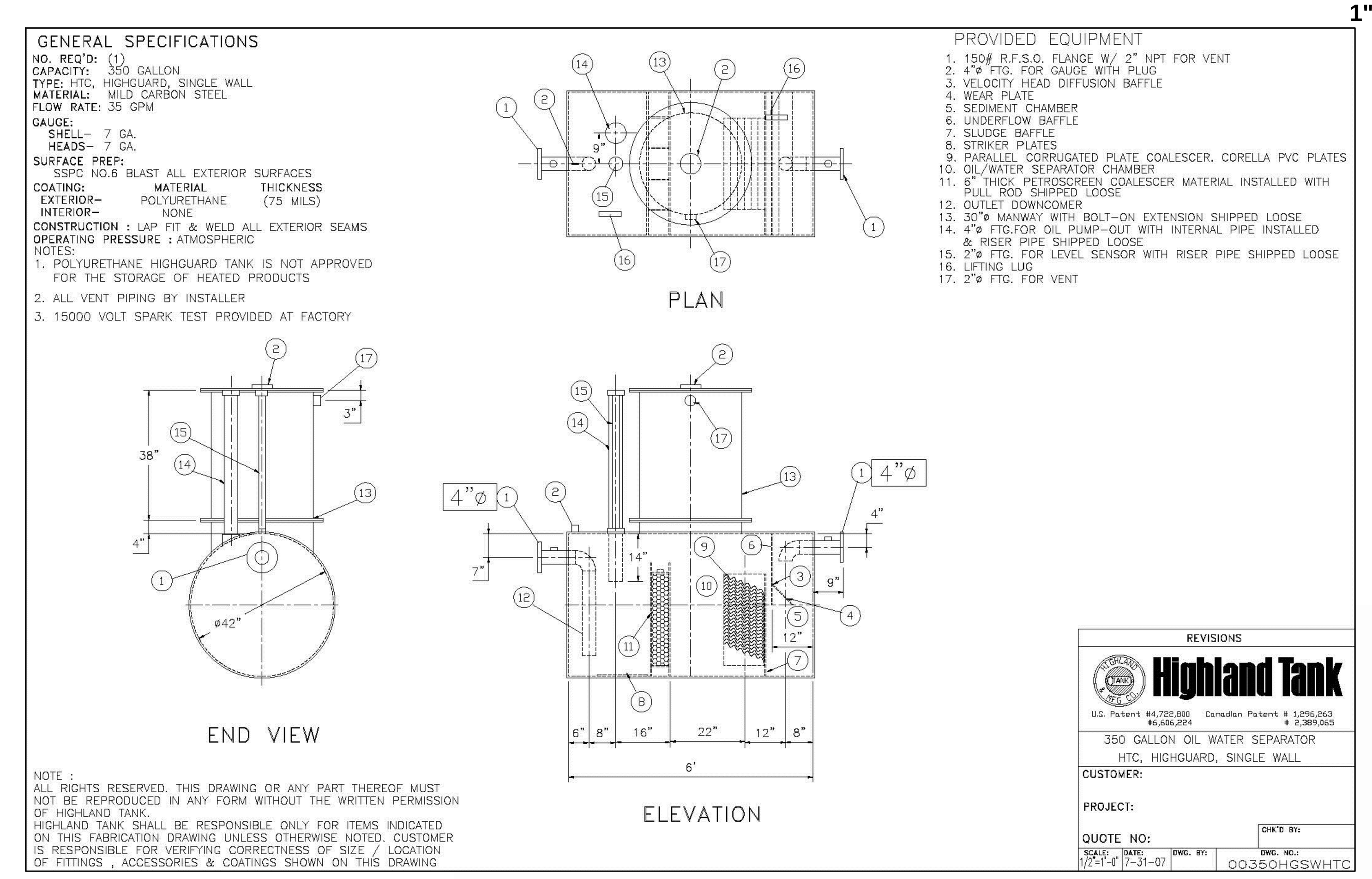
UNDERGROUND STONE STORAGE VOLUME CALCULATION:
V= AREA x DEPTH OF STONE STORAGE LAYER x POROSITY
V= 2,296SF x 1FT x 0.4
V=918 CF
MEASURED INFILTRATION RATE=0.27 IN/HR
INFILTRATION RATE AFTER SAFETY FACTOR= 15 IN/HR
MAXIMUM DRAWDOWN TIME= 12IN / 0.15= 80 HR

BIOFILTRATION VOLUME CALCULATION:
V= AREA x SOIL MEDIA INFILTRATION RATE x 24 HOUR
V= 2,296SF x (0.5/12) FT x 24HR
V=22,960 CF

AREA UNDER CANOPY:
DRAINAGE FALLS UNDER THE CANOPY AREA WILL BE TREATED BY THE OIL / WATER SEPARATOR AND DISCHARGED INTO THE EXISTING SANITARY SEWER SYSTEM UNDER ST. ANDREWS AVE.



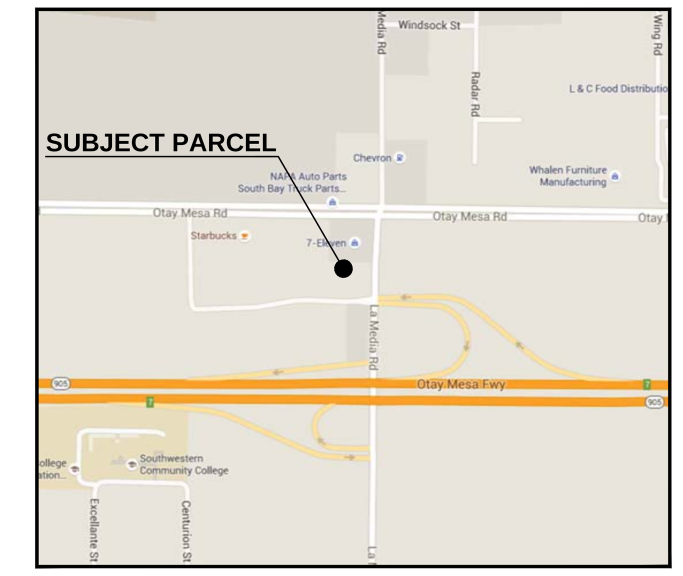
BIOFILTRATION / INFILTRATION POND DETAILS
N.T.S.



OIL/WATER SEPARATOR DETAIL
N.T.S.

SOIL TYPE NOTE:
THE ENTIRE SITE IS CLASSIFIED AS TYPE D PER NRCS.

GROUNDWATER NOTE:
THERE IS NO GROUNDWATER ON THE SITE OR 1,000 FEET RADIUS FROM THE SITE PER GEOTRACKER GAMA GROUNDWATER.

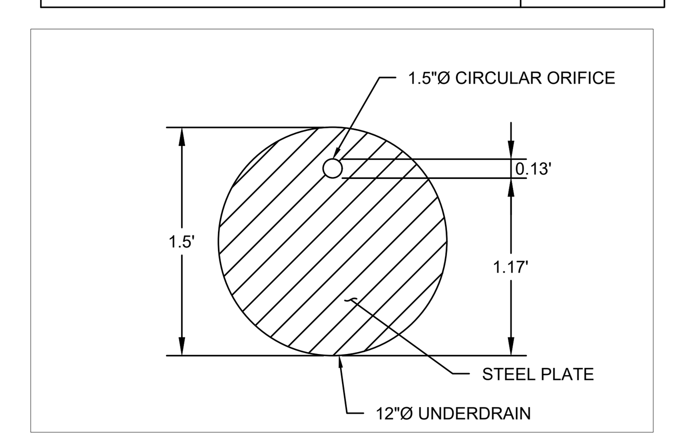


LOCATION MAP
NOT TO SCALE

PROPOSED LEGEND

- PROPERTY LINE
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- EXISTING CONTOUR
- FLOW ARROW
- STANDARD CURB
- LANDSCAPING
- AREA UNDER CANOPY
- DMA BOUNDARY

ACREAGE SUMMARY (IN ACRES)	
TOTAL PROJECT AREA	1.69
ON-SITE DISTURBED AREA	1.63
OFF-SITE DISTURBED AREA	0.06
TOTAL DISTURBED AREA (MUST MATCH NOI)	1.69
IMPERVIOUS AREA AT COMPLETION	1.19
PERVIOUS/ SEEDED AREA AT COMPLETION	0.50



ORIFICE DETAILS
1"=1'

7-ELEVEN

7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

POST-PROJECT
DMA EXHIBIT

CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761

ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	AS SHOWN
Date:	03-28-18
Drawn By:	RM
Checked By:	TV

POST DMA

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Attachment 2
Backup for PDP Hydromodification Control Measures

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Project Name:

Indicate which Items are Included:

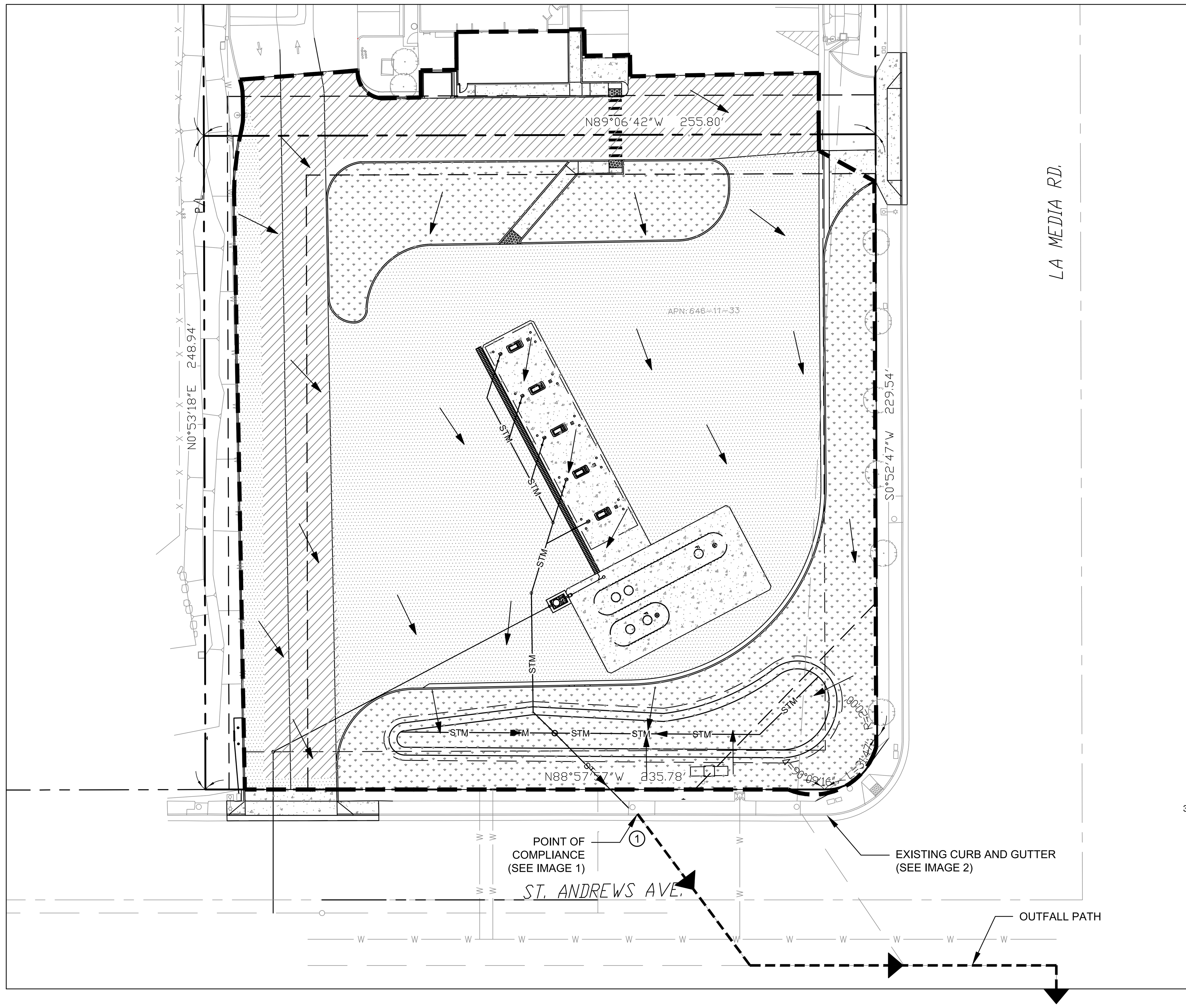
Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☑ Included See Hydromodification Management Exhibit Checklist.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☐ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☑ Not Performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design and Structural BMP Drawdown Calculations (Required) Overflow Design Summary for each structural BMP See Chapter 6 and Appendix G of the BMP Design Manual	☐ Included ☑ Submitted as separate stand-alone document

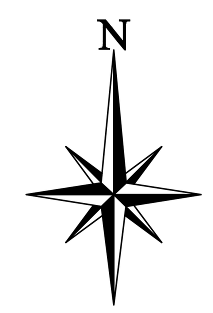
Project Name:

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

The Hydromodification Management Exhibit must identify:

- ☑ Underlying hydrologic soil group
- ☑ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected OR provide a separate map showing that the project site is outside of any critical coarse sediment yield areas
- ☑ Existing topography
- ☑ Existing and proposed site drainage network and connections to drainage offsite
- ☑ Proposed grading
- ☑ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☑ Point(s) of Compliance (POC) for Hydromodification Management
  Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
- ☑ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail).





GRAPHIC SCALE

30 15 7.5 0 30

1" = 30'

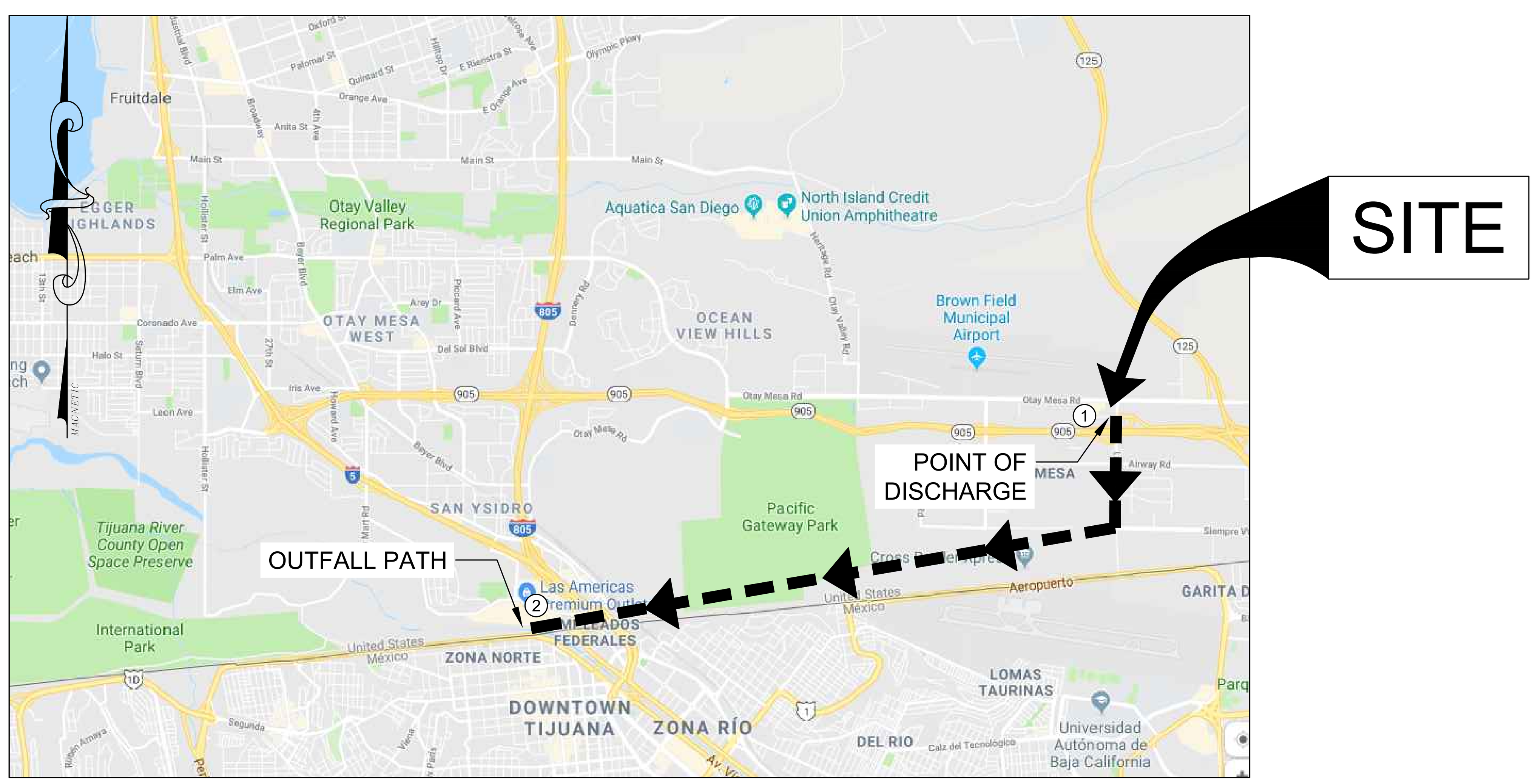
PROJECT DATA

SITE ADDRESS: 8395 OTAY MESA ROAD, SAN DIEGO, CA 92154
LOT SIZE: 1.69 AC
DISTURBED AREA: 1.69 AC
HYDROLOGIC SOIL GROUP: D
APPROXIMATE DEPTH TO GROUNDWATER: NO GROUNDWATER PER GEOTRACKER GAMA GRONDWATER

	EXISTING	PROPOSED
IMPERVIOUS AREA	0.15 AC	1.19 AC
PERVIOUS AREA	1.54 AC	0.50 AC
DESIGN CAPTURE VOLUME (DCV)	-	2,463 CF
BMP TYPE	-	BMP 1: BIOFILTRATION/ INFILTRATION POND
BMP TREATMENT CAPACITY	-	0.797 CFS (15 IN / HR)

IMAGE 1 - EXISTING CATCH BASIN

IMAGE 2 - EXISTING CURB AND GUTTER ALONG OUTFALL PATH



LOCATION MAP

N.T.S.

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4240 East Jurupa Street, Suite 402
Ontario, CA 91761
Phone (909) 467-8940
TVincent@core-eng.com

CLIENT

7-ELEVEN, INC.
3200 HACKBERRY ROAD,
IRVING, TEXAS 75063

811 Know what's below. Call before you dig.

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON DESIGN DRAWINGS, RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. CORE STATES, INC. DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE EXACT. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES.

REV	DATE	COMMENT	BY

DOCUMENT

CONSTRUCTION DOCUMENTS FOR 7-ELEVEN

SITE LOCATION

8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

7-ELEVEN NO. 32290

ENGINEER SEAL

SHEET TITLE

HMP EXEMPTION EXHIBIT

JOB #:	SEI-16380.0169
DATE:	8/20/2019
SCALE:	1"=20'
DRAWN BY:	CSG
CHECKED BY:	TV

SHEET NO.

HMP

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Project Name:

Attachment 3
Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Project Name:

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 3	Maintenance Agreement (Form DS-3247) (when applicable)	☐ Included ☑ Not applicable

Project Name:

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Attachment 3: For private entity operation and maintenance, Attachment 3 must include a Storm Water Management and Discharge Control Maintenance Agreement (Form DS-3247). The following information must be included in the exhibits attached to the maintenance agreement:

- ☐ Vicinity map
- ☐ Site design BMPs for which DCV reduction is claimed for meeting the pollutant control obligations.
- ☐ BMP and HMP location and dimensions
- ☐ BMP and HMP specifications/cross section/model
- ☐ Maintenance recommendations and frequency
- ☐ LID features such as (permeable paver and LS location, dim, SF).

5.5.2 Partial Retention BMP Category

Partial retention category is defined by structural measures that incorporate both infiltration (in the lower treatment zone) and biofiltration (in the upper treatment zone). Example includes biofiltration with partial retention BMP.

5.5.2.1 Biofiltration with Partial Retention BMP

Biofiltration with partial retention BMPs are shallow basins filled with treatment media and drainage rock that manage storm water runoff through infiltration, evapotranspiration, and biofiltration. These BMPs are characterized by a subsurface stone infiltration storage zone in the bottom of the BMP below the elevation of the discharge from the underdrains. The discharge of biofiltered water from the underdrain occurs when the water level in the infiltration storage zone exceeds the elevation of the underdrain outlet. The storage volume can be controlled by the elevation of the underdrain outlet (shown in Figure 5-8), or other configurations. Other typical biofiltration with partial retention components include a media layer and associated filtration rates, drainage layer with associated in-situ soil infiltration rates, vegetation.

Selection: Biofiltration with partial retention BMP shall be selected if the project site feasibility analysis performed according to Section 5.4.2 determines a partial infiltration feasibility condition.

Design: Appendix B.5 provides guidance for sizing biofiltration with partial retention BMP and Appendix E provides a fact sheet to design biofiltration with partial retention BMP.

BMP option under this category:

- PR-1: Biofiltration with partial retention

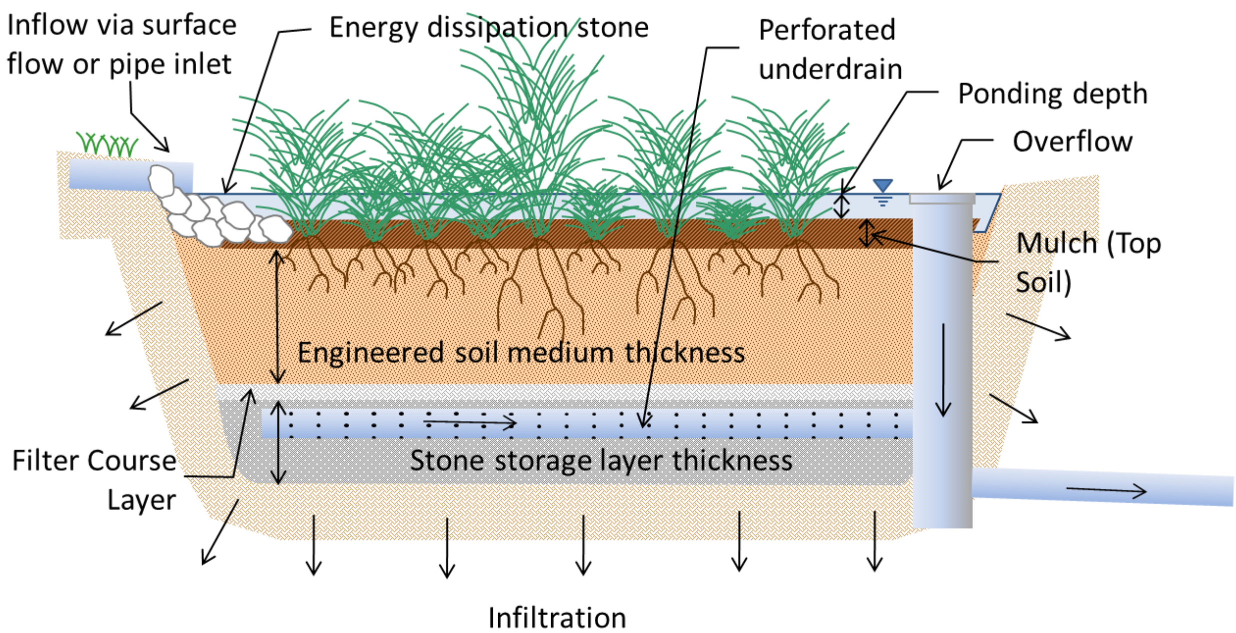

Figure 5-8. Schematic of a Typical Biofiltration with Partial Retention BMP

Table 7-5. Maintenance Indicators and Actions for Detention BMPs

Typical Maintenance Indicator(s) for Detention Basins	Maintenance Actions
Poor vegetation establishment	Re-seed, re-establish vegetation.
Overgrown vegetation	Mow or trim as appropriate.
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or re-grading where necessary.
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials.
Standing water	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, or minor re-grading for proper drainage.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.

THE CITY OF SAN DIEGO

STRUCTURAL BMP
COMMON INSPECTION ITEMS

think BLUE SAN DIEGO

The following are examples of typical assessments made during an inspection of structural (treatment control) BMPs. This is a general list, so not all of the items apply to all types of BMPs.

1. Ensure that the BMP is correctly and permanently installed (including any necessary vegetation), based on the approved plans and/or the Storm Water Management and Discharge Control Maintenance Agreement ("Maintenance Agreement") for your property.
2. Ensure that the BMP is free of damage. Vegetated BMPs should be free of erosion or scouring.
3. Ensure that the BMP does not have significant sediment, trash, and/or debris accumulation.
4. Ensure that the BMP inlets and outlets are free of obstructions. Obstructions may be caused by sediment, trash, and debris, or by excessive vegetation.
5. Ensure that the BMP is free of standing water and unpleasant odors.
6. Ensure that vegetated BMPs maintain sufficient ground cover (per design). Vegetation should be healthy, but not overgrown.
7. Ensure that any filter media pouches, booms, cartridges, etc. associated with a BMP are completely secured, intact, and in working condition. Filter media should be replaced according to manufacturer's specifications.
8. Ensure that pre-manufactured structural BMPs follow manufacturer's recommended operations and maintenance specifications. These may vary by device and manufacturer.

If a BMP fails any of these assessments during an inspection, it would likely be considered to have a maintenance deficiency, and the City will issue a Notice of Deficient Maintenance.

When you submit your Annual Maintenance Verification Form, you are certifying that your BMPs have been maintained such that they should attain compliance if subjected to an inspection.

For an overview about inspection & maintenance for specific types of BMPs, please refer to the BMP Inspection & Maintenance Information Sheet. Detailed BMP information can also be found in the California Stormwater Quality Association (CASQA) handbooks found at:
https://www.casqa.org/sites/default/files/BMPHandbooks/BMP_Municipal_Complete.pdf

TRANSPORTATION & STORM WATER

The City of San Diego
Transportation & Storm Water Department
9370 Chesapeake Drive, Suite 100
San Diego, CA 92123

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Attachment 4
Copy of Plan Sheets Showing Permanent Storm Water BMPs

This is the cover sheet for Attachment 4.

Project Name:

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

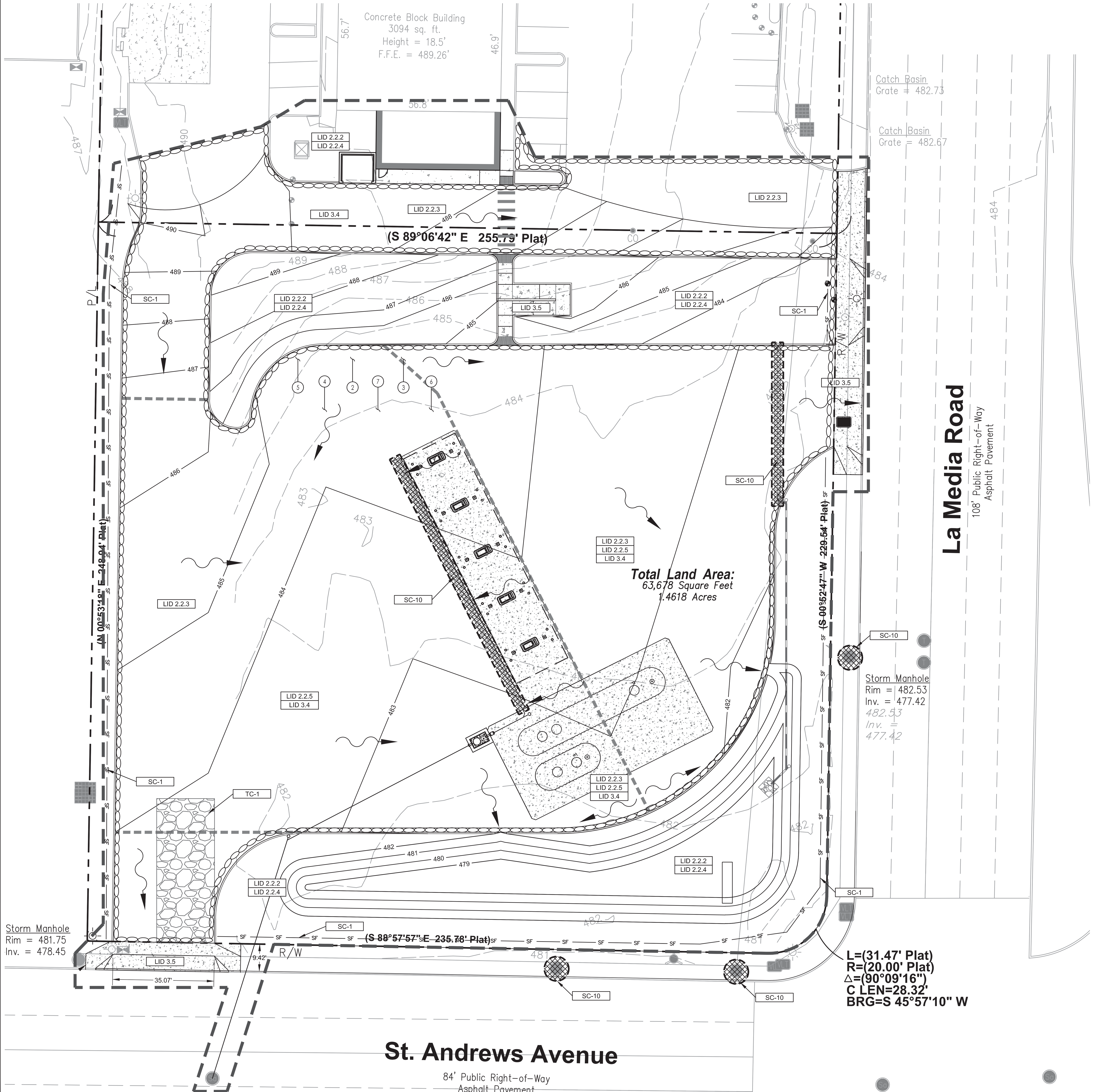
- ☑ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- ☑ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☑ Details and specifications for construction of structural BMP(s)
- ☑ Signage indicating the location and boundary of structural BMP(s) as required by the City Engineer
- ☑ How to access the structural BMP(s) to inspect and perform maintenance
- ☑ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☑ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☑ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☑ Recommended equipment to perform maintenance
- ☑ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☑ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- ☑ All BMPs must be fully dimensioned on the plans
- ☑ When proprietary BMPs are used, site specific cross section with outflow, inflow and model number shall be provided. Broucher photocopies are not allowed.

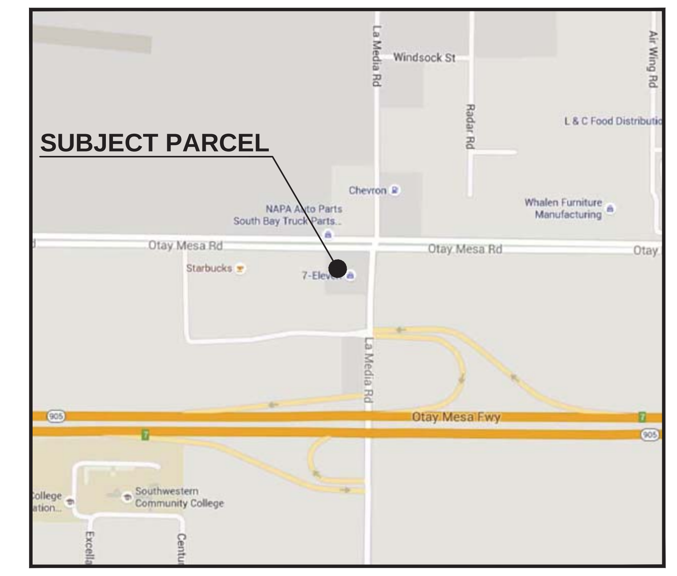
CONSTRUCTION SITE BMP

1. THE FOLLOWING BMPS MUST BE PROPERLY USED AT ALL CONSTRUCTION SITES IN THE CITY TO PROTECT STORM DRAINS AND MINIMIZE POLLUTION.
2. THE CITY IF SAN DIEGO'S MUNICIPAL CODE SECTION 43.0301, (STORM WATER MANAGEMENT AND DISCHARGE CONTROL ORDINANCE) PROHIBITS POLLUTANT DISCHARGES AT WORK SITES FROM FLOWING INTO STORM DRAINS AND POLLUTING NEIGHBORHOOD CREEKS, BAYS, AND THE OCEAN.
3. CONTRACTOR TO STAY IN COMPLIANCE WITH THE LAW AND KEEP THE PROJECT ON SCHEDULE, BY ENSURING THAT BMPS ARE IN PLACE AND FUNCTIONING.
4. CONTRACTOR TO CHECK AND MAINTAIN SITE DAILY.
5. ANY QUESTIONS SHOULD BE DIRECTED TO THE ASSIGNED INSPECTOR OR THE DEVELOPMENT SERVICES FIELD OFFICE AT (858) 492-5070.

STORM WATER QUALITY

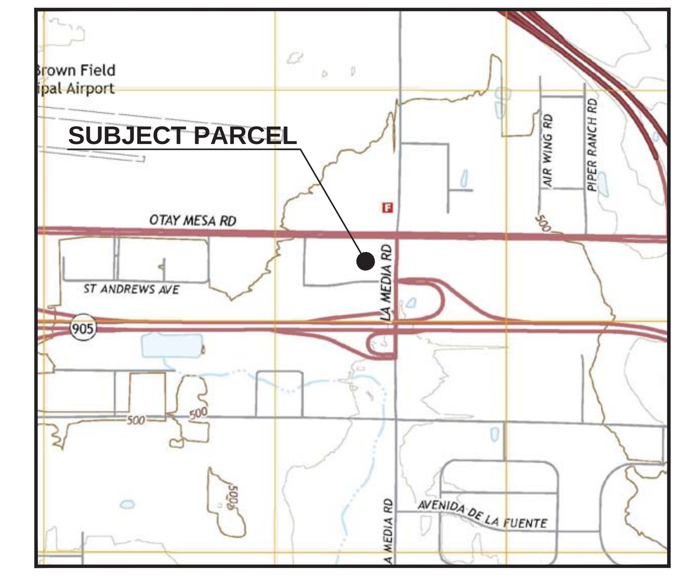
1. THIS PROJECT SHALL COMPLY WITH ALL REQUIREMENTS OF THE STATE PERMIT:
   CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD http://www.swrcb.ca.gov/water_issues/programs/stormwater/
   AND THE CITY OF SAN DIEGO LAND DEVELOPMENT CODE http://www.sandiego.gov/development-services/industrylstormwater.shtml
2. SUFFICIENT BMPS MUST BE INSTALLED TO PREVENT SILT, MUD OR OTHER CONSTRUCTION DEBRIS FROM BEING TRACKED INTO THE ADJACENT STREET(S) OR STORM WATER CONVEYANCE SYSTEMS DUE TO CONSTRUCTION VEHICLES OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING ANY SUCH DEBRIS THAT MAY BE IN THE STREET AT THE END OF EACH WORK DAY OR AFTER A STORM EVENT THAT CAUSES A BREECH IN THE INSTALLED CONSTRUCTION BMPS.
3. ALL STOCK PILES OF UNCOMPACTED SOIL AND/OR BUILDING MATERIALS THAT ARE INTENDED TO BE LEFT UNPROTECTED FOR A PERIOD GREATER THAN SEVEN CALENDAR DAYS ARE TO BE PROVIDED WITH EROSION AND SEDIMENT CONTROLS. SUCH SOIL MUST BE PROTECTED EACH DAY WHEN THE PROBABILITY OF RAIN IS 40% OR GREATER.
4. A CONCRETE WASHOUT SHALL BE PROVIDED ON ALL PROJECTS WHICH PROPOSE THE CONSTRUCTION OF ANY CONCRETE.
5. ALL EROSION/SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED IN WORKING ORDER AT ALL TIMES.
6. ALL SLOPES THAT ARE CREATED OR DISTURBED BY CONSTRUCTION ACTIVITY MUST BE PROTECTED AGAINST EROSION AND SEDIMENT TRANSPORT AL ALL TIMES.
7. THE STORAGE OF ALL CONSTRUCTION MATERIALS AND EQUIPMENT MUST BE PROTECTED AGAINST ANY POTENTIAL RELEASE OF POLLUTANTS INTO THE ENVIRONMENT.





LOCATION MAP

NOT TO SCALE



USGS QUADRANGLE MAP

NOT TO SCALE

TENANT

7-ELEVEN, INC.
1722 ROUTH STREET, SUITE 1000
DALLAS, TX 75201

SITE INFORMATION

8395 OTAY MESA ROAD
SAN DIEGO, CA 92154
APN# 6461113200 & 6461113300
3.07 ACRES (NET)

STORMWATER NOTES

GOOD HOUSEKEEPING BMP TO MANAGE CONSTRUCTION EQUIPMENT, MATERIALS AND WASTES THAT SHOULD BE CONSIDERED FOR IMPLEMENTATION AS APPROPRIATE FOR EACH PROJECT INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

A. MATERIAL HANDLING AND WASTE MANAGEMENT.
B. BUILDING MATERIALS STOCKPILE MANAGEMENT.
C. MANAGEMENT OF WASHOUT AREAS (CONCRETE, PAINTS, STUCCO, ETC.).
D. CONTROL OF VEHICLE/EQUIPMENT FUELING TO CONTRACTOR'S STAGING AREA.
E. VEHICLE AND EQUIPMENT CLEANING PERFORMED OFF SITE.
F. SPILL PREVENTION AND CONTROL.
G. OTHER HOUSEKEEPING BMP ACCEPTABLE TO THE ENFORCING AGENCY.

BMP LEGEND

LID 2.2.2	MINIMIZE DISTURBANCE TO NATURAL DRAINAGES
LID 2.2.3	MINIMIZE IMPERVIOUS SURFACES
LID 2.2.4	MINIMIZE SOIL COMPACTION
LID 2.2.5	DRAIN RUNOFF FROM IMPERVIOUS SURFACES TO PERVIOUS AREAS
LID 3.4	PARKING LOT DESIGN FOR COMMERCIAL PROJECTS
LID 3.5	DRIVEWAY, SIDEWALK AND BIKE PATH DESIGN
SC-1	SILT FENCE
SC-10	STORM DRAIN INLET PROTECTION
TC-1	STABILIZED CONSTRUCTION ENTRANCE

BMP NOTE

GOOD HOUSEKEEPING BMP TO MANAGE CONSTRUCTION EQUIPMENT, MATERIALS AND WASTES THAT SHOULD BE CONSIDERED FOR IMPLEMENTATION AS APPROPRIATE FOR EACH PROJECT INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

A. MATERIAL HANDLING AND WASTE MANAGEMENT.

B. BUILDING MATERIALS STOCKPILE MANAGEMENT.

C. MANAGEMENT OF WASHOUT AREAS (CONCRETE, PAINTS, STUCCO, ETC.).

D. CONTROL OF VEHICLE/EQUIPMENT FUELING TO CONTRACTOR'S STAGING AREA. - NO FUELING AT PROJECT SITE

E. VEHICLE AND EQUIPMENT CLEANING PERFORMED OFF SITE.

F. SPILL PREVENTION AND CONTROL.

G. OTHER HOUSEKEEPING BMP ACCEPTABLE TO THE ENFORCING AGENCY.

GENERAL NOTE

PROPERLY COMPLETED AND SIGNED CERTIFICATES OF INSTALLATION AND CERTIFICATES OF ACCEPTANCE SHALL BE PROVIDED TO THE INSPECTOR IN THE FIELD.

KEYNOTES

1 PERIMETER CONTROLS:
TRIANGULAR SILT DIKE ARE ACCEPTABLE PERIMETER CONTROLS, AND MUST BE USED TO SURROUND THE ENTIRE SITE. AVOID RUNNING OVER PERIMETER CONTROLS WITH VEHICLES OR HEAVY EQUIPMENT AS THEY CAN DAMAGE THE MATERIALS. KEEP EXTRA ABSORBENT MATERIALS AND/OR A WET-DRY VACUUM ON SITE TO QUICKLY PICK UP UNINTENDED SPILLS.

2 BUILDING MATERIALS/STAGING AREAS:
CONSTRUCTION MATERIAL MUST BE STORED ON SITE AT ALL TIMES. BUILDING MATERIALS SHOULD ALWAYS BE COVERED WHEN NOT IN USE TO PREVENT RUNOFF CAUSED BY WIND OR RAIN. FLOODING MUST ALSO BE PREVENTED BY MONITORING YOUR SITE BEFORE, DURING AND AFTER RAIN EVENTS TO ENSURE THAT BMPs ARE FUNCTIONING AND THAT THERE ARE NOT ANY SAFETY ISSUES.

3 DUMPSTERS
ALWAYS COVER DUMPSTERS WITH A ROLLBACK TARP. AREAS AROUND DUMPSTERS SHOULD BE SWEPT DAILY. PERIMETER CONTROLS AROUND DUMPSTER AREAS SHOULD BE PROVIDED IF POLLUTANTS ARE LEAKING OR DISCHARGING FROM THE DUMPSTER.

4 CONCRETE TRUCKS/PUMPERS/FINISHERS
BMPs SUCH AS TARPS AND TRIANGULAR SILT DIKE SHOULD BE IMPLEMENTED TO PREVENT MATERIALS AND RESIDUE FROM ENTERING INTO THE STORM DRAIN SYSTEM.

5 WASHOUT AREA
THE DISPOSAL OF "WET" CONSTRUCTION MATERIALS SHOULD BE HANDLED IN THE WASHOUT AREA. THIS INCLUDES PAINT, STUCCO AND CONCRETE. USE A BERM WITH IMPERVIOUS LINER TO CONTAIN THE WET MATERIALS AND PREVENT RUNOFF IN NEARBY AREAS. THE WASHOUT AREA MUST BE CHECKED AND MAINTAINED DAILY TO ENSURE COMPLIANCE. ALL DRIED MATERIALS MUST BE DISPOSED OF AT THE LANDFILL

6 DIRT AND GRADING
MOUNDS OF DIRT OR GRAVEL SHOULD BE STORED ON SITE AND SPRAYED DAILY WITH WATER TO PREVENT EXCESSIVE DUST. DURING THE RAINY SEASON (OCTOBER 1 - APRIL 30) THESE MATERIALS SHOULD BE COVERED. FOR THOSE AREAS THAT ARE ACTIVE AND EXPOSED, A WET WEATHER TRIGGERED ACTION PLAN INCLUDING ADDITIONAL BMPs SHOULD BE IN PLACE TO PROTECT THE SITE DURING A RAIN EVENT. SITES MUST HAVE ADEQUATE TRACKING CONTROL TO PREVENT THE TRANSPORT OF DIRT/GRAVEL FROM THE SITE.

7 EARTHMOVING EQUIPMENT
ALL EARTHMOVING EQUIPMENT SHOULD BE STORED ON SITE. MAINTENANCE OF ANY EQUIPMENT SHOULD BE CONDUCTED ON SITE, AND MUD TRACKS AND DIRT TRAILS LEFT BY EQUIPMENT LEADING TO AND FROM THE SITE SHOULD BE CLEANED UP IMMEDIATELY.

8 STORM DRAINS
STORM DRAINS MUST BE PROTECTED AT ALL TIMES WITH PERIMETER CONTROLS, SUCH AS TRIANGULAR SILT DIKE (SAND BAGS ARE TYPICALLY NOT USED FOR INLET PROTECTION BECAUSE THEY DO NOT PERMIT FLOW THROUGH). REPLACE RUPTURED OR DAMAGED TRIANGULAR SILT DIKE AND REMOVE THE DEBRIS FROM THE RIGHT-OF-WAY IMMEDIATELY.

ACREAGE SUMMARY (IN ACRES)	
TOTAL PROJECT AREA	1.69
ON-SITE DISTURBED AREA	1.63
OFF-SITE DISTURBED AREA	0.06
TOTAL DISTURBED AREA (MUST MATCH NOI)	1.69
IMPERVIOUS AREA AT COMPLETION	1.19
PERVIOUS/ SEEDED AREA AT COMPLETION	0.50

N

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

California 811

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON DESIGN DRAWINGS, RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. CORESTATES, INC. DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE EXACT. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES.

7-ELEVEN, INC.
ONE ARTS PLAZA, 1722 ROUTH STREET, DALLAS, TEXAS 75221

7-11 No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

BMP PLAN

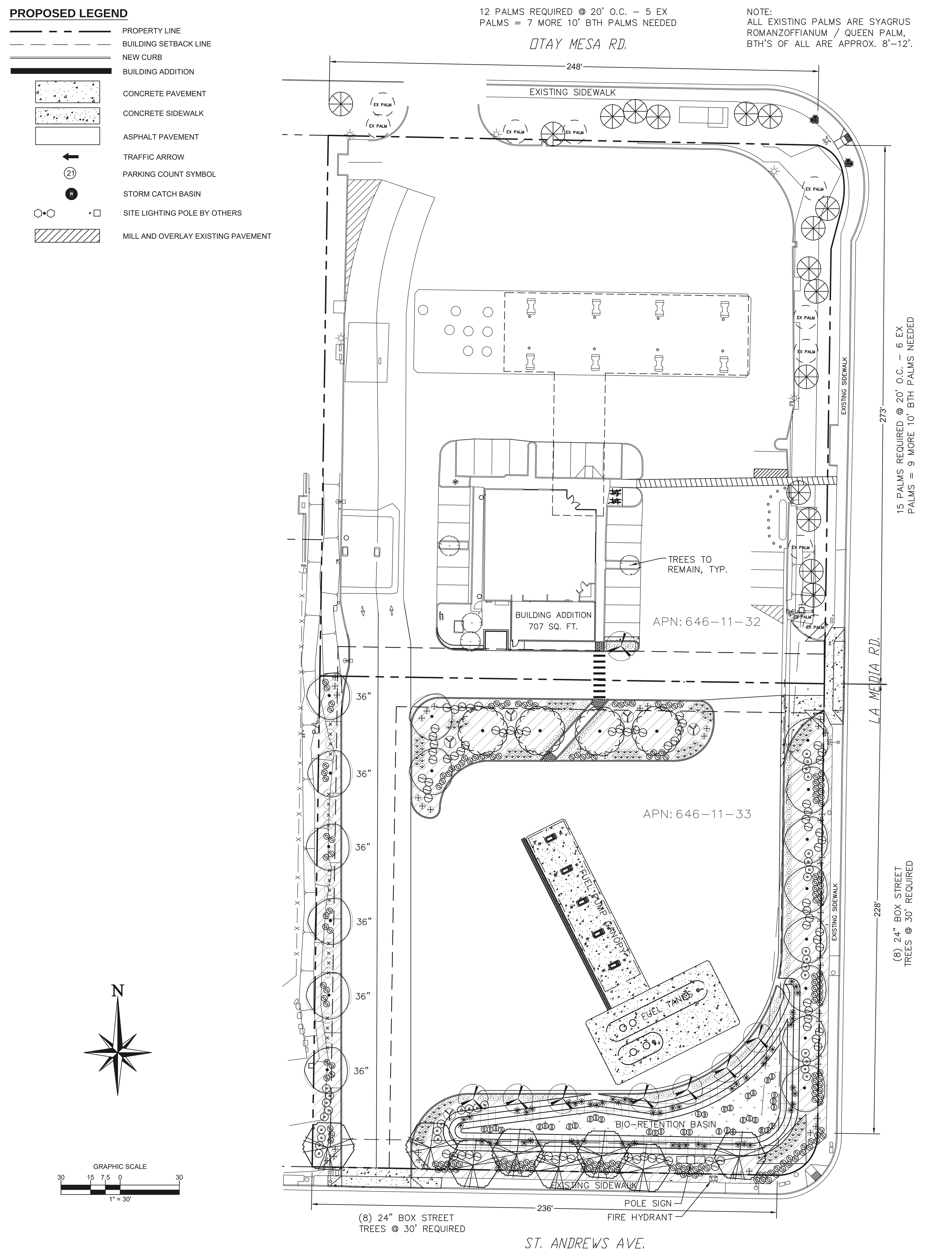
CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 467-8909
santi@core-eng.com

ENGINEER:
SHEA-MICHAEL ANTI
STATE REGISTRATION NUMBER
No. 78274

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	NTS
Date:	XX-XX-XX
Drawn By:	RM
Checked By:	TV

BMP PLAN



PLANTING PLAN — SCALE 1" = 30' — 1

SYMBOL	BOTANICAL NAME / COMMON NAME	QTY.	CONTAINER SIZE / MATURE H X W	WATER USE / COMMENTS
	TREES:			
	JACARANDA MIMOSIFOLIA / JACARANDA	4	48" BOX / 30' x 25'	MODERATE / MULTI–TRUNK
	LAGERSTROEMIA 'TUSCARORA' / CRAPE MYRTLE	3/4	24"/36" BOX / 25' x 15'	MODERATE
	MELALEUCA QUINQUENERVIA / CAJEPUT TREE	8	24" BOX / 30' x 25'	LOW
	RHUS LANCEA / AFRICAN SUMAC	10/6	24"/36" BOX / 30' x 25'	LOW
	SYAGRUS ROMANZOFFIANUM / QUEEN PALM	16	10' BTH / 35' x 15'	MODERATE
	SHRUBS:			
	AGAVE 'BLUE FLAME' / FOXTAIL AGAVE	42	5 GALLON / 3' x 3'	LOW
	CAESALPINIA MEXICANA / MEXICAN POICIANA	5	15 GALLON / 8' x 6'	LOW
	CALLISTEMON 'LITTLE JOHN' / COMPACT BOTTLEBUSH	122	5 GALLON / 3' x 30"	LOW
	DODONAEA V. 'PURPUREA' / PURPLE HOPSEED BUSH	20	15 GALLON / 6' x 5'	LOW
	LANTANA 'RADIATION' / LANTANA	76	5 GALLON / 4' x 4'	LOW
	LAVANDULA ANGUSTIFOLIA / ENGLISH LAVENDER	113	5 GALLON / 3' x 3'	LOW
	MISCANTHUS SINENSIS / JAPANESE SILVER GRASS	37	5 GALLON / 4' x 3'	MODERATE
	MUHLENBERGIA LINDHEIMERI / LINDHEIMERS MUHLY	56	5 GALLON / 3' x 3'	LOW
	LEUCOPHYLLUM C. 'SILVER CLOUD' / VIOLET SILVERLEAF	31	5 GALLON / 4' x 4'	LOW
	ROSMARINUS O. 'PROSTRATA' / PROSTRATE ROSEMARY	185	1 GALLON / 2' x 3'	LOW

BOTANICAL NAME / COMMON NAME	CONTAINER SIZE / MATURE H X W	WATER USE / COMMENTS
GROUNDCOVERS:		
BACCHARIS P. 'TWIN PEAKS' / DWARF COYOTE BRUSH	4" LINERS @ 12" O.C.	LOW
CAREX DIVULSA / BERKELEY SEDGE	4"LINERS @ 8" O.C.	MODERATE
GAZANIA 'MITSUWA ORANGE' / TRAILING GAZANIA	FLATS @ 10" O.C.	LOW

IRRIGATION NOTE : AN AUTOMATIC, ELECTRICALLY CONTROLLED IRRIGATION SYSTEM SHALL BE PROVIDED AS REQUIRED BY LDC 142.0403(C) FOR PROPER IRRIGATION, DEVELOPMENT, AND MAINTENANCE OF THE VEGETATION IN A HEALTHY, DISEASE–RESISTANT CONDITION. THE DESIGN OF THE SYSTEM SHALL PROVIDE ADEQUATE SUPPORT FOR THE VEGETATION SELECTED. A DRIPLINE IRRIGATION SYSTEM IS PROPOSED.

MAINTENANCE SCHEDULE : OWNER SHALL BE RESPONSIBLE FOR REGULARLY SCHEDULED MAINTENANCE OF THE ENTIRE LANDSCAPE. WHICH WILL INCLUDE BUT NOT BE LIMITED TO; MAINTAIN AND OPERATE THE LANDSCAPING AND IRRIGATION SYSTEM ON THE PROPERTY CONSISTENT WITH THE MAWA. MAINTAIN THE IRRIGATION SYSTEM TO MEET OR EXCEED IRRIGATION EFFICIENCY NECESSARY TO MEET MAWA. REPLACE BROKEN OR MALFUNCTIONING IRRIGATION SYSTEM COMPONENTS OF THE SAME MATERIALS AND SPECIFICATIONS, THEIR EQUIVALENT OR BETTER. ENSURE THAT WHEN VEGETATION IS REPLACED, REPLACEMENT PLANTINGS ARE REPRESENTATIVE OF THE HYDROZONE IN WHICH THE PLANTS WERE REMOVED AND ARE TYPICAL OF THE WATER USE REQUIREMENTS OF THE PLANTS REMOVED, SO THAT THE REPLACED VEGETATION DOES NOT RESULT IN MIXING HIGH WATER USE PLANTS WITH LOW WATER USE PLANTS IN THE SAME HYDROZONE.

MAXIMUM APPLIED WATER ALLOWANCE :

(47.0)(0.62)(0.45 X 22,489) = 294,898.3 GAL./YR.

TOTAL LANDSCAPE AREA = 22,489 SQ. FT.

ESTIMATED TOTAL WATER USE

HZ1 LOW WATER USE (47.0)(0.62)(.3\.81 x 20,397) = 220,136.5 GPY

HZ2 MOD. WATER USE (47.0)(0.62)(.4\.81 X 2,092) = 30,104.1 GPY

TOTAL ETWU = 250,240 GPY

PLANT LEGEND — SCALE NONE — 2

CONTRACTOR TO REVIEW PLANS, VERIFY SITE CONDITIONS AND PLANT QUANTITIES PRIOR TO INSTALLATION. CONFLICTS BETWEEN THE SITE AND THESE PLANS OR WITHIN THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS AUTHORIZED REPRESENTATIVE PRIOR TO LANDSCAPE INSTALLATION. ANY DEVIATION(S) FROM THE PLANS OR SPECIFICATIONS TO HAVE WRITTEN APPROVAL.

CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES AND SERVICES PRIOR TO ANY UNDERGROUND DIGGING. CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ALL DAMAGE FOR FAILURE TO DO SO.

CONTRACTOR TO VERIFY WITH A SOILS ANALYSIS THE PROPER SOIL AMENDMENTS. CONTACT LANDSCAPE ARCHITECT IF THERE ARE ANY INADEQUATE AMENDMENTS.

SEE PLANTING DETAILS FOR ALL PLANTING AND STAKING / GUYING REQUIREMENTS. ALL SHRUB AND GROUND COVER TO BE INSTALLED 1" ABOVE BACKFILL GRADE. COMPACT BACKFILL TO REDUCE MAJOR SETTLING OF PLANT MATERIAL.

CONTRACTOR TO RAISE OR LOWER SPRINKLER HEADS TO PROPER LEVEL IF PLANT MATERIAL OBSTRUCTS FULL COVERAGE.

FERTILIZER FOR ALL GROUND COVER AREAS SHALL BE AS SPECIFIED WITHIN THE SPECIFICATIONS.

THE LANDSCAPE CONTRACTOR SHALL MAINTAIN ALL PLANT AREAS BY MEANS OF CONTINUOUS WATERING, PRUNING, RAISING TREE BALLS WHICH SETTLE BELOW GRADE, FERTILIZING, APPLICATION OF SPRAYS THAT MAY BE NECESSARY TO KEEP THE PLANTING'S FREE FROM INSECTS AND DISEASES, WEEDING, ROLLING, MOWING, RE-SEEDING, EDGING AND / OR OTHER OPERATIONS NECESSARY FOR PROPER CARE AND UPKEEP. THE ENTIRE PROJECT TO BE MAINTAINED FOR A PERIOD OF (30) DAYS, COMMENCING FROM THE TIME ALL ITEMS OF WORK HAVE BEEN COMPLETED TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.

ALL TURF AND SHRUB AREAS SHALL BE SEPARATED BY A TRIPLE PLY REDWOOD BENDER BOARD, UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL INSTALL JUTE MESH NETTING ON ALL SLOPES THAT EXCEED A 2:1 GRADIENT.

CONTRACTOR SHALL MULCH ALL SHRUB AND GROUND COVER AREAS AFTER INSTALLATION OF PLANT MATERIAL WITH A MINIMUM 3" DEEP LAYER OF COMPOSTED AMENDMENT OR TOP DRESS MATERIAL.

ALL FINISH GRADES IN SHRUB AREAS SHALL BE 3" BELOW PAVEMENT OR CURBS. ALL FINISH GRADES IN TURF AREAS SHALL BE 1" BELOW PAVEMENTS OR CURBS.

ALL SPECIMEN TREES SHALL RECEIVE DEEP ROOT BARRIERS WHEN LOCATED WITHIN 5' OF HARDSCAPE. FICUS SPECIES SHALL RECEIVE DEEP ROOT BARRIERS IN ALL CASES. INSTALL DEEP ROOT BARRIERS PER MANUFACTURERS SPECIFICATIONS, OR AS NOTED.

REFER TO SPECIFICATIONS FOR STANDARDS OF MATERIALS AND WORKMANSHIP.

MULCH: ALL REQUIRED PLANTING AREAS AND ALL EXPOSED SOIL AREAS WITHOUT VEGETATION SHALL BE COVERED WITH MULCH TO A MIN. DEPTH OF THREE INCHES (3") EXCLUDING SLOPES REQUIRING VEGETATION PER SDMC 142.0411

TREE ROOT BARRIERS SHALL BE INSTALLED WHEN TREES ARE PLACED WITHIN 5 FEET OF PUBLIC IMPROVEMENTS INCLUDING WALKS, CURBS, OR STREET PAVEMENT OR WHERE THE NEW PUBLIC IMPROVEMENTS ARE PLACED ADJACENT TO EXISTING TREES. THE ROOT BARRIER WILL NOT WRAP AROUND THE ROOT BALL.

MINIMUM TREE SEPARATION DISTANCE:

IMPROVEMENT/MIN. DISTANCE TO STREET TREE
TRAFFIC SIGNALS/STOP SIGN – 20 FEET
UNDERGROUND UTILITY LINES – 5 FEET (10 FEET FOR SEWER)
ABOVE GROUND UTILITY STRUCTURES – 10 FEET
DRIVEWAY (ENTRIES) – 10 FEET
INTERSECTIONS (INTERSECTING CURB LINES OF TWO STREETS) – 25 FEET

ALL LANDSCAPE AND IRRIGATION SHALL CONFORM TO THE STANDARDS OF THE CITY-WIDE LANDSCAPE REGULATIONS AND THE CITY OF SAN DIEGO LAND DEVELOPMENT MANUAL LANDSCAPE STANDARDS AND ALL OTHER LANDSCAPE RELATED CITY AND REGIONAL STANDARDS.

MAINTENANCE: ALL REQUIRED LANDSCAPE AREAS SHALL BE MAINTAINED BY OWNER. LANDSCAPE AND IRRIGATION AREAS IN THE PUBLIC RIGHT-OF-WAY SHALL BE MAINTAINED BY OWNER.

THE LANDSCAPE AREAS SHALL BE MAINTAINED FREE OF DEBRIS AND LITTER, AND ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION. DISEASED OR DEAD PLANT MATERIAL SHALL BE SATISFACTORILY TREATED OR REPLACED PER THE CONDITIONS OF THE PERMIT.

A MINIMUM ROOT ZONE OF 40 SQUARE FEET IN AREA SHALL BE PROVIDED FOR ALL TREES. THE MINIMUM DIMENSION FOR THIS AREA SHALL BE FIVE FEET, PER SDMC 142.0403(b)(5).

TREES SHALL BE MAINTAINED SO THAT ALL BRANCHES OVER PEDESTRIAN WALKWAYS ARE SIX FEET ABOVE THE WALKWAY GRADE AND BRANCHES OVER VEHICULAR TRAVEL WAYS ARE SIXTEEN ABOVE THE GRADE OF THE TRAVEL WAY PER SDMC 142.0403(b)(10).

EXISTING TREES TO REMAIN ON SITE WITHIN THE AREA OF WORK WILL BE PROTECTED IN PLACE. THE FOLLOWING PROTECTION MEASURES WILL BE PROVIDED:

1. A BRIGHT YELLOW OR ORANGE TEMPORARY FENCE WILL BE PLACED AROUND EXISTING TREES AT THE DRIPLINE.
2. STOCKPILING, TOPSOIL DISTURBANCE, VEHICLE USE, AND MATERIAL STORAGE OF ANY KIND IS PROHIBITED WITHIN THE DRIPLINE.
3. A TREE WATERING SCHEDULE WILL BE MAINTAINED AND DOCUMENTED DURING CONSTRUCTION.
4. ALL DAMAGED TREES WILL BE REPLACED WITH ONE OF EQUAL OR GREATER SIZE.

IF ANY REQUIRED LANDSCAPE INDICATED ON THE APPROVED CONSTRUCTION DOCUMENT PLANS IS DAMAGED OR REMOVED DURING DEMOLITION OR CONSTRUCTION, IT SHALL BE REPAIRED AND/OR REPLACED IN KIND AND EQUIVALENT SIZE PER THE APPROVED DOCUMENTS TO THE SATISFACTION OF THE DEVELOPMENT SERVICES DEPARTMENT WITHIN 30 DAYS OF DAMAGE.

PLANTING NOTES — SCALE NONE — 3

THOMAS H. KOCH
LANDSCAPE ARCHITECT
CA License 3602
AZ Registration 33915
26482 Elmcrest Way
Lake Forest, CA 92630
(949) 348-9150
thk@cox.net

California811

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON DESIGN DRAWINGS, RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. CORESTATES, INC. DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE EXACT. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES.

7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

PLANTING PLAN

CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 467-8909
santi@core-eng.com

LICENSED LANDSCAPE ARCHITECT
THOMAS H. KOCH No. 3602
Signature
5-31-19
Renewal Date
11-20-17
Date
STATE OF CALIFORNIA

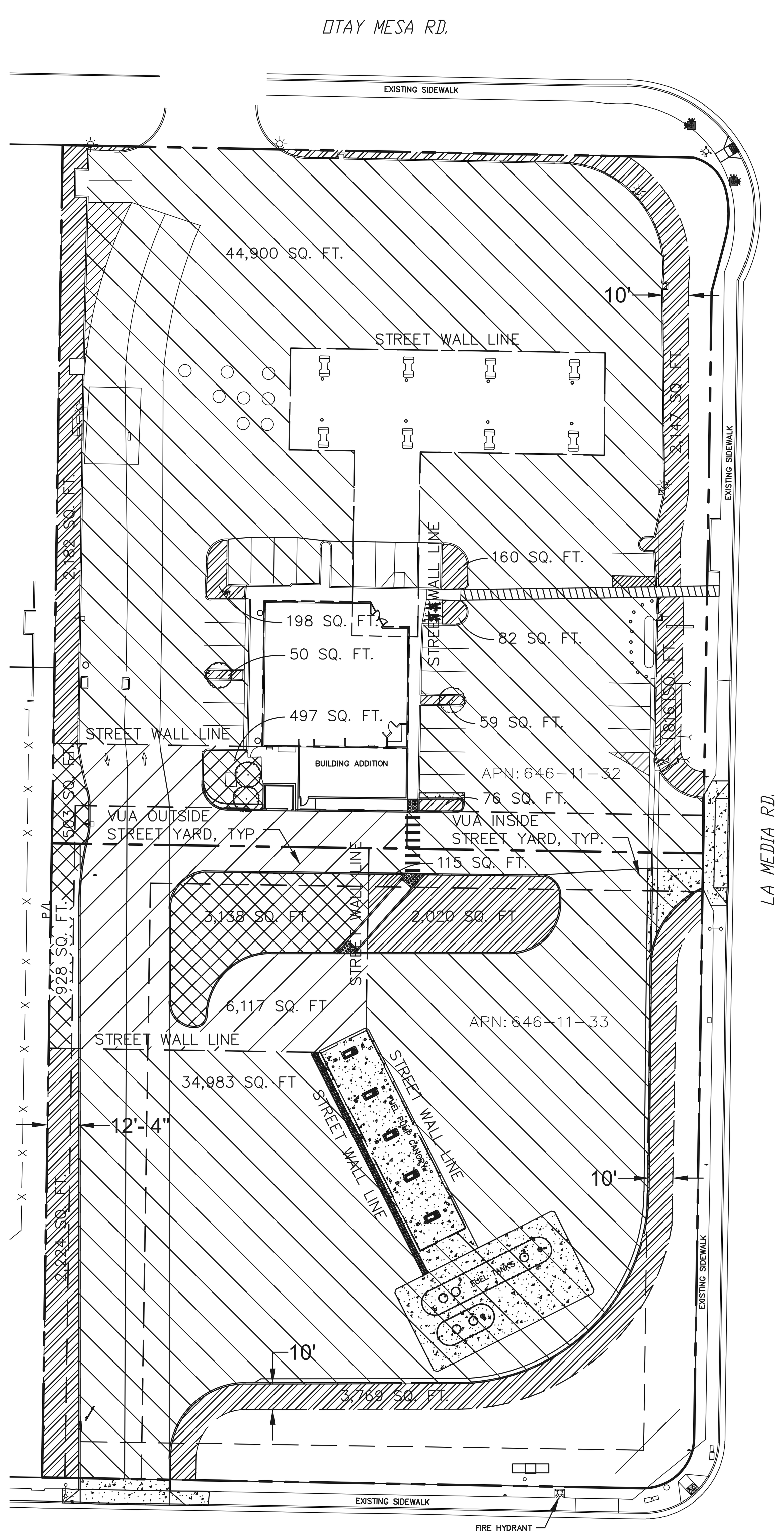
ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	1" = 30'
Date:	06-15-17
Drawn By:	TK
Checked By:	SMA

L-1

LEGEND APN: 646-11-3200

- VEHICULAR USE AREA INSIDE STREET YARD TOTAL = 44,900 SQ. FT.
- PLANT AREA INSIDE STREET YARD TOTAL = 6267 SQ. FT.
- VEHICULAR USE AREA OUTSIDE STREET YARD TOTAL = 3,052 SQ. FT.
- PLANT AREA OUTSIDE STREET YARD TOTAL = 1,000 SQ. FT.



APN: 646-11-3200

Landscape Calculations Worksheet
Vehicular Use Areas (VUA)

City of San Diego
Development Services
1222 First Ave., MS-501
San Diego, CA 92101-4154
(619) 446-5000

THE CITY OF SAN DIEGO

Provide the following information on the Landscape Plans. The Landscape Calculations determine the planting area and points required by the Landscape Regulations, Chapter 14, Article 2, Division 4 of the Land Development Code.

One tree (minimum 24-inch box size) is required within 30 ft. of each parking space. (If palm trees are used, one palm (minimum 8 ft. brown trunk height) is required within 15 ft. of each parking space.)

VEHICULAR USE AREA (<6,000 sf) [142.0406 - 142.0407]

Planting Area Required: provide 40 sq. ft. per tree (with no dimension less than 5')

Plant Points Required	Plant Points Provided	Excess Points Provided
Total VUA: ____ sq. ft. x 0.05 = ____ points	____ points	____ points

Points achieved through trees (at least half): ____ points

VEHICULAR USE AREA (≥6,000 sf) [142.0406 - 142.0407]

	Required Planting Area	Planting Area Provided	Excess Area Provided
VUA inside Street Yard:	44,900 sq. ft. x 0.05 = 2,245 sq. ft.	6,267 sq. ft.	4,022 sq. ft.
VUA outside Street Yard:	3,052 sq. ft. x 0.03 = 92 sq. ft.	1,000 sq. ft.	908 sq. ft.

	Required Plant Points	Plant Points Provided	Points Provided with Trees (at least half)
VUA inside Street Yard:	44,900 sq. ft. x 0.05 = 2,245 points	____ points	____ points
VUA outside Street Yard:	3,052 sq. ft. x 0.03 = 92 points	____ points	____ points

TEMPORARY VEHICULAR USE AREA [142.0408]

Required Planting Area	Planting Area Provided
Length of Public Right-of-Way adjacent to VUA: ____ ft. x 3 ft. = ____ sq. ft.	____ sq. ft.

- Provide planting area between Public Right-of-Way and VUA.
- Plant with evergreen shrubs.
- Shrubs must achieve a minimum height of 30" within 2 years of installation over at least 50% of the required planting area.

ADDITIONAL YARD PLANTING AREA AND POINT REQUIREMENTS

If any of the requirements of Landscape Regulations, Section 142.0405 (a) 1, 2, or 3 apply to your project, provide a written summary explaining how requirements are being met.

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Upon request, this information is available in alternative formats for persons with disabilities.

DS-5 (03-06)

LEGEND APN: 646-11-3300

- VEHICULAR USE AREA INSIDE STREET YARD TOTAL = 34,983 SQ. FT.
- PLANT AREA INSIDE STREET YARD TOTAL = 8,128 SQ. FT.
- VEHICULAR USE AREA OUTSIDE STREET YARD TOTAL = 6,117 SQ. FT.
- PLANT AREA OUTSIDE STREET YARD TOTAL = 928 SQ. FT.

N

APN: 646-11-3300

Landscape Calculations Worksheet
Vehicular Use Areas (VUA)

City of San Diego
Development Services
1222 First Ave., MS-501
San Diego, CA 92101-4154
(619) 446-5000

THE CITY OF SAN DIEGO

Provide the following information on the Landscape Plans. The Landscape Calculations determine the planting area and points required by the Landscape Regulations, Chapter 14, Article 2, Division 4 of the Land Development Code.

One tree (minimum 24-inch box size) is required within 30 ft. of each parking space. (If palm trees are used, one palm (minimum 8 ft. brown trunk height) is required within 15 ft. of each parking space.)

VEHICULAR USE AREA (<6,000 sf) [142.0406 - 142.0407]

Planting Area Required: provide 40 sq. ft. per tree (with no dimension less than 5')

Plant Points Required	Plant Points Provided	Excess Points Provided
Total VUA: ____ sq. ft. x 0.05 = ____ points	____ points	____ points

Points achieved through trees (at least half): ____ points

VEHICULAR USE AREA (≥6,000 sf) [142.0406 - 142.0407]

	Required Planting Area	Planting Area Provided	Excess Area Provided
VUA inside Street Yard:	34,983 sq. ft. x 0.05 = 1,749 sq. ft.	8,128 sq. ft.	6,379 sq. ft.
VUA outside Street Yard:	6,117 sq. ft. x 0.03 = 184 sq. ft.	928 sq. ft.	744 sq. ft.

	Required Plant Points	Plant Points Provided	Points Provided with Trees (at least half)
VUA inside Street Yard:	34,983 sq. ft. x 0.05 = 1,749 points	2,140 points	391 points
VUA outside Street Yard:	6,117 sq. ft. x 0.03 = 184 points	646 points	462 points

TEMPORARY VEHICULAR USE AREA [142.0408]

Required Planting Area	Planting Area Provided
Length of Public Right-of-Way adjacent to VUA: ____ ft. x 3 ft. = ____ sq. ft.	____ sq. ft.

- Provide planting area between Public Right-of-Way and VUA.
- Plant with evergreen shrubs.
- Shrubs must achieve a minimum height of 30" within 2 years of installation over at least 50% of the required planting area.

ADDITIONAL YARD PLANTING AREA AND POINT REQUIREMENTS

If any of the requirements of Landscape Regulations, Section 142.0405 (a) 1, 2, or 3 apply to your project, provide a written summary explaining how requirements are being met.

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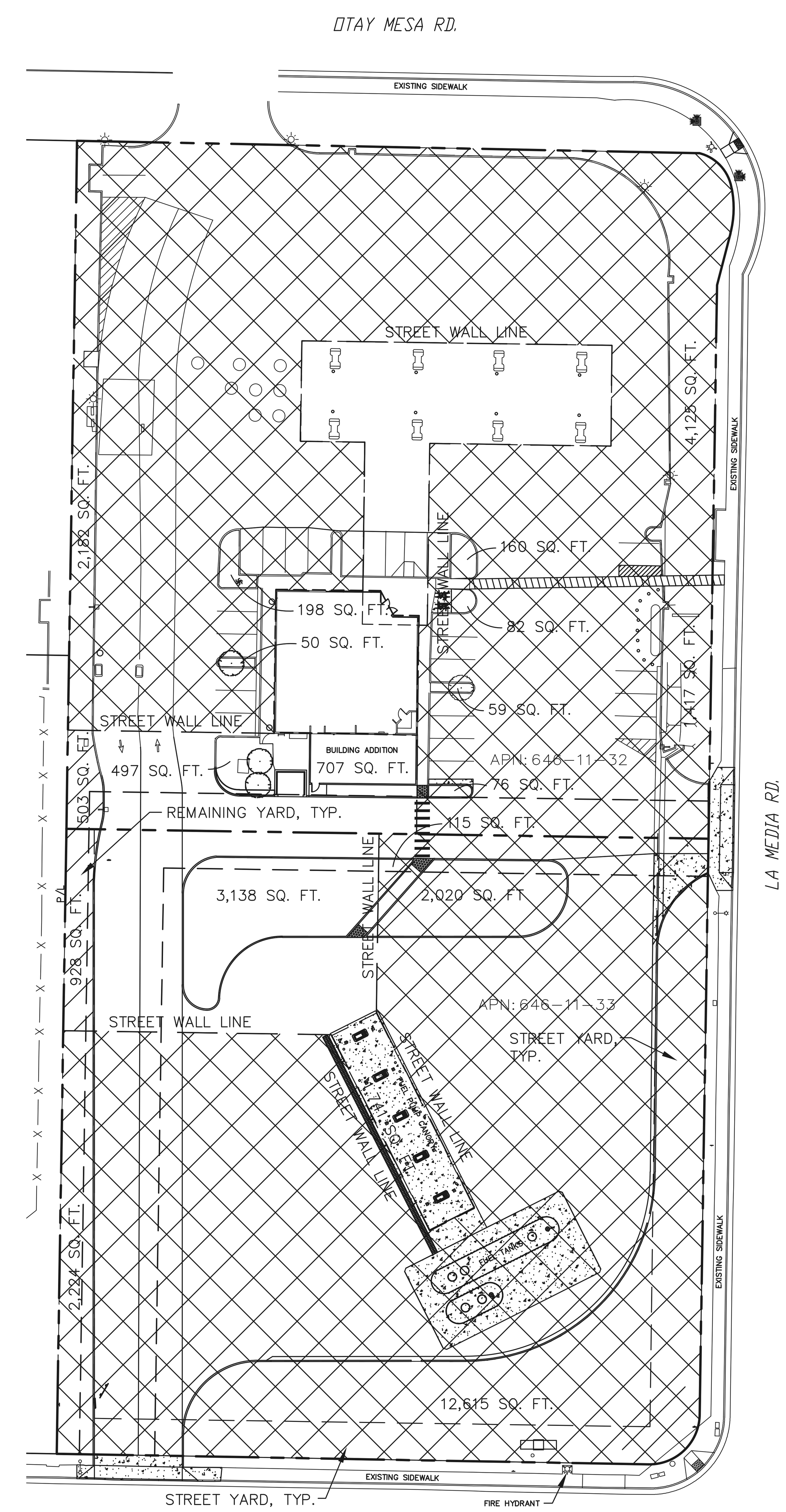
DS-5 (03-06)

VEHICULAR USE AREA DIAGRAM | SCALE 1" = 40' | 2

LEGEND APN: 646-11-3200

- STREET YARD TOTAL = 54,872 SQ. FT.
- REMAINING YARD TOTAL = 1000 SQ. FT.



APN: 646-11-3200

Landscape Calculations Worksheet
Industrial Development in RM and C Zones
Commercial Development in All Zones

City of San Diego
Development Services
1222 First Ave., MS-501
San Diego, CA 92101-4154
(619) 446-5000

THE CITY OF SAN DIEGO

Provide the following information on the Landscape Plans. The Landscape Calculations determine the planting area and points required by the Landscape Regulations, Chapter 14, Article 2, Division 4 of the Land Development Code.

STREET YARD

Industrial and Commercial Development (except Auto Service Stations; see below):

Planting Area Required [142.0404]	Planting Area Provided	Excess Area Provided
Total Area ____ sq. ft. x 25%= ____ sq. ft.	____ sq. ft.	____ sq. ft.

Planting Points Required [142.0404]	Plant Points Provided - To be achieved with trees only	Excess Points Provided
Total Area ____ sq. ft. x 0.05= ____ points	____ points	____ points

Auto Service Stations Only

Planting Area Required [142.0405(c)(2)]	Planting Area Provided	Excess Area Provided
Total Area 54,872 sq. ft. x 15%= 8,231 sq. ft.	8,349 sq. ft.	118 sq. ft.

Plant Points Required [142.0405(c)(2)]	Plant Points Provided	Excess Points Provided
Total Area 54,872 sq. ft. x 0.03= 1,646 points	____ points	____ points

Note: All required Street Yard planting areas located outside the Vehicular Use Area (VUA) except for auto service stations may consist of hardscape or unattached unit pavers, excluding the minimum area required for trees. [142.0405(C)(1)]

REMAINING YARD

Planting Area Required [142.0404]	Planting Area Provided	Excess Area Provided
Total Area 1,000 sq. ft. x 30%= 300 sq. ft.	1,000 sq. ft.	700 sq. ft.

Plant Points Required [142.0404]	Plant Points Provided	Excess Points Provided
Total Area 1,000 sq. ft. x 0.05= 50 points	____ points	____ points

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DS-4 (03-06)

LEGEND APN: 646-11-3300

- STREET YARD TOTAL = 52,000 SQ. FT.
- REMAINING YARD TOTAL = 928 SQ. FT.

N

APN: 646-11-3300

Landscape Calculations Worksheet
Industrial Development in RM and C Zones
Commercial Development in All Zones

City of San Diego
Development Services
1222 First Ave., MS-501
San Diego, CA 92101-4154
(619) 446-5000

THE CITY OF SAN DIEGO

Provide the following information on the Landscape Plans. The Landscape Calculations determine the planting area and points required by the Landscape Regulations, Chapter 14, Article 2, Division 4 of the Land Development Code.

STREET YARD

Industrial and Commercial Development (except Auto Service Stations; see below):

Planting Area Required [142.0404]	Planting Area Provided	Excess Area Provided
Total Area ____ sq. ft. x 25%= ____ sq. ft.	____ sq. ft.	____ sq. ft.

Planting Points Required [142.0404]	Plant Points Provided - To be achieved with trees only	Excess Points Provided
Total Area ____ sq. ft. x 0.05= ____ points	____ points	____ points

Auto Service Stations Only

Planting Area Required [142.0405(c)(2)]	Planting Area Provided	Excess Area Provided
Total Area 52,000 sq. ft. x 15%= 7,800 sq. ft.	16,974 sq. ft.	9,174 sq. ft.

Plant Points Required [142.0405(c)(2)]	Plant Points Provided	Excess Points Provided
Total Area 52,000 sq. ft. x 0.03= 1,560 points	2,140 points	580 points

Note: All required Street Yard planting areas located outside the Vehicular Use Area (VUA) except for auto service stations may consist of hardscape or unattached unit pavers, excluding the minimum area required for trees. [142.0405(C)(1)]

REMAINING YARD

Planting Area Required [142.0404]	Planting Area Provided	Excess Area Provided
Total Area 928 sq. ft. x 30%= 278 sq. ft.	928 sq. ft.	650 sq. ft.

Plant Points Required [142.0404]	Plant Points Provided	Excess Points Provided
Total Area 928 sq. ft. x 0.05= 46 points	198 points	152 points

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Upon request, this information is available in alternative formats for persons with disabilities.

DS-4 (03-06)

STREET YARD / REMAINING YARD DIAGRAM | SCALE 1" = 40' | 1

7-ELEVEN

7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

YARD AREA DIAGRAMS

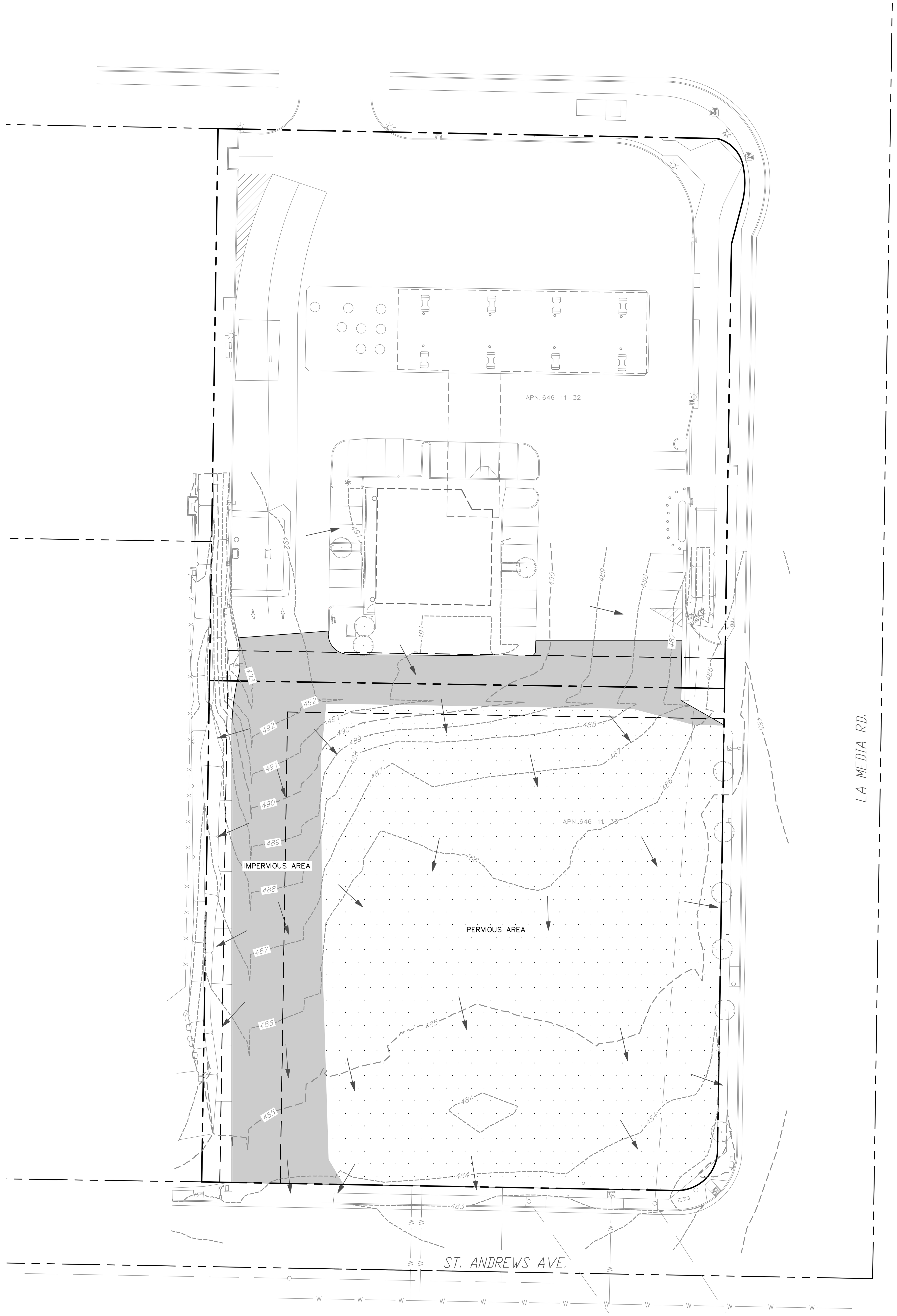
CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 467-8909
sani@core-eng.com

LICENSED LANDSCAPE ARCHITECT — STATE OF CALIFORNIA
Signature
5-31-19
Renewal Date
11-20-17
Date

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	1" = 40'
Date:	06-15-17
Drawn By:	TK
Checked By:	SMA

L-2



EXISTING DRAINAGE SUMMARY:

THE EXISTING SITE IS IN UNDEVELOPED CONDITION WITH LOW INFILTRATION RATE. THE SURFACE RUNOFF WILL SHEET FLOW AND DISCHARGE ONTO LA MEDIA RD. & ST. ANDREWS AVE. AND THEN COLLECTED BY THE EXISTING CATCH BASINS. THE RUNOFF WILL ENTER THE UNDERGROUND CONVEYANCE CHANNEL AND DISCHARGE TO OTAY MESA CREEK AND TIJUANA RIVER.

Pre-Project Runoff Volume:

V= C x d x A x 3,630

C=0.36 ; d=0.55in ; A=1.69ac

V= 0.36 x 0.55 x 1.69 x 3,630= 1,214 cubic feet

SOIL TYPE NOTE:
THE ENTIRE SITE IS CLASSIFIED AS TYPE D PER NRCS.

CCSYA NOTE:
THE PROJECT IS NOT WITHIN OR DOESN'T RECEIVE OR DRAINS FROM CRITICAL COARSE SEDIMENT YIELD AREAS.

GROUNDWATER NOTE:
THERE IS NO GROUNDWATER ON THE SITE OR 1,000 FEET RADIUS FROM THE SITE PER GEOTRACKER GAMA GROUNDWATER.

PROPOSED LEGEND

- PROPERTY LINE
- ASPHALT PAVEMENT
- DIRT
- EXISTING CONTOUR
- FLOW ARROW
- STANDARD CURB
- LANDSCAPING
- AREA UNDER CANOPY
- DMA BOUNDARY

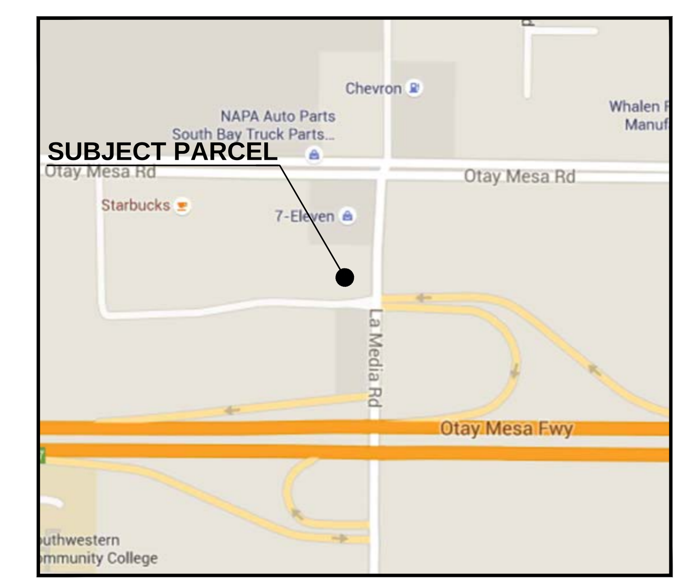
SITE DATA TABLE

LAND USE

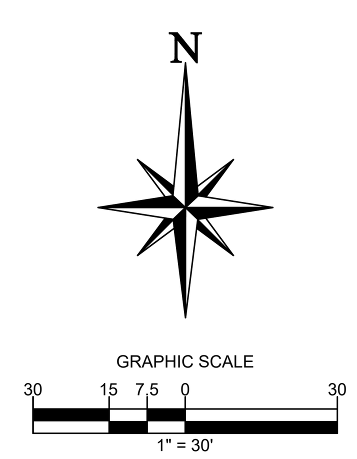
PARCEL APN No.:	6461113200 & 6461113300
CURRENT ZONING:	I L - 3 -1
EXISTING USE:	GAS STATION AND CONVENIENCE STORE & VACANT LOT
OVERALL PARCELS (BOTH GAS STATION AND VACANT LOT)	
TOTAL PARCEL AREA:	133,842 SF/ 3.07 AC
EXISTING IMPERVIOUS AREA	66,669 SF/ 1.53 AC (49.84%)
EXISTING OPEN SPACE	67,173 SF/ 4.54 AC (50.16%)
VACANT LOT PARCEL AREA:	63,677 SF/ 1.46 AC
EXISTING IMPERVIOUS AREA	6,341 SF/ 0.15 AC (10.27%)
EXISTING OPEN SPACE	57,336 SF/ 1.31 AC (89.73%)

BUILDING DATA

CONSTRUCTION TYPE:	IIB
OCCUPANCY	GROUP U
EXISTING BUILDING:	3,095 SF
FAR:	
EXISTING	0.02
REQUIRED SETBACKS:	
FRONT (OTAY MESA)	15 FEET
SIDE (LA MEDIA)	20 FEET
SIDE (WEST)	20 FEET
REAR	15 FEET



LOCATION MAP
NOT TO SCALE



7-ELEVEN
7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

PRE-PROJECT
DMA EXHIBIT

CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 467-8909

ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

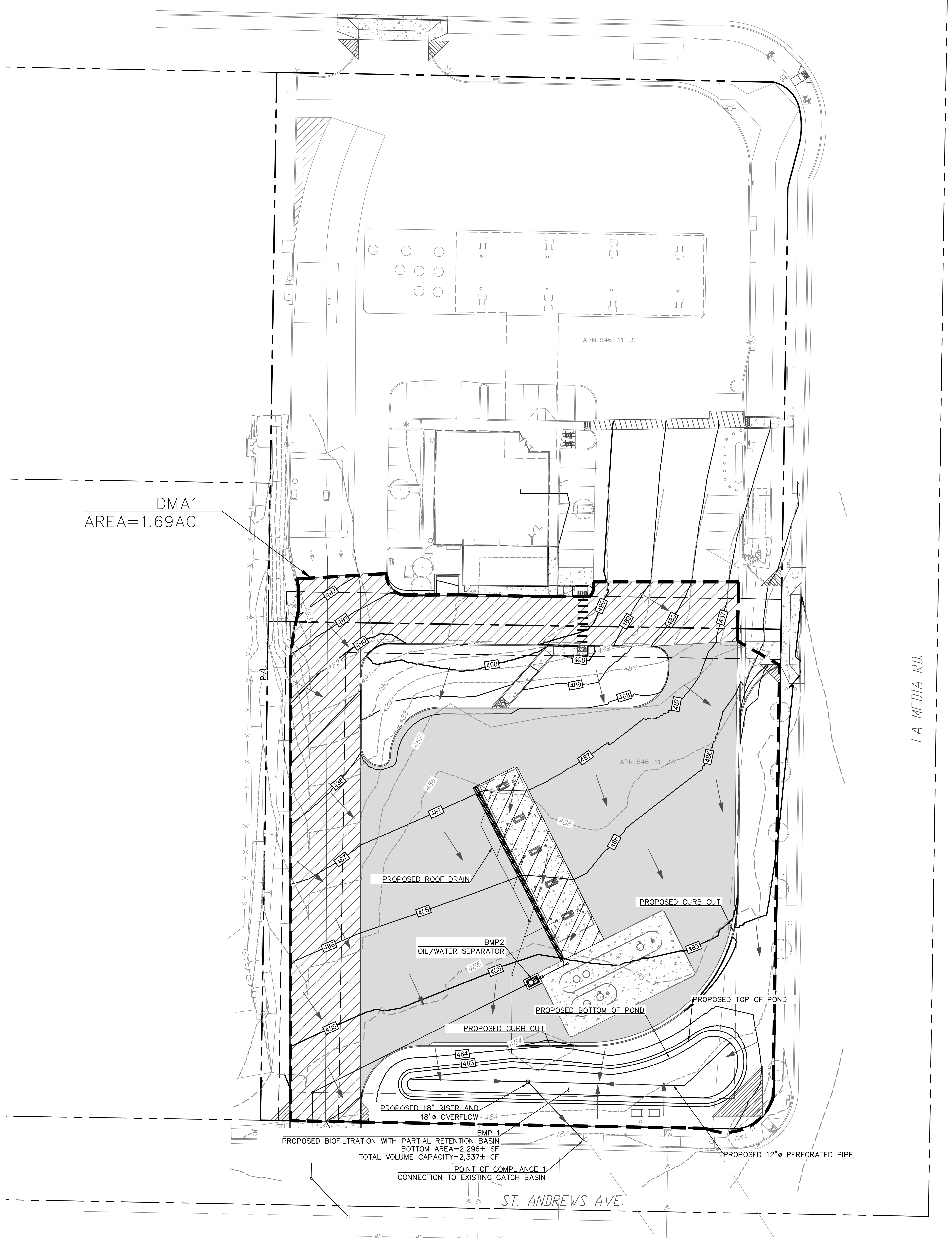
REGISTERED PROFESSIONAL ENGINEER
TRAVIS P. VINCENT JR.
C37356

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	AS SHOWN
Date:	03-28-18
Drawn By:	RM
Checked By:	TV

PRE DMA

Drawing: P:\7-Eleven\FL\San Diego, CA 32290 - SEI-16380.0155 FL\Vault\Civil\Construction Plans\DMA Plan.dwg : DMA 1
Last Modified: Mar. 30, 18 - 13:36
Plot Date/Time: Apr. 20, 18 - 11:57:12



N

GRAPHIC SCALE
30 15 7.5 0 30
1" = 30'

PROPOSED DRAINAGE SUMMARY:

THE PROPOSED PROJECT WILL INCREASE THE IMPERVIOUS AREA AND THE BIOFILTRATION WITH PARTIAL RETENTION POND IS PROPOSED TO REMEDY THE INCREASE OF SURFACE RUNOFF. THE SURFACE RUNOFF WILL SHEET FLOW TOWARD THE SOUTHEAST CORNER OF THE SITE AND ENTER THE DETENTION POND THROUGH CURB OPENINGS. THE ENGINEERED SOIL MEDIA WILL FILTER THE STORM WATER. THE WATER THEN ENTER THE LOWER LAYER OF THE POND WHICH PROVIDE 12" OF STONE STORAGE FOR INFILTRATION. AN UNDERDRAIN WITH ORIFICE IS UTILIZED TO CONTROL THE OUTFLOW RATE FOR SMALLER STORM EVENTS, AND THE RISER AND OVERFLOW ARE PROVIDED TO HANDLE THE PEAK FLOW RATE OF BIGGER STORM EVENTS.

DMA 1 DESIGN CAPTURE VOLUME CALCULATION :

V= C x d x A x 3,630

C=0.73 ; d=0.55in ; A=1.69ac

V= 0.73 x 0.55 x 1.69 x 3,630= 2,463 cubic feet

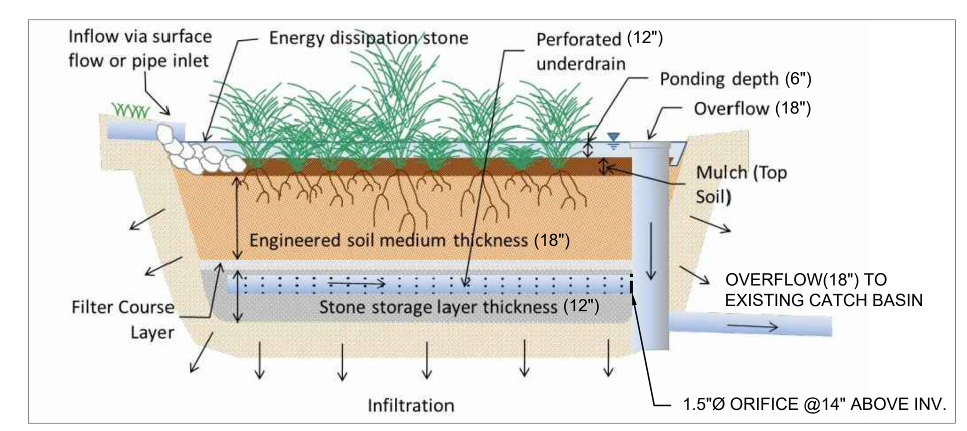
SWQMP DATA		
	REQUIRED (CF)	PROPOSED (CF)
DCV	2,463	–
RETENTION	–	1,419
INFILTRATION	–	918
TOTAL STORAGE	–	2,337
TOTAL FILTERED	–	22960 (IN24HR)

SURFACE POND VOLUME CALCULATION:
SURFACE POND CAPACITY IS ESTIMATED BY COMPUTER PROGRAM (AUTOCAD CIVIL 3D). SEE TABLE IN ATTACHMENT 1 FOR DETAILS.

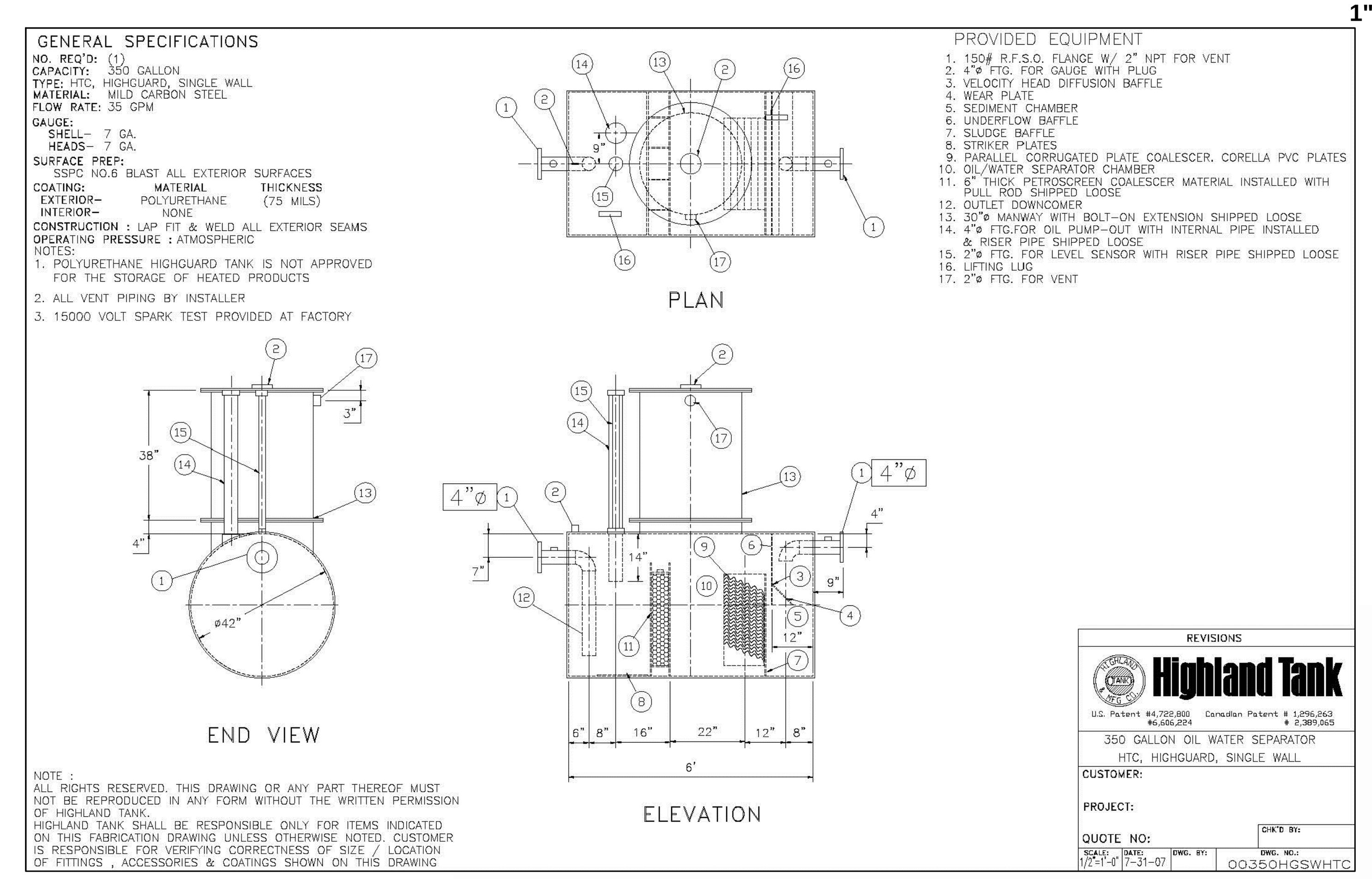
UNDERGROUND STONE STORAGE VOLUME CALCULATION:
V= AREA x DEPTH OF STONE STORAGE LAYER x POROSITY
V= 2,296SF x 1FT x 0.4
V=918 CF
MEASURED INFILTRATION RATE=0.27 IN/HR
INFILTRATION RATE AFTER SAFETY FACTOR= 15 IN/HR
MAXIMUM DRAWDOWN TIME= 12IN / 0.15= 80 HR

BIOFILTRATION VOLUME CALCULATION:
V= AREA x SOIL MEDIA INFILTRATION RATE x 24 HOUR
V= 2,296SF x (0.5/12) FT x 24HR
V=22,960 CF

AREA UNDER CANOPY:
DRAINAGE FALLS UNDER THE CANOPY AREA WILL BE TREATED BY THE OIL / WATER SEPARATOR AND DISCHARGED INTO THE EXISTING SANITARY SEWER SYSTEM UNDER ST. ANDREWS AVE.



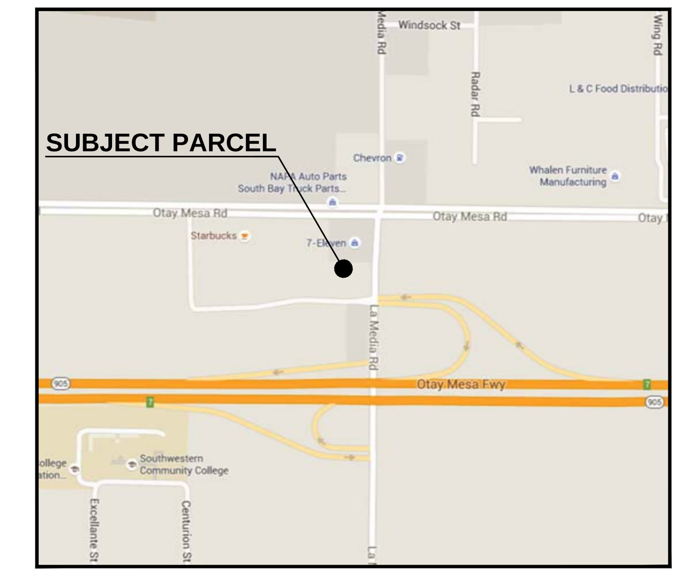
BIOFILTRATION / INFILTRATION POND DETAILS
N.T.S.



OIL/WATER SEPARATOR DETAIL
N.T.S.

SOIL TYPE NOTE:
THE ENTIRE SITE IS CLASSIFIED AS TYPE D PER NRCS.

GROUNDWATER NOTE:
THERE IS NO GROUNDWATER ON THE SITE OR 1,000 FEET RADIUS FROM THE SITE PER GEOTRACKER GAMA GROUNDWATER.

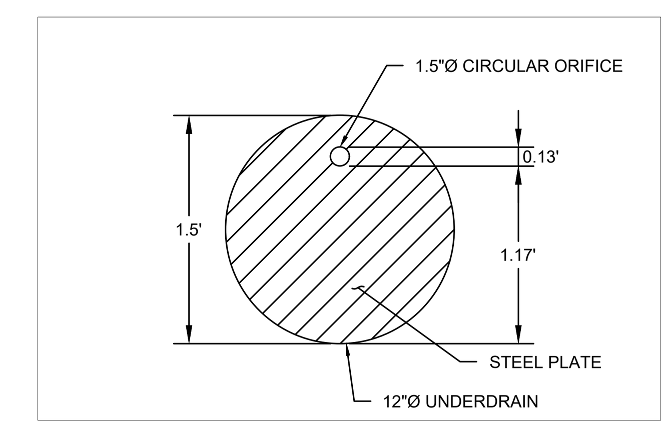


LOCATION MAP
NOT TO SCALE

PROPOSED LEGEND

- PROPERTY LINE
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- EXISTING CONTOUR
- FLOW ARROW
- STANDARD CURB
- LANDSCAPING
- AREA UNDER CANOPY
- DMA BOUNDARY

ACREAGE SUMMARY (IN ACRES)	
TOTAL PROJECT AREA	1.69
ON-SITE DISTURBED AREA	1.63
OFF-SITE DISTURBED AREA	0.06
TOTAL DISTURBED AREA (MUST MATCH NOI)	1.69
IMPERVIOUS AREA AT COMPLETION	1.19
PERVIOUS/ SEEDED AREA AT COMPLETION	0.50



ORIFICE DETAILS
1"=1'

7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

POST-PROJECT
DMA EXHIBIT

CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 407-8609
sanli@core-eng.com

ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	AS SHOWN
Date:	03-28-18
Drawn By:	RM
Checked By:	TV

POST DMA

Drawing: P:\7-Eleven\1\San Diego, CA 32290 - SEI-16380.0155 FL\Vault\Civil\Construction Plans\DMA Prop Plan.dwg ,DMA 2
User: NGU
Last Modified: Jun. 19, 18 - 13:53
Plot Date/Time: Jun. 19, 18 - 13:56:52

Attachment 5
Drainage Report

Attach project's drainage report. Refer to Drainage Design Manual to determine the reporting requirements.

The City of San Diego	# DRAINAGE STUDY REPORT

7-ELEVEN OTAY MESA
Site Development Permit No.: 96-7731
Project No.: 553296 ; Internal Order No.: 24007314

ENGINEER OF WORK:

____

Travis Vincent
Provide Wet Signature and Stamp Above Line

PREPARED FOR:
7-ELEVEN Inc.
3200 Hackberry Rd.
Irving, TX 75063
(714) 970-2095

PREPARED BY:

____

Core States Group
4240 East Jurupa Street, Suite 402
Ontario, CA 91761
(909) 467-8940

DATE:
August 20, 2019

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Approved by: City of San Diego Date

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Existing Site Drainage

The existing condition of the project site is undeveloped and covered by natural soil (Type D, Barren). The runoff sheet flows toward the southeast, flows over the sidewalk onto the adjacent public streets where it is collected by existing catch basins on St. Andrews Ave. and La Media Rd. The storm water system conveys and discharges to Otay Mesa Creek and Tijuana River.

Proposed Site Drainage

The proposed project will generally retain the existing drainage pattern and will not cause negative impact to the adjacent properties, as shown on the attached Hydrology exhibits. The runoff sheet flow toward the southeast corner of the lot into a new biofiltration basin with partial retention for treatment. Treatment will be achieved by the runoff travelling vertically through a soil layer and a underlying stone layer. A perforated underdrain will collect filtered storm water. A circular orifice is proposed at the outlet of the underdrain to control the outflow rate for smaller storm events. A riser and overflow are also proposed to handle bigger storm events. The underdrain will connect to the existing catch basin on St. Andrews Ave and the underground storm system will convey the runoff to Otay Mesa Creek and Tijuana River.

The intensity data from the San Diego County Hydrology Manual Isopluvial Maps (attached) were utilized to generate hydrographs for the designed 5-year, 10-year, 25-year, 50-year, 100-year storm events.

Hydrology Summary Table					
Pre-Development Conditions, CN=93					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	5.318 cfs	6.643 cfs	7.962 cfs	9.274 cfs	10.58 cfs
Peak Runoff	11,257 cf	14,260 cf	17,302 cf	20,370 cf	23,457 cf
Post-Construction Conditions, CN=90					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	4.695 cfs	6.018 cfs	7.345 cfs	8.671 cfs	9.995 cfs
Peak Runoff	9,686 cf	12,552 cf	15,487 cf	18,468 cf	21,483 cf
Post-Construction Orifice Design					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	0.628 cfs	0.754 cfs	0.879 cfs	1.001	1.121
Peak Runoff	8,863 cf	11,664 cf	14,550	17,495	20,475

Pre-development Vs Post-development Runoff Values

Based on the NRCS hydrologic soil group web survey, the project site has a soil group type D. The existing surface is undeveloped barren and according to the Drainage Design Manual it has a curve number (CN) of 93.

For the proposed development condition, the curve number was calculated with a weighted combination of commercial area and landscape area.

$$CN_{post} = (0.47 \text{ x } 84 + 1.13 \text{ x } 93) / 1.6 = 90$$

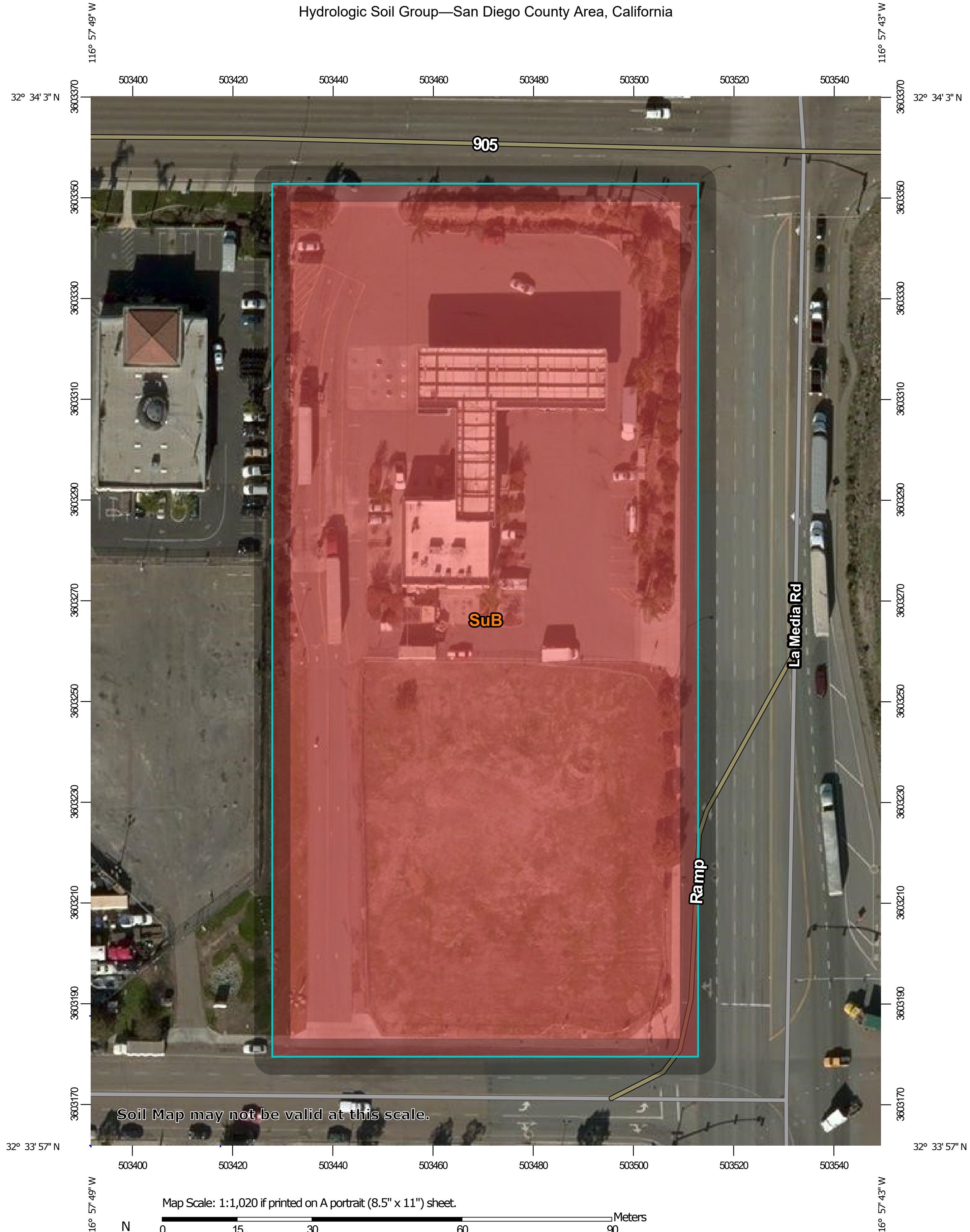
Based on the attached hydrographs, the peak flow from the pre-development is higher than post-development, and therefore the proposed development meets the requirements from the Drainage Design Manual that limit the post development discharge from exceeding the pre-development discharge.

Orifice Design

The proposed construction improvements for this project will include an onsite biofiltration basin to help mitigate storm runoff as shown in the post-development hydrology exhibit. A detail of the proposed basin is also shown which contains a perforated underdrain and orifice before exiting the site through an overflow pipe. A copy of the complete orifice calculations is contained within this report. The results show that the orifice helps reduce the flowrate significantly.

Clean Water Act 401/404

The project site does not discharge any runoff into the US waterways and therefore the requirements of compliance with the Federal Clean Water Act (CWA) as required by the Regional Water Quality Control Board to provide permits under either a 4-1 or 404 permit is not applicable.



Map Scale: 1:1,020 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 15, 30, 60, 90

Feet: 0, 45, 90, 180, 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 12, Sep 13, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 7, 2014—Jan 4, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
SuB	Stockpen gravelly clay loam, 2 to 5 percent slopes	D	3.7	100.0%
Totals for Area of Interest			**3.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

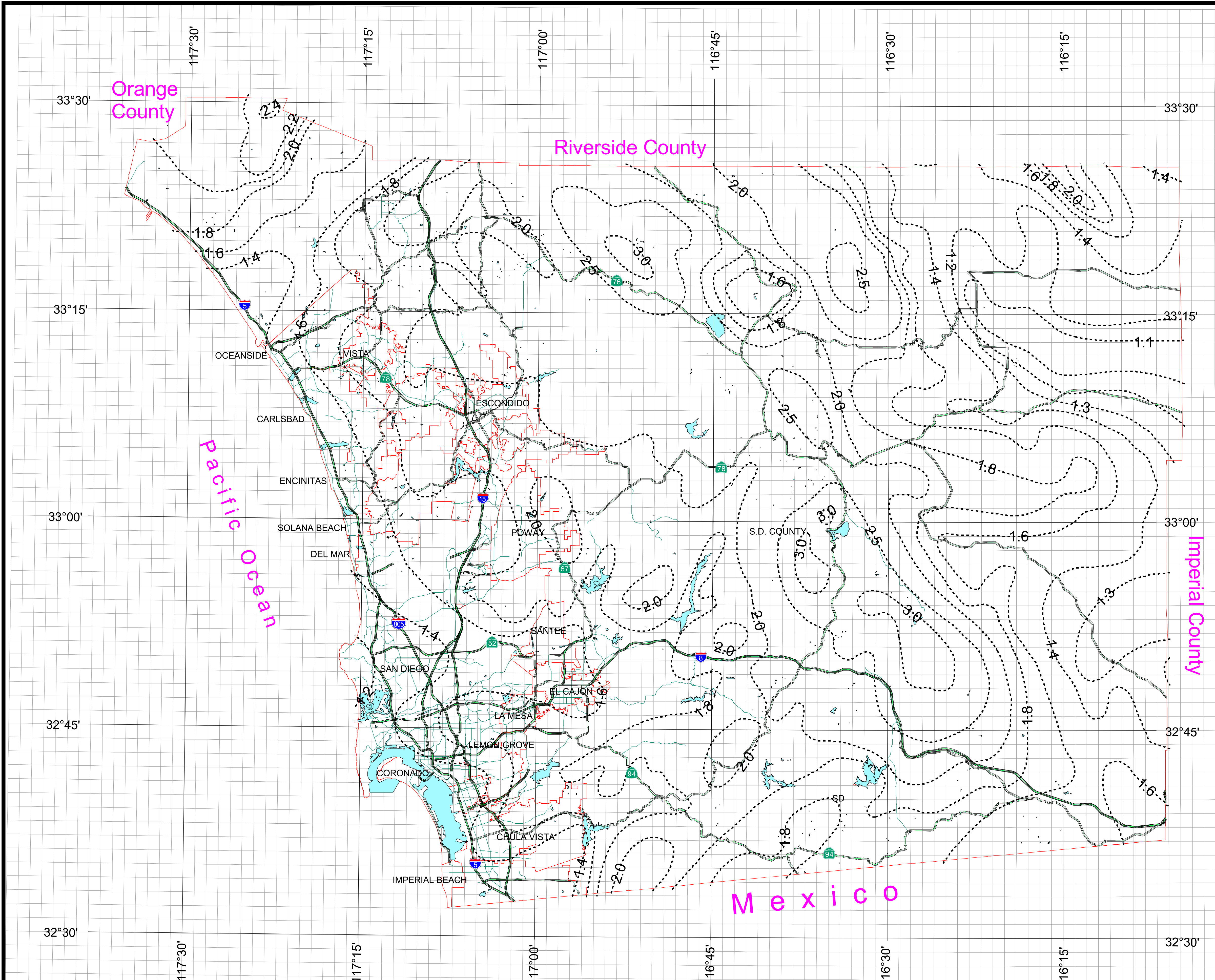
Aggregation Method: Dominant Condition

County of San Diego Hydrology Manual

Rainfall Isopluvials

5 Year Rainfall Event - 6 Hours

Isopluvial (inches)



Department of Public Works
Geographic Information Services

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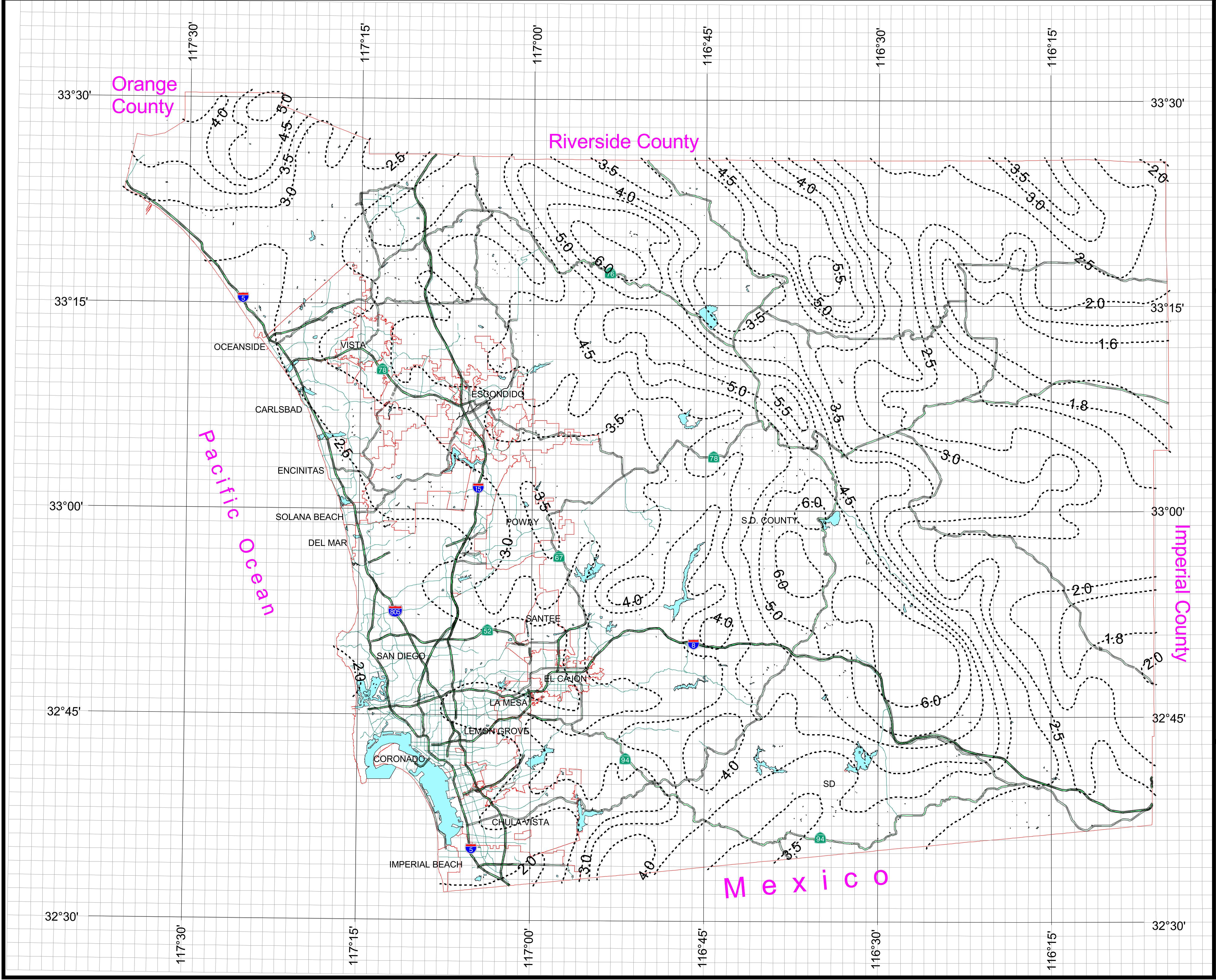
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

5 Year Rainfall Event - 24 Hours



DPW GIS Department of Public Works Geographic Information Services

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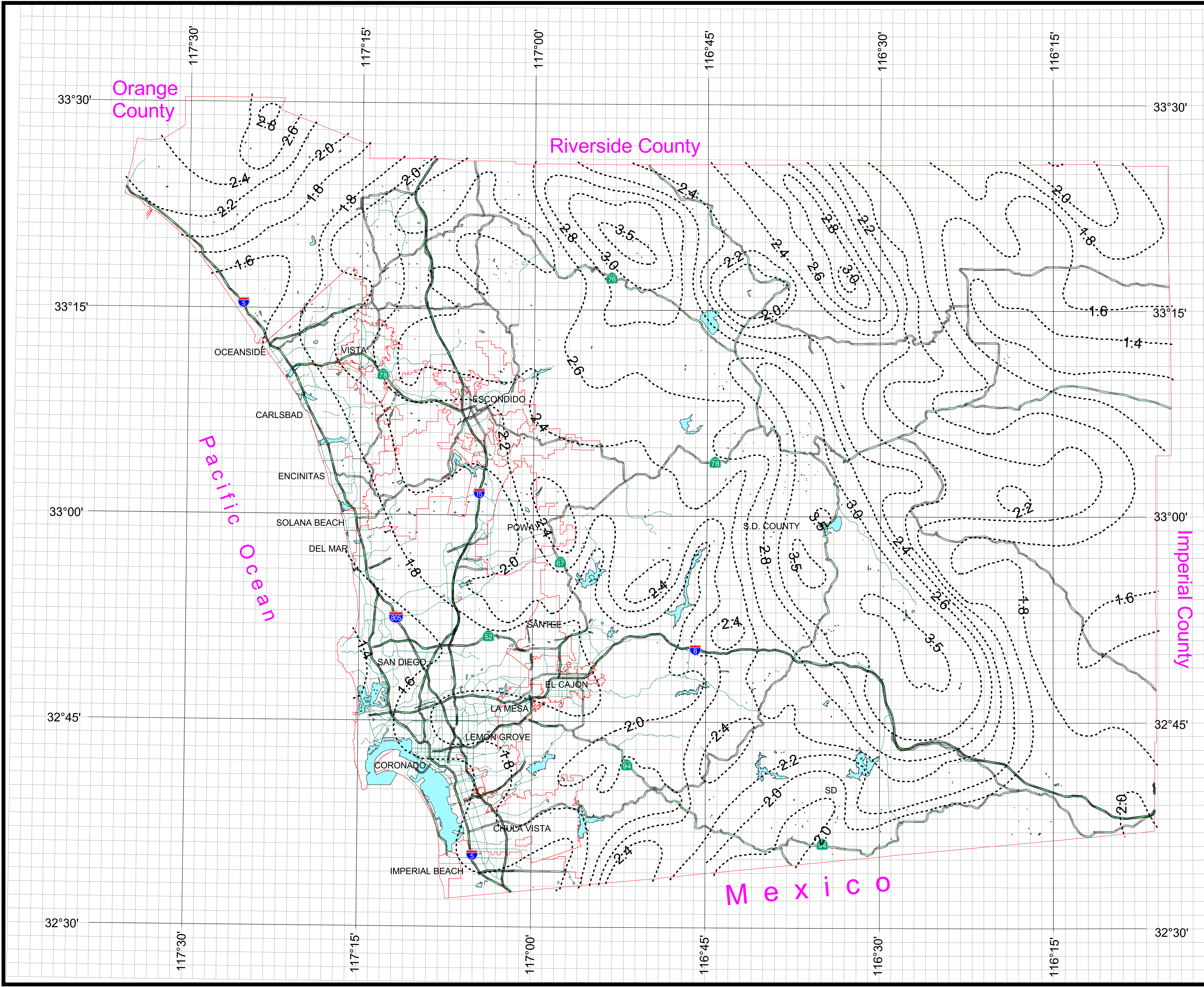

County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 6 Hours

Isopluvial (inches)

DPW GIS
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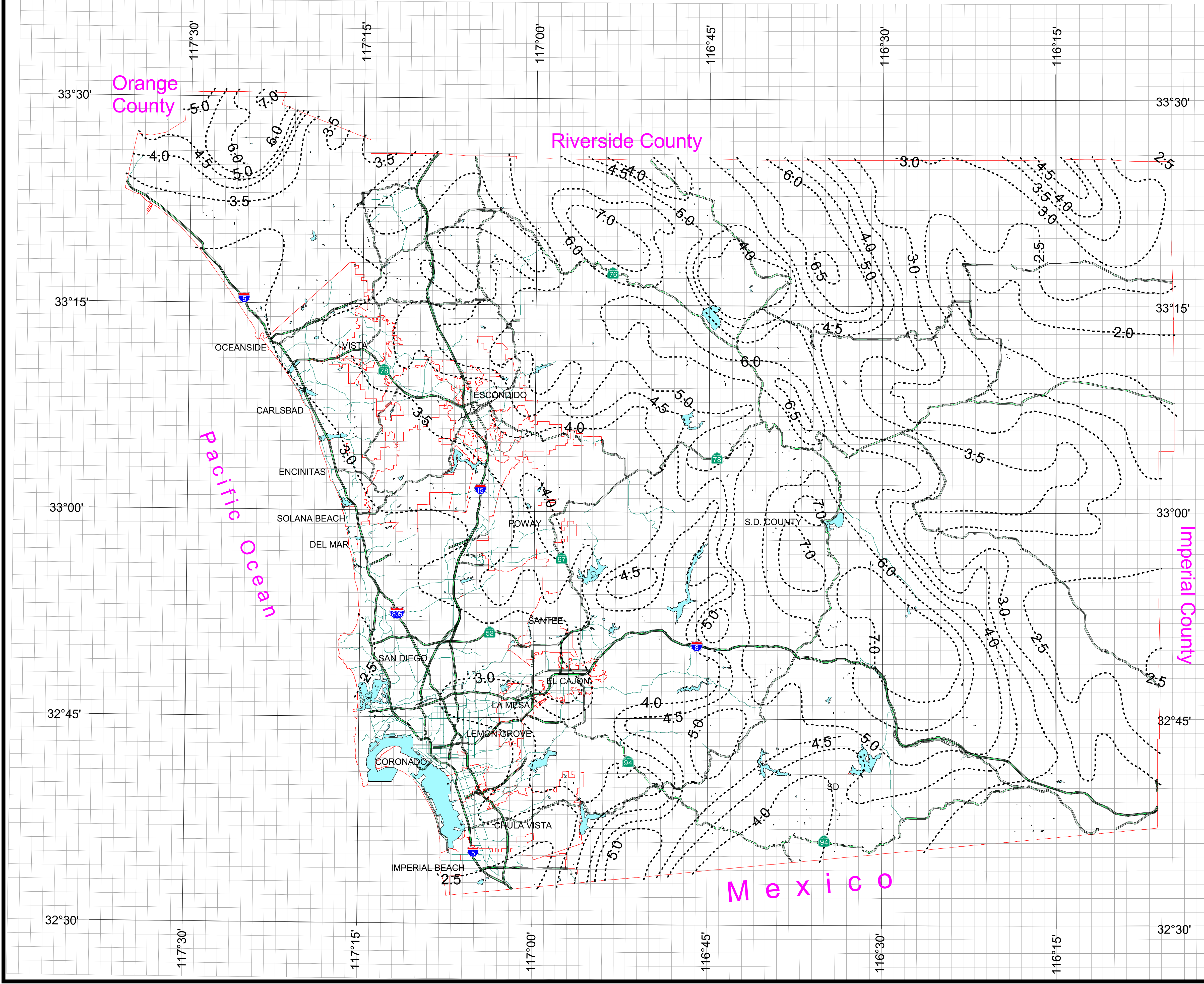
County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 24 Hours



Isopluvial (inches)

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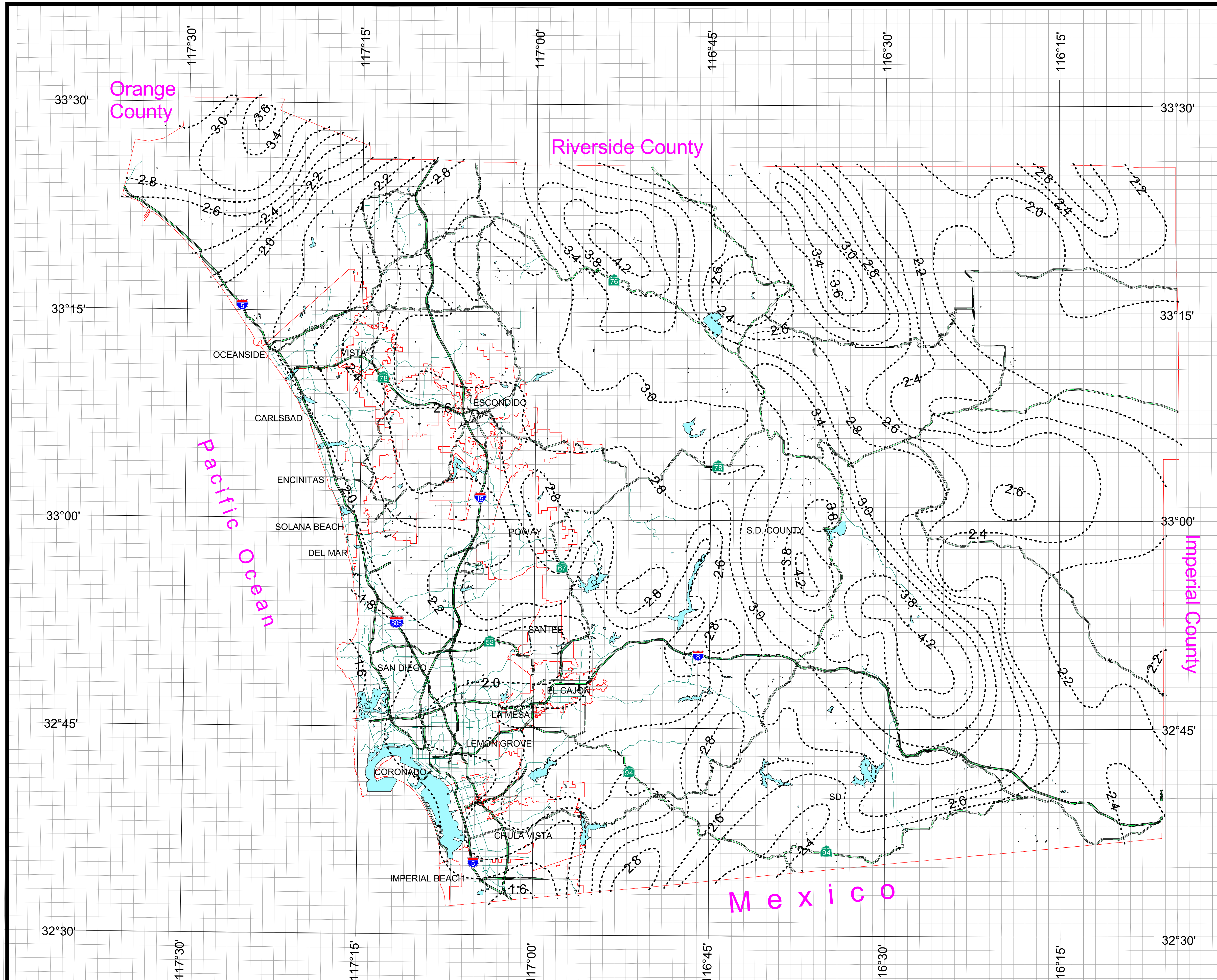
N W E S

3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials



25 Year Rainfall Event - 6 Hours

Isopluvial (inches)

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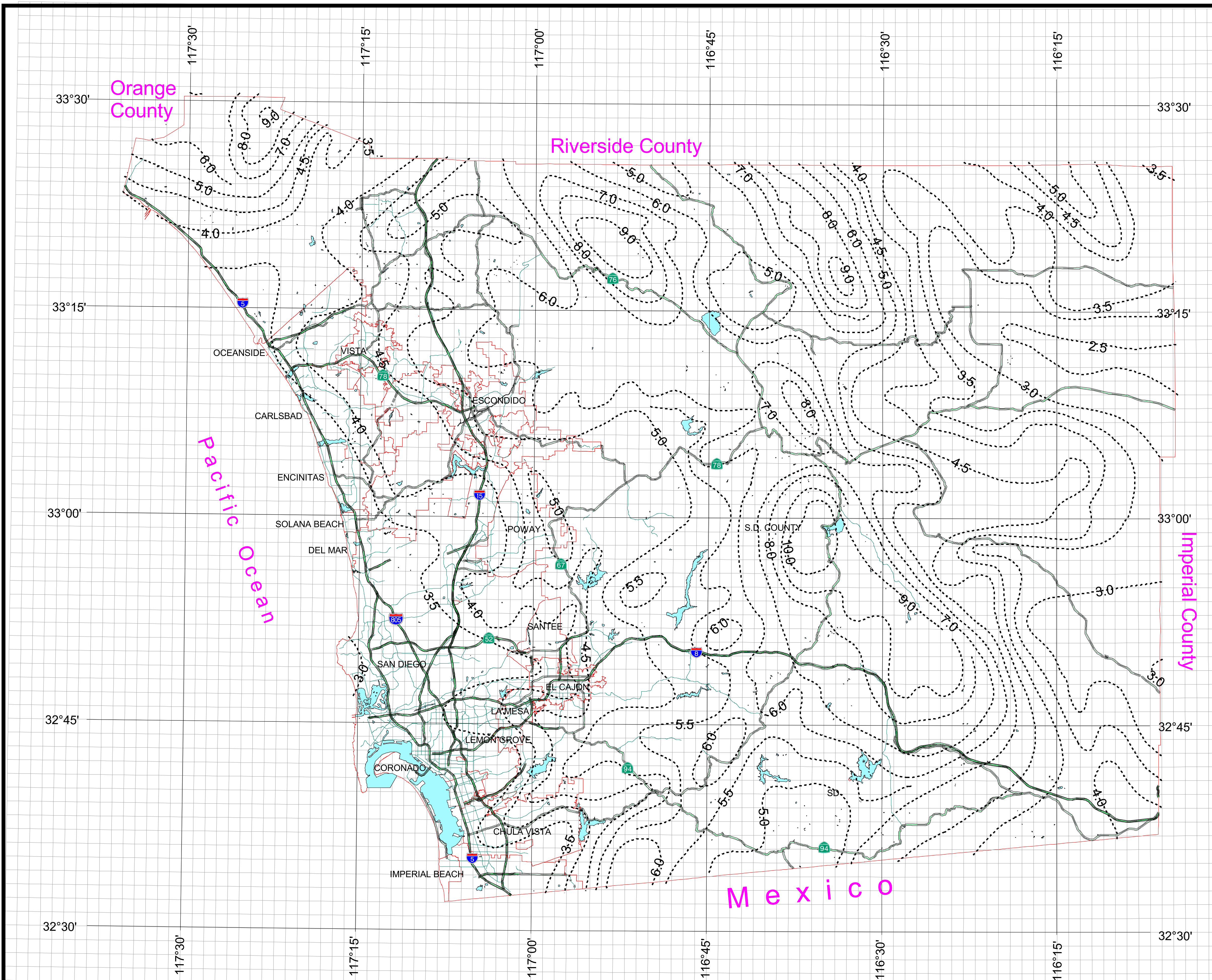
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 24 Hours

Isopluvial (inches)



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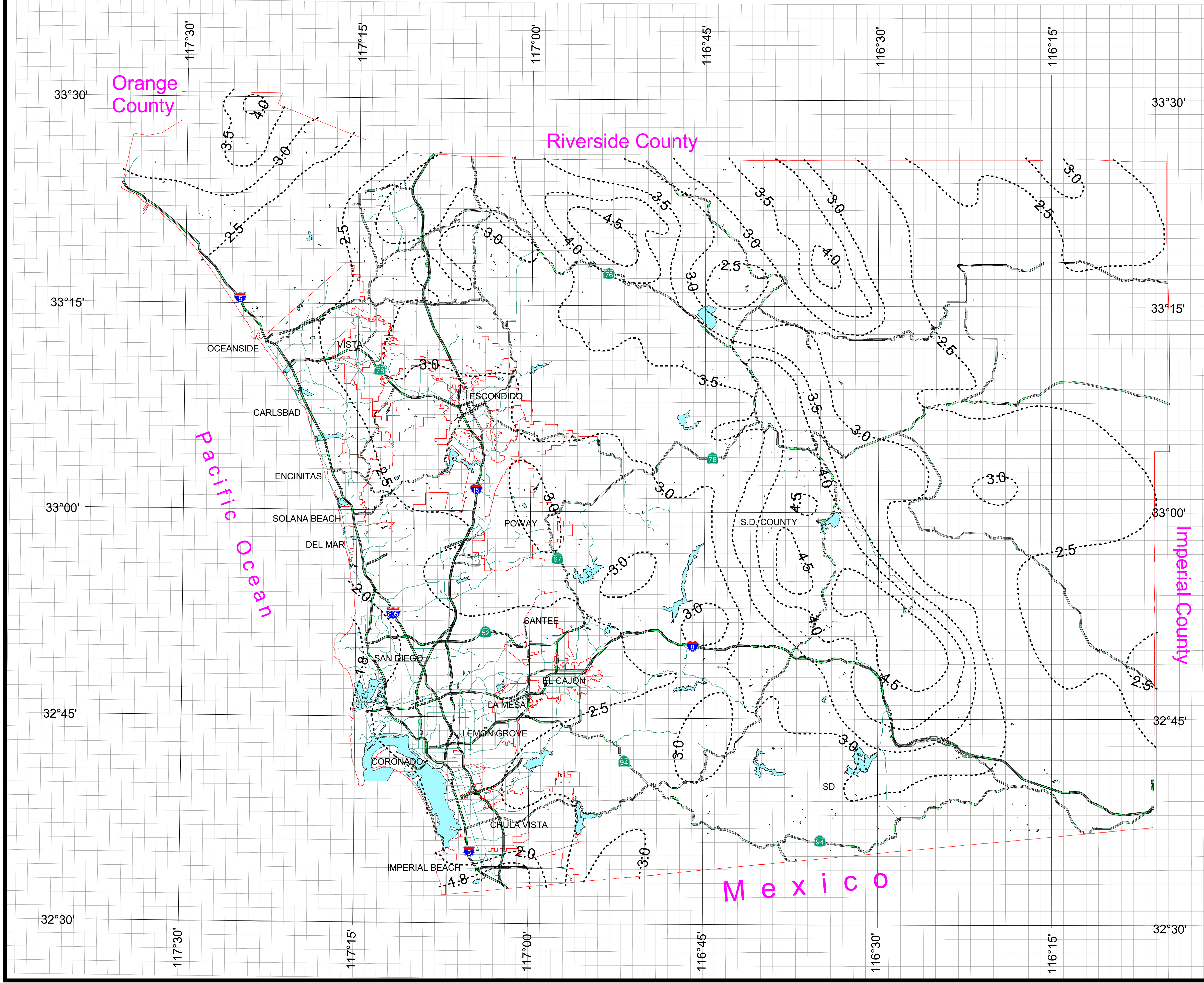
County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 6 Hours



Isopluvial (inches)

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3 0 3 Miles

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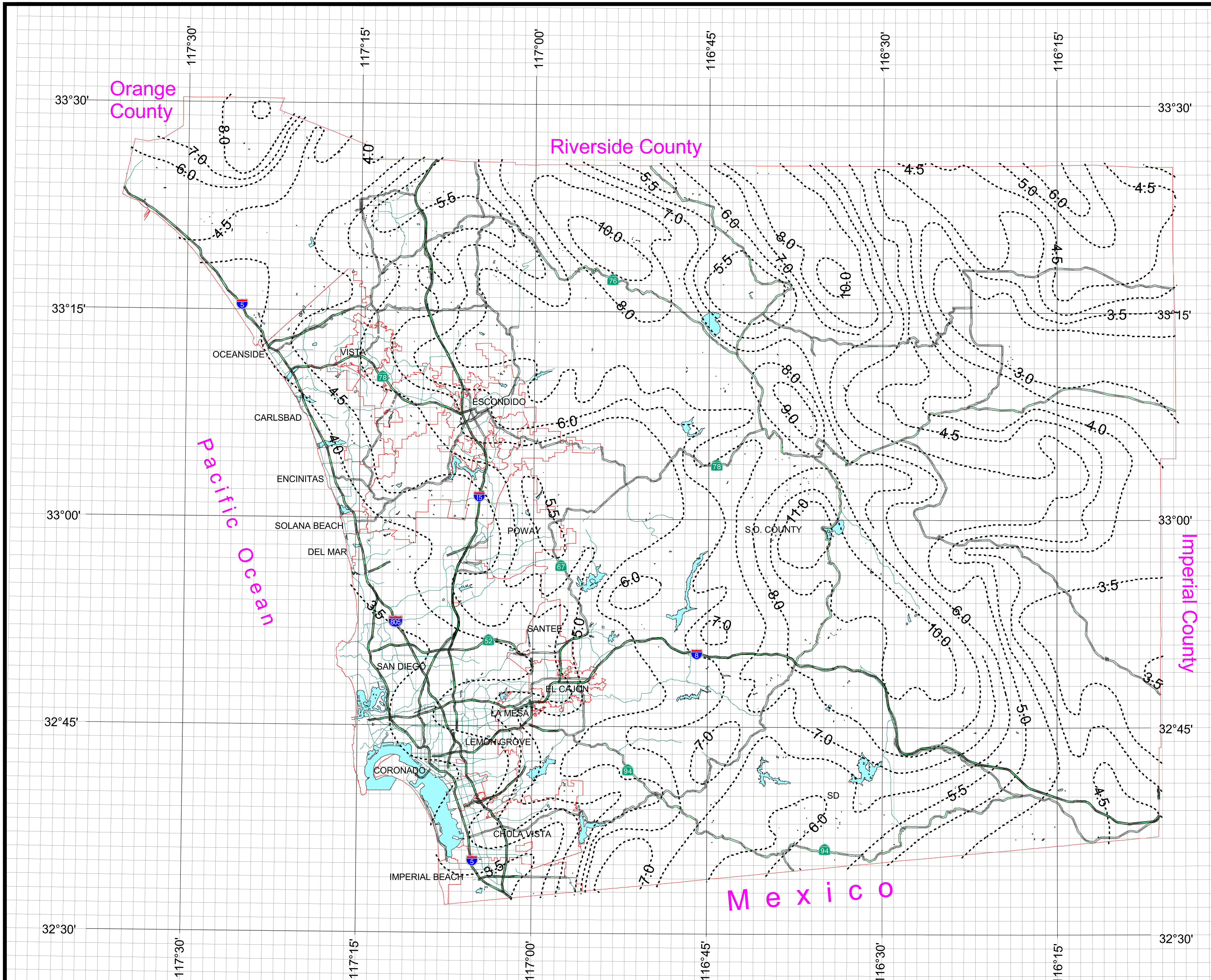
Rainfall Isopluvials

50 Year Rainfall Event - 24 Hours



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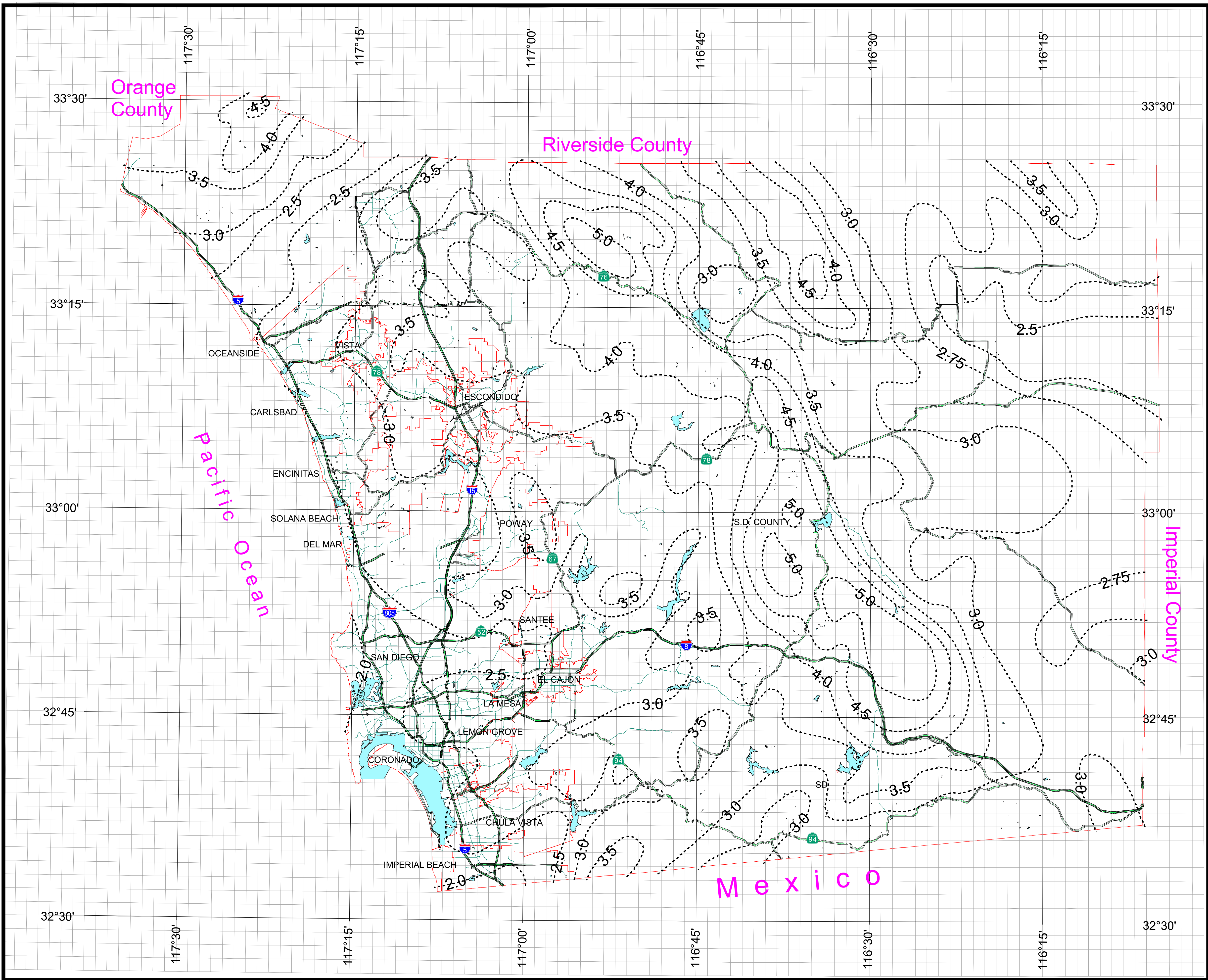
County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours



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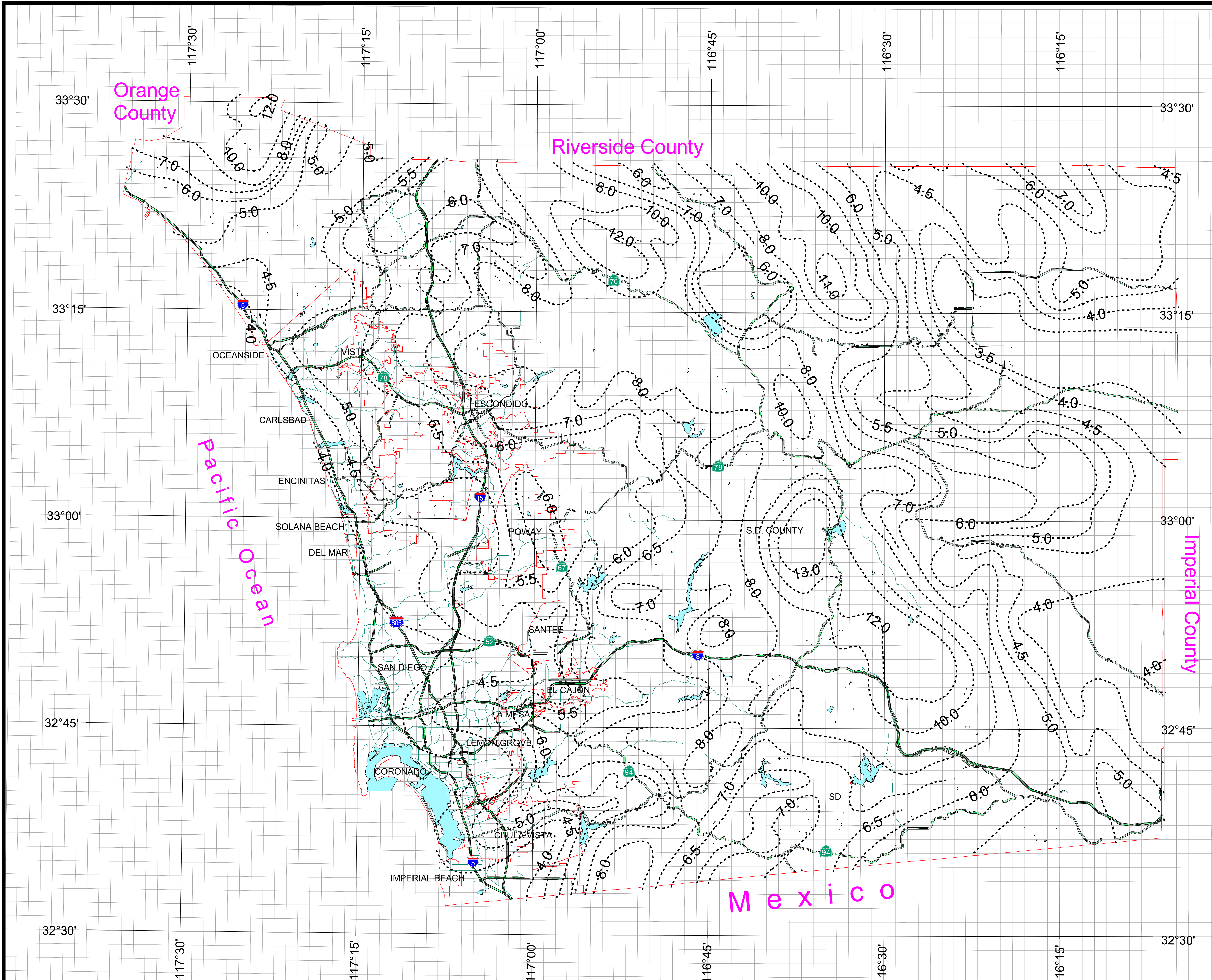
Rainfall Isopluvials



100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

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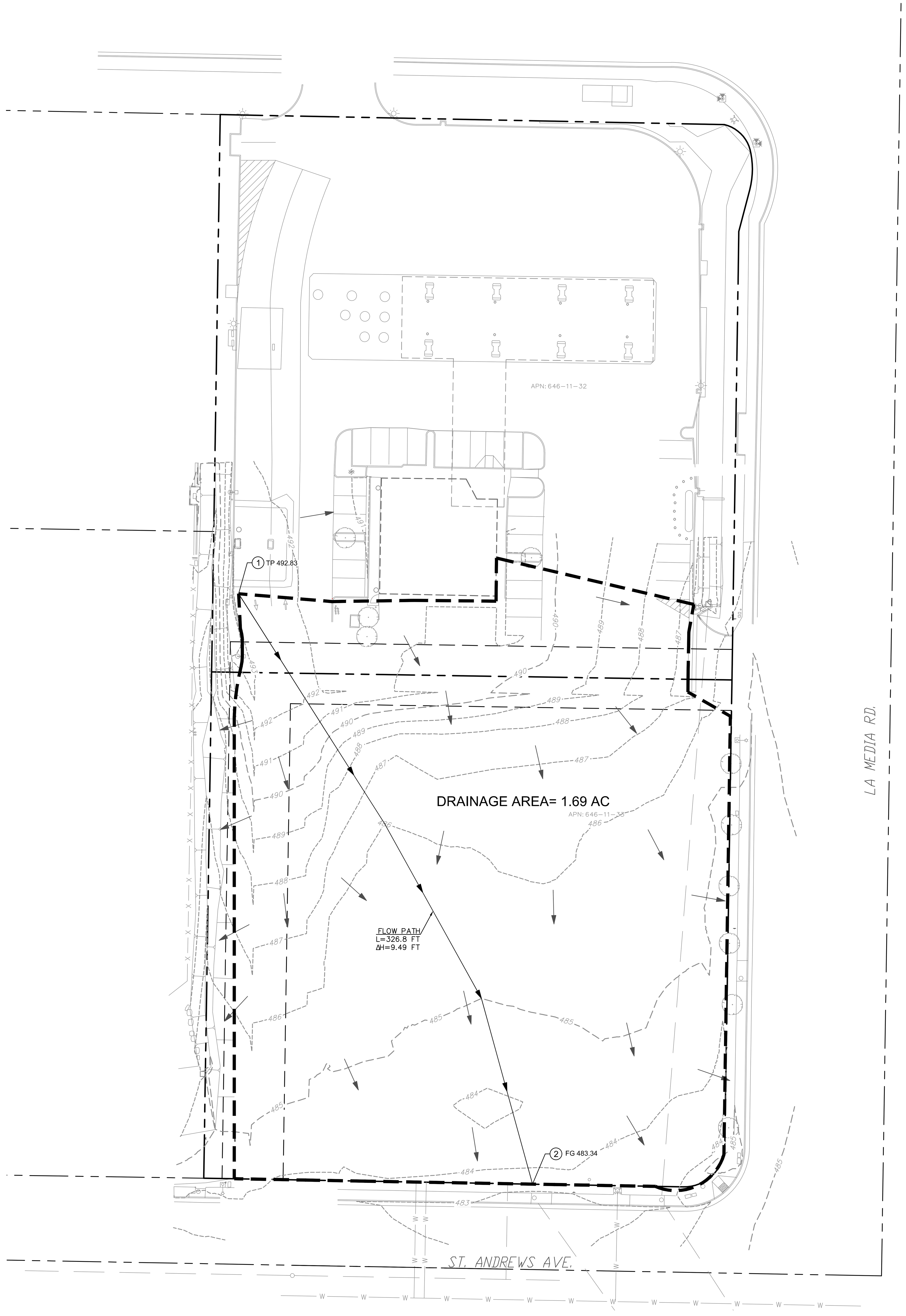
3 0 3 Miles



SOIL TYPE NOTE:
THE ENTIRE SITE IS CLASSIFIED AS TYPE D PER NRCS.

CCSYA NOTE:
THE PROJECT IS NOT WITHIN OR DOESN'T RECEIVE OR DRAINS FROM CRITICAL COARSE SEDIMENT YIELD AREAS.

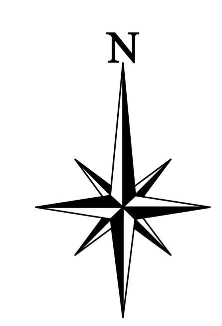
GROUNDWATER NOTE:
THERE IS NO GROUNDWATER ON THE SITE OR 1,000 FEET RADIUS FROM THE SITE PER GEOTRACKER GAMA GROUNDWATER.

HYDROLOGY MAP LEGEND

- SHEET FLOW DIRECTION
- TRIBUTARY AREA
- FLOW PATH
- EXISTING 5' INTERVAL CONTOUR LINE
- EXISTING 1' INTERVAL CONTOUR LINE
- NODE NUMBER

Hydrology Summary Table				
Pre-Development Conditions, CN=93				
Pre-Development Flowrates				
Q (5-Yr)	Q (10-Yr)	Q (25-Yr)	Q (50-Yr)	Q (100-Yr)
5.318 cfs	6.643 cfs	7.962 cfs	9.274 cfs	10.58 cfs
Pre-Development Runoff				
V (5-Yr)	V (10-Yr)	V (25-Yr)	V (50-Yr)	V (100-Yr)
11,257 cf	14,260 cf	17,302 cf	20,370 cf	23,457 cf

NOTE: DISCHARGE FLOWRATES AND RUNOFF LISTED ON THIS TABLE OCCUR AT NODE 2 SHOWN ON PLAN



GRAPHIC SCALE
30 15 7.5 0 30
1" = 30'

7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

EXISTING HYDROLOGY

CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 467-8909
sani@core-eng.com

ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	AS SHOWN
Date:	01-10-19
Drawn By:	RM
Checked By:	TV

EXISTING CONDITION HYDROLOGY EXHIBIT

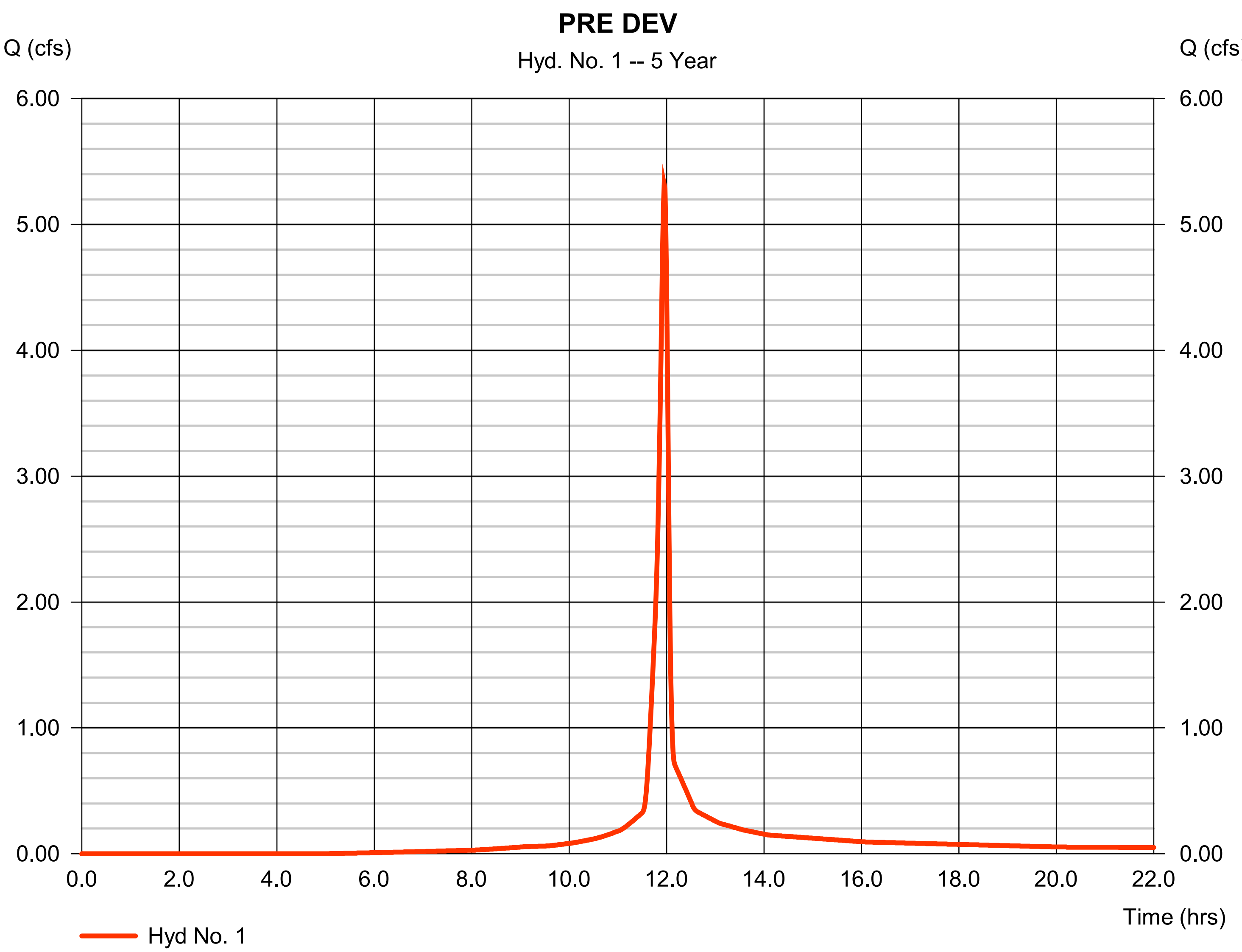
Hydrograph Report

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 5.318 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 11,257 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



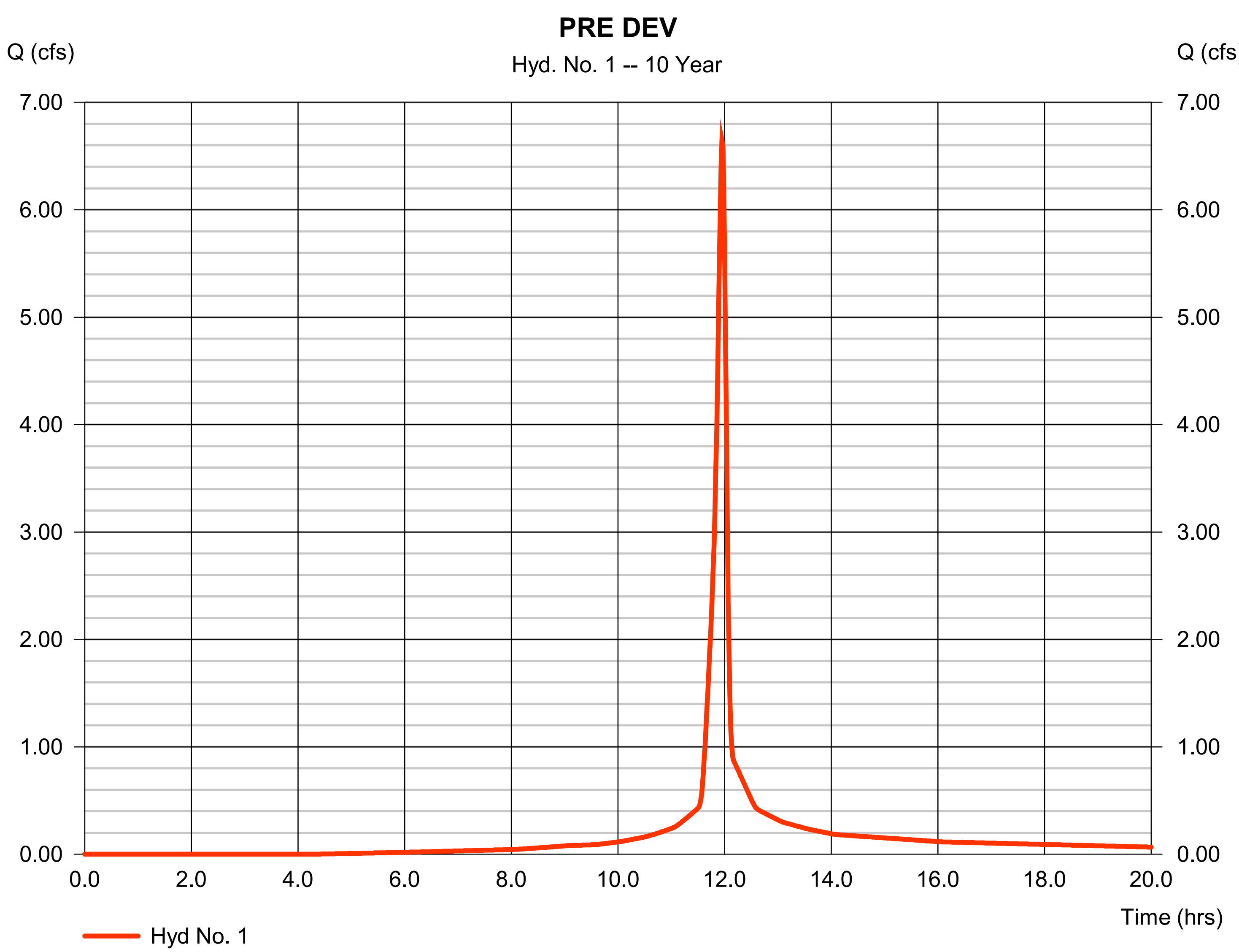
Hydrograph Report

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 6.643 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 14,260 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



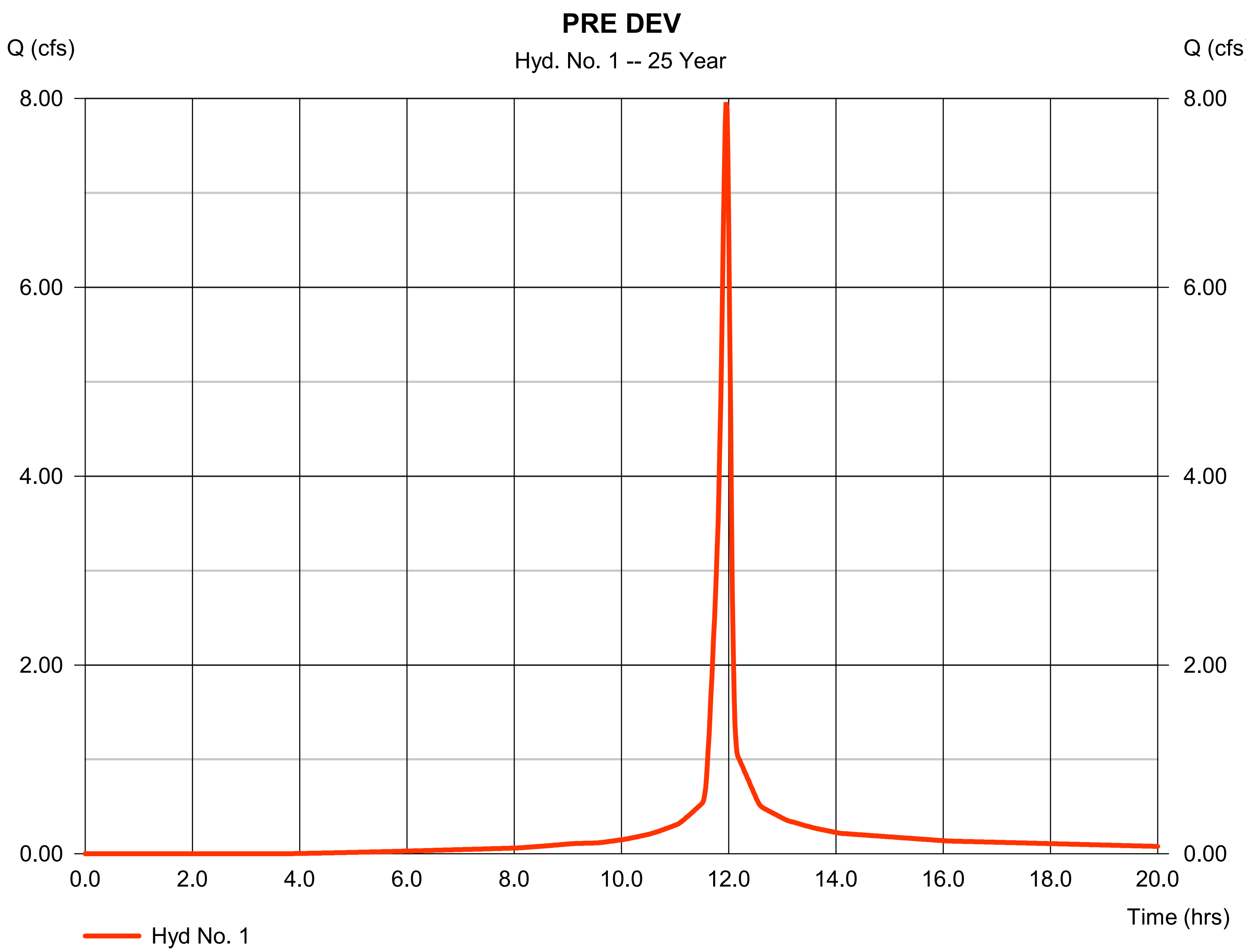
Hydrograph Report

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 7.962 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 17,302 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



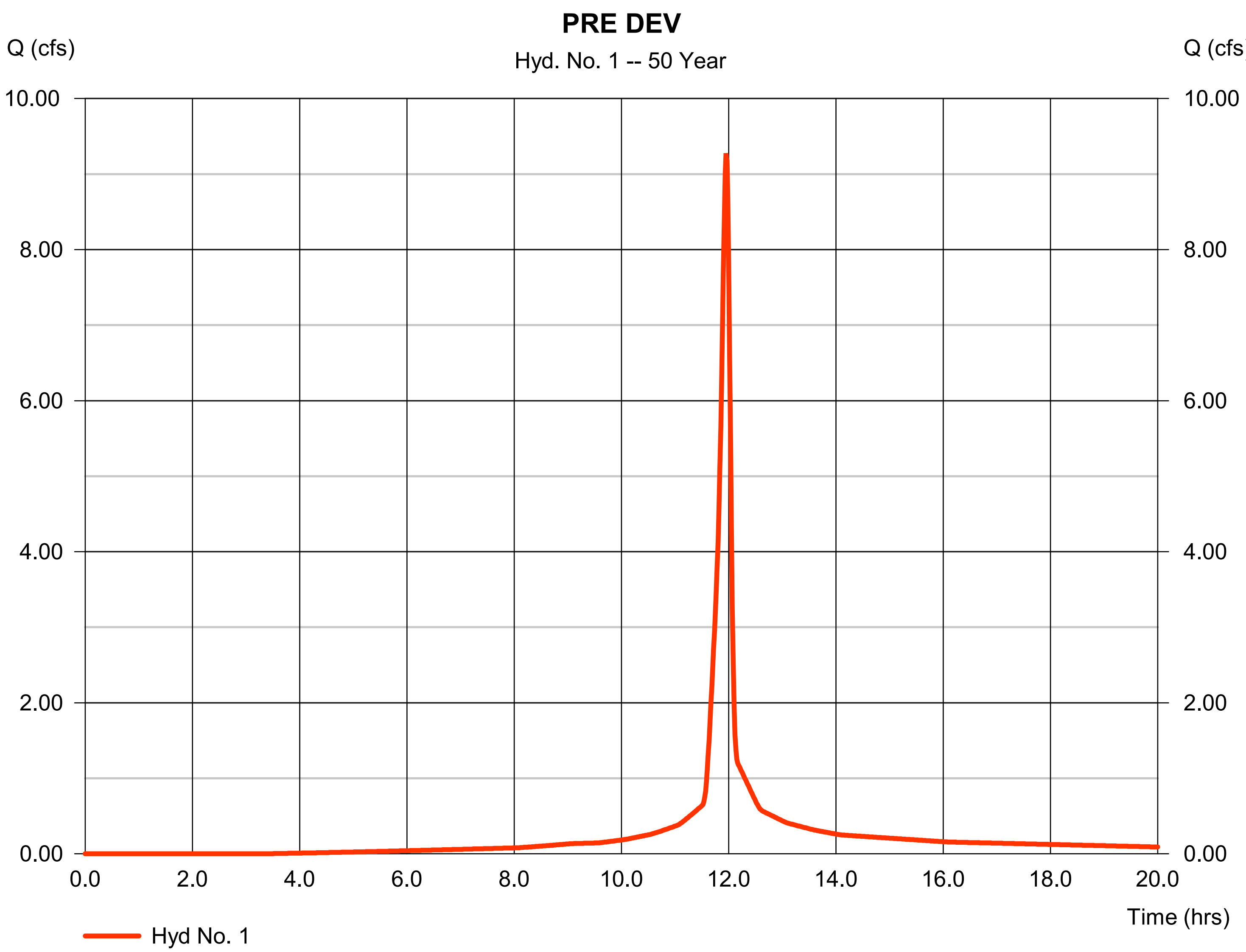
Hydrograph Report

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 9.274 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 20,370 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



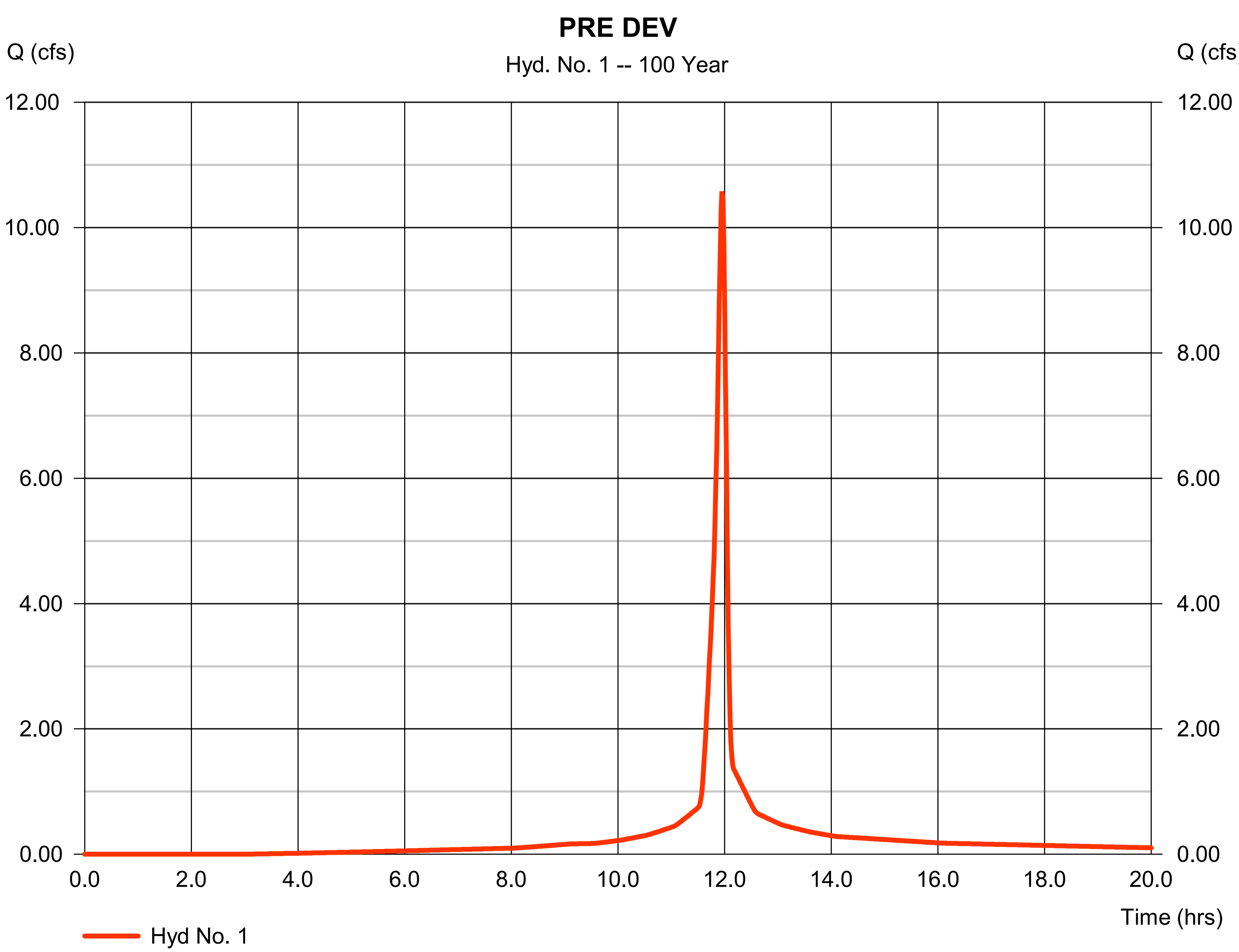
Hydrograph Report

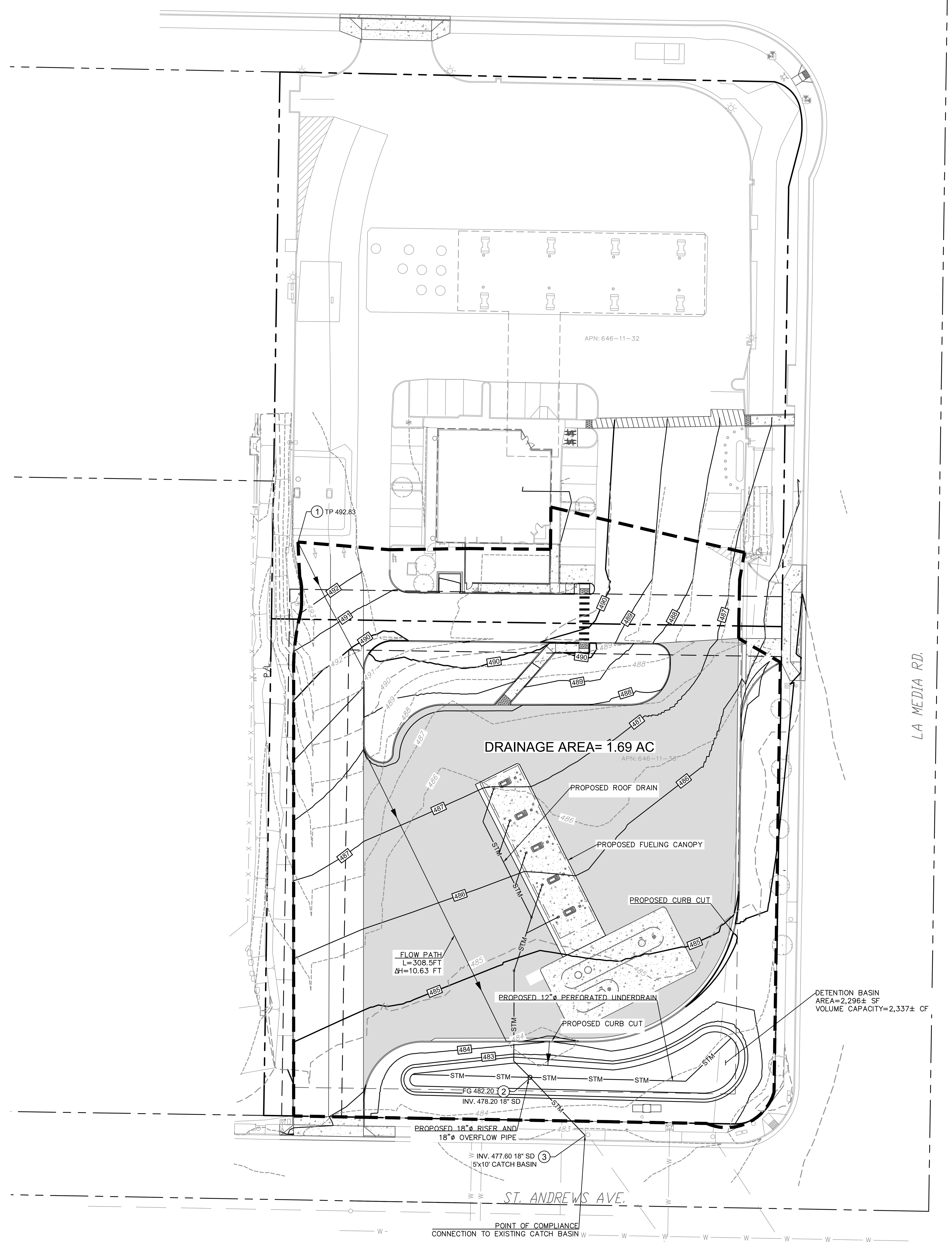
Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 10.58 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 23,457 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690





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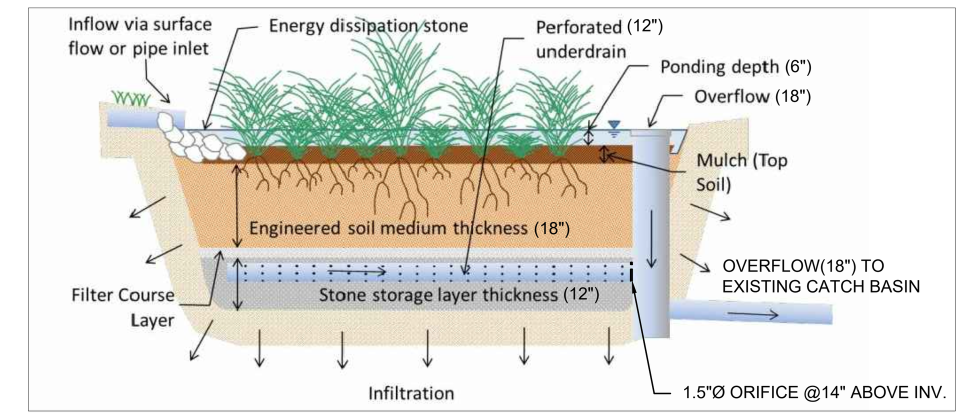
GRAPHIC SCALE

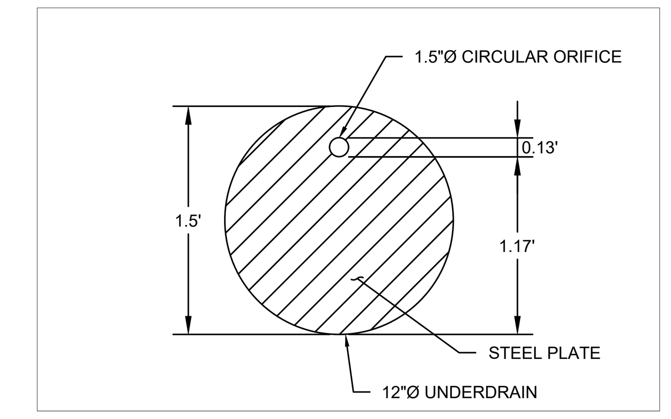
30 15 7.5 0 30

1" = 30'



BIOFILTRATION / INFILTRATION POND DETAILS

N.T.S.



ORIFICE DETAILS

1"=1'

HYDROLOGY MAP LEGEND

TRIBUTARY AREA

FLOW PATH

EXISTING 5' INTERVAL CONTOUR LINE

EXISTING 1' INTERVAL CONTOUR LINE

PROPOSED 5' INTERVAL CONTOUR LINE

PROPOSED 1' INTERVAL CONTOUR LINE

NODE NUMBER

Hydrology Summary Table					
Pre-Development Conditions, CN=93					
	5-Year	10-Year	25-Year	50-Year	100-Year
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Peak Runoff	11,257 cf	14,260 cf	17,302 cf	20,370 cf	23,457 cf
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Peak Flowrate	4.695 cfs	6.018 cfs	7.345 cfs	8.671 cfs	9.995 cfs
Peak Runoff	9,686 cf	12,552 cf	15,487 cf	18,468 cf	21,483 cf
Post-Construction Orifice Design					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	0.628 cfs	0.754 cfs	0.879 cfs	1.001	1.121
Peak Runoff	8,863 cf	11,664 cf	14,550	17,495	20,475

NOTE: POST-CONSTRUCTION FLOWRATES AND RUNOFF VOLUMES LISTED ON THIS TABLE OCCUR AT NODE 2 AS SHOWN ON PLAN.

NOTE: THERE ARE NO NEGATIVE IMPACTS TO ADJACENT PROPERTIES

Drawing: P:\7-Eleven\FL\San Diego, CA 32290 – SEI-16380.0155 FL\Vault\Civil\Construction Plans\Hydrology Map.dwg ;PRO HYDRO
User: RHERNANDEZ
Last Modified: Jan. 10, 19 – 18:29
Plot Date/Time: Jan. 10, 19 – 18:30:31

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3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

PROPOSED HYDROLOGY

CORE STATES GROUP

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Ontario, CA 91761
Phone (909) 467-8909
santi@core-eng.com

ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	AS SHOWN
Date:	01-10-19
Drawn By:	RM
Checked By:	TV

PROP. CONDITION
HYDROLOGY EXHIBIT

Hydrograph Report

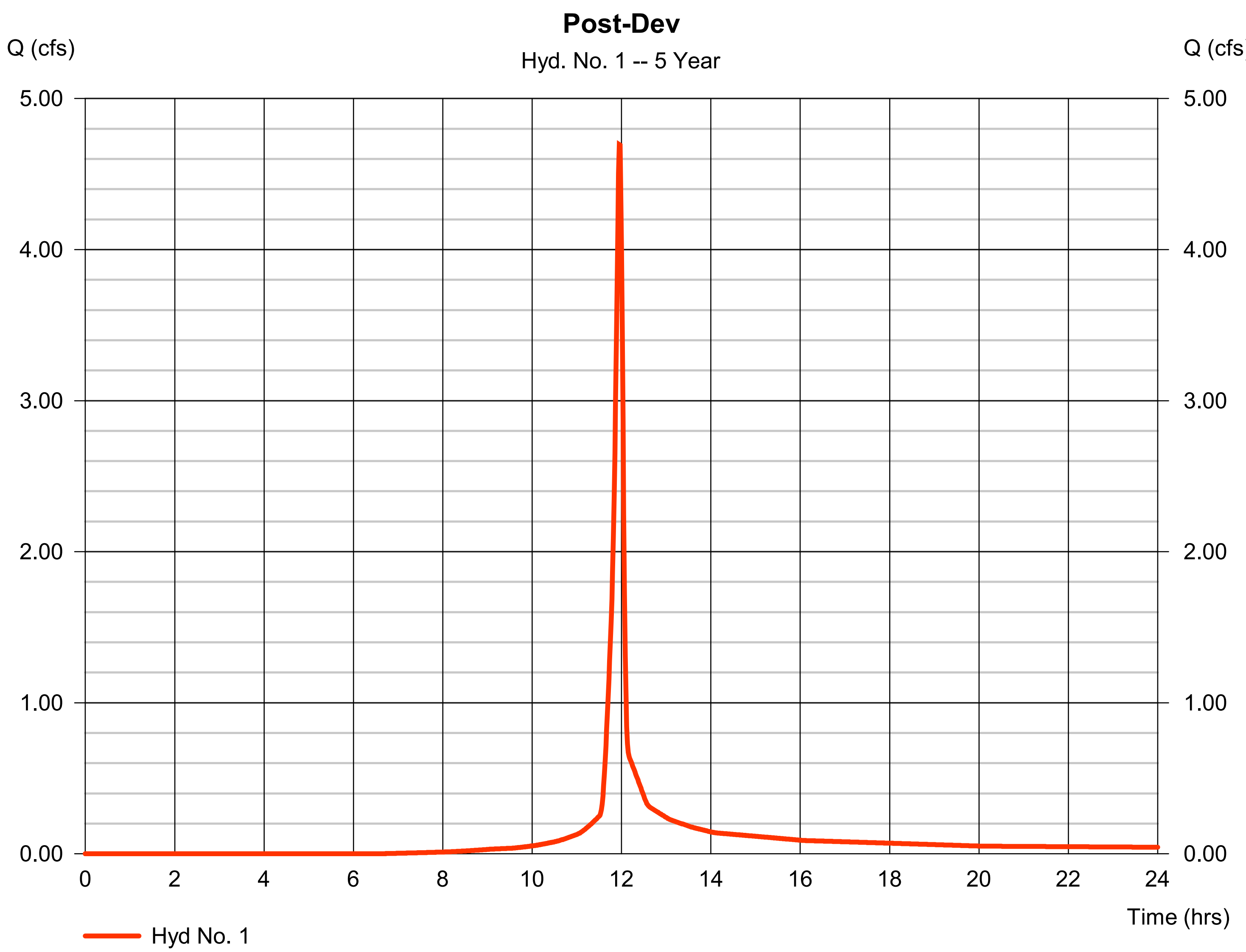
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 4.695 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 9,686 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



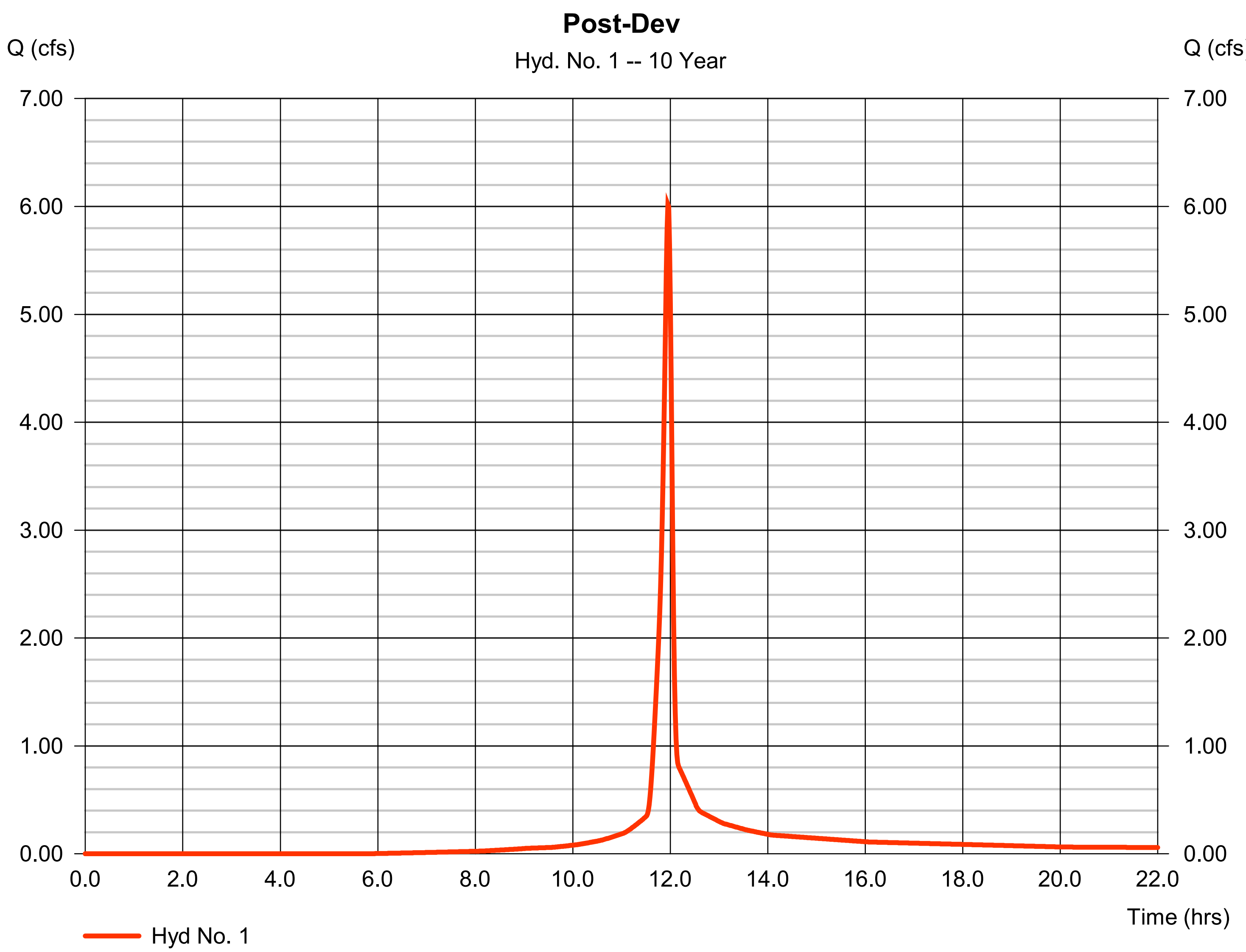
Hydrograph Report

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 6.018 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 12,552 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



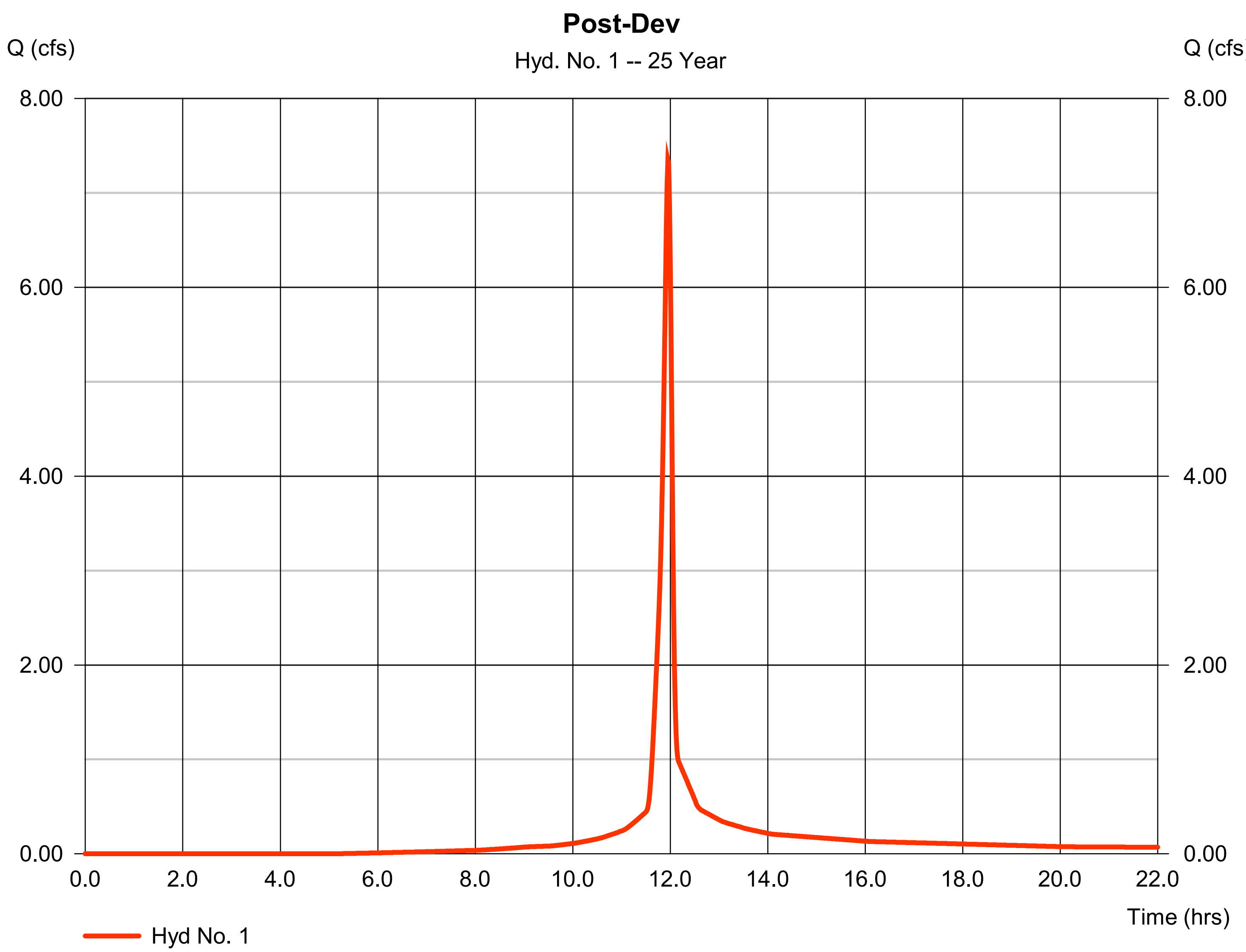
Hydrograph Report

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 7.345 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 15,487 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



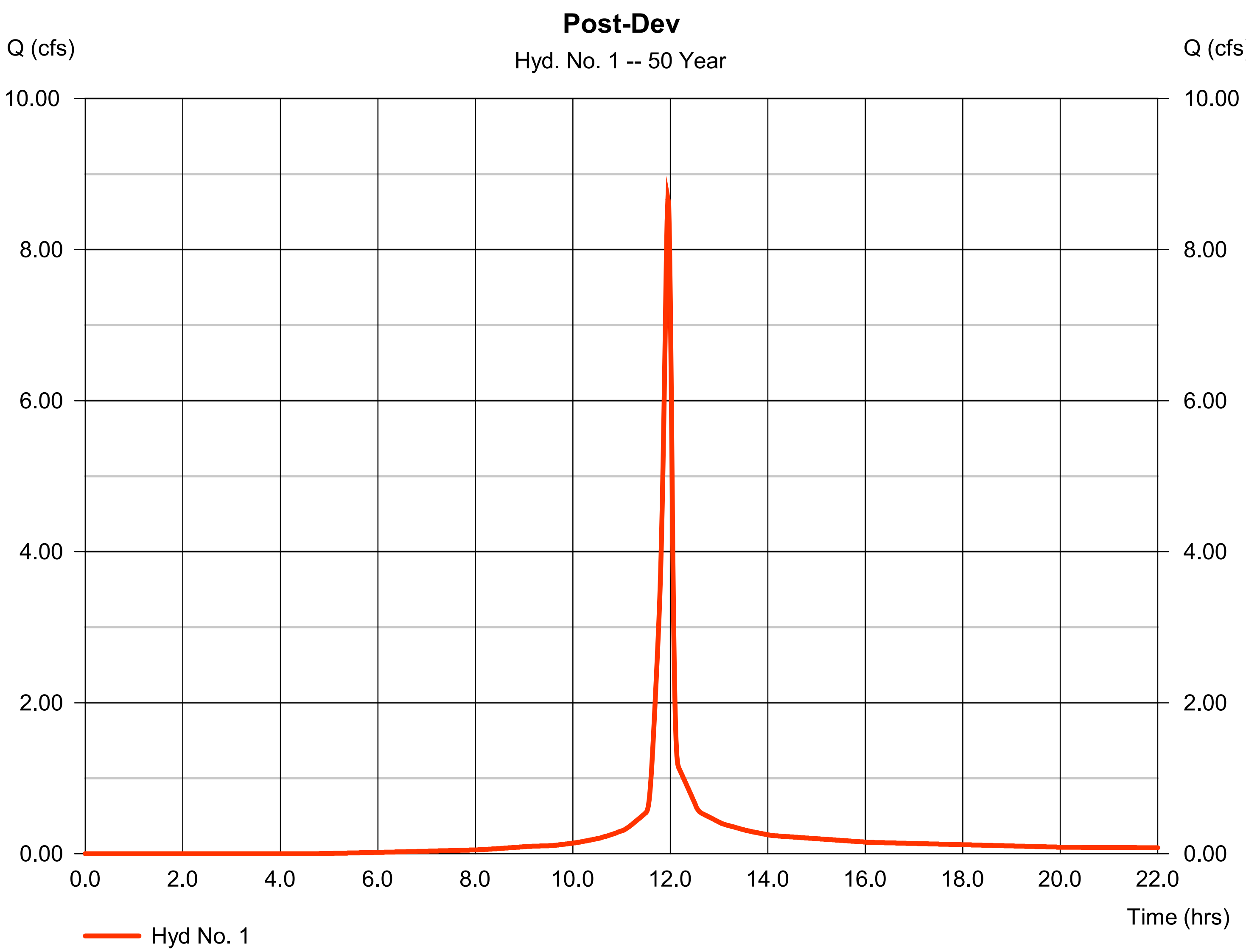
Hydrograph Report

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 8.671 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 18,468 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



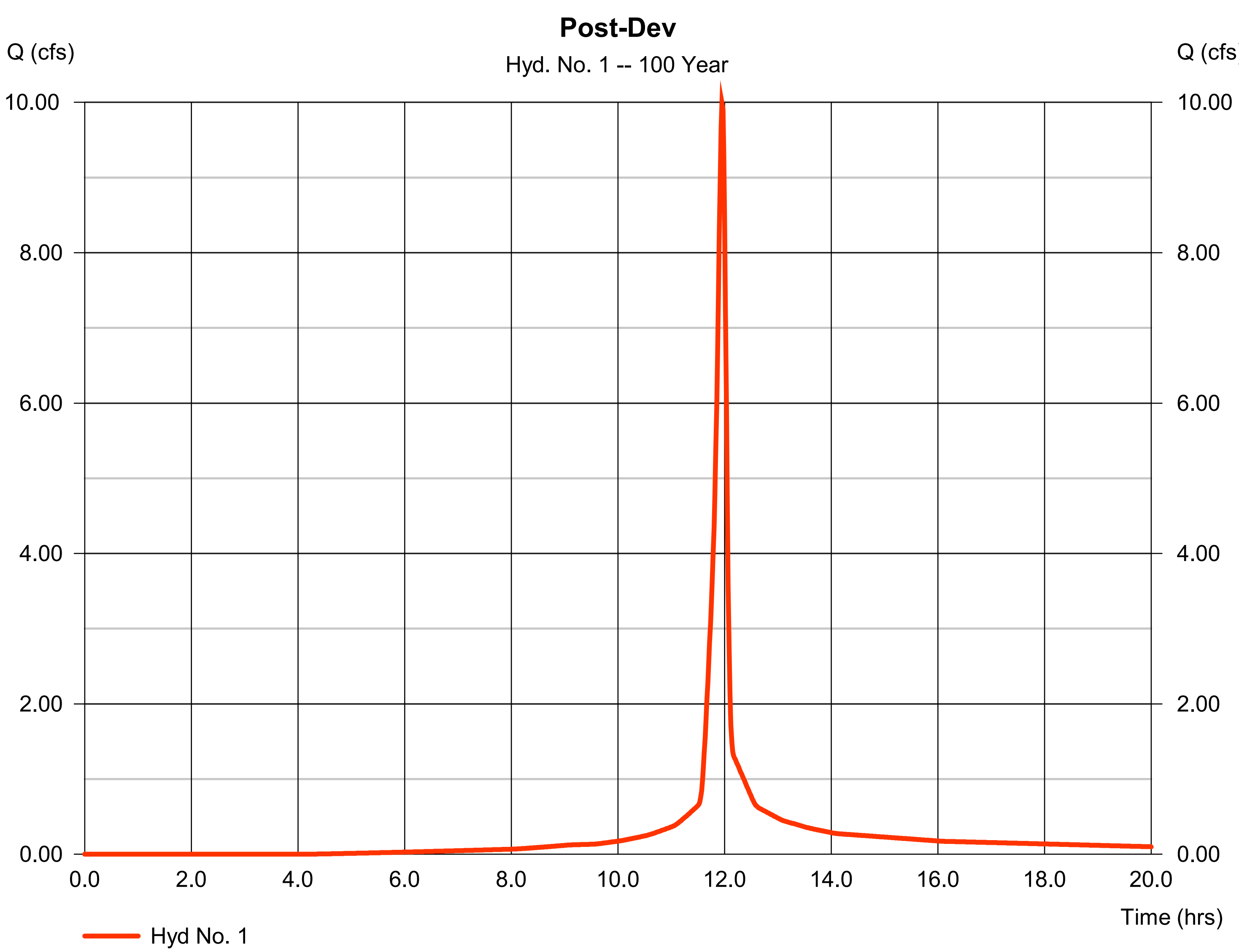
Hydrograph Report

Hyd. No. 1

Post-Dev

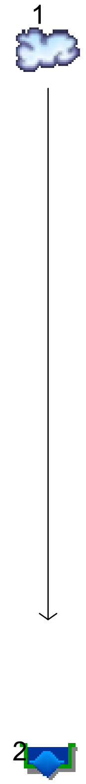
Hydrograph type	= SCS Runoff	Peak discharge	= 9.995 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 21,483 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11



Legend

Hyd.	Origin	Description
1	SCS Runoff	Post-Dev
2	Reservoir	orifice calcs

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	-------	-------	4.695	6.018	7.345	8.671	9.995	Post-Dev
2	Reservoir	1	-------	-------	-------	0.628	0.754	0.879	1.001	1.121	orifice calcs

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.695	1	717	9,686	------	------	------	Post-Dev
2	Reservoir	0.628	1	730	8,863	1	487.33	4,305	orifice calcs

Hydrograph Report

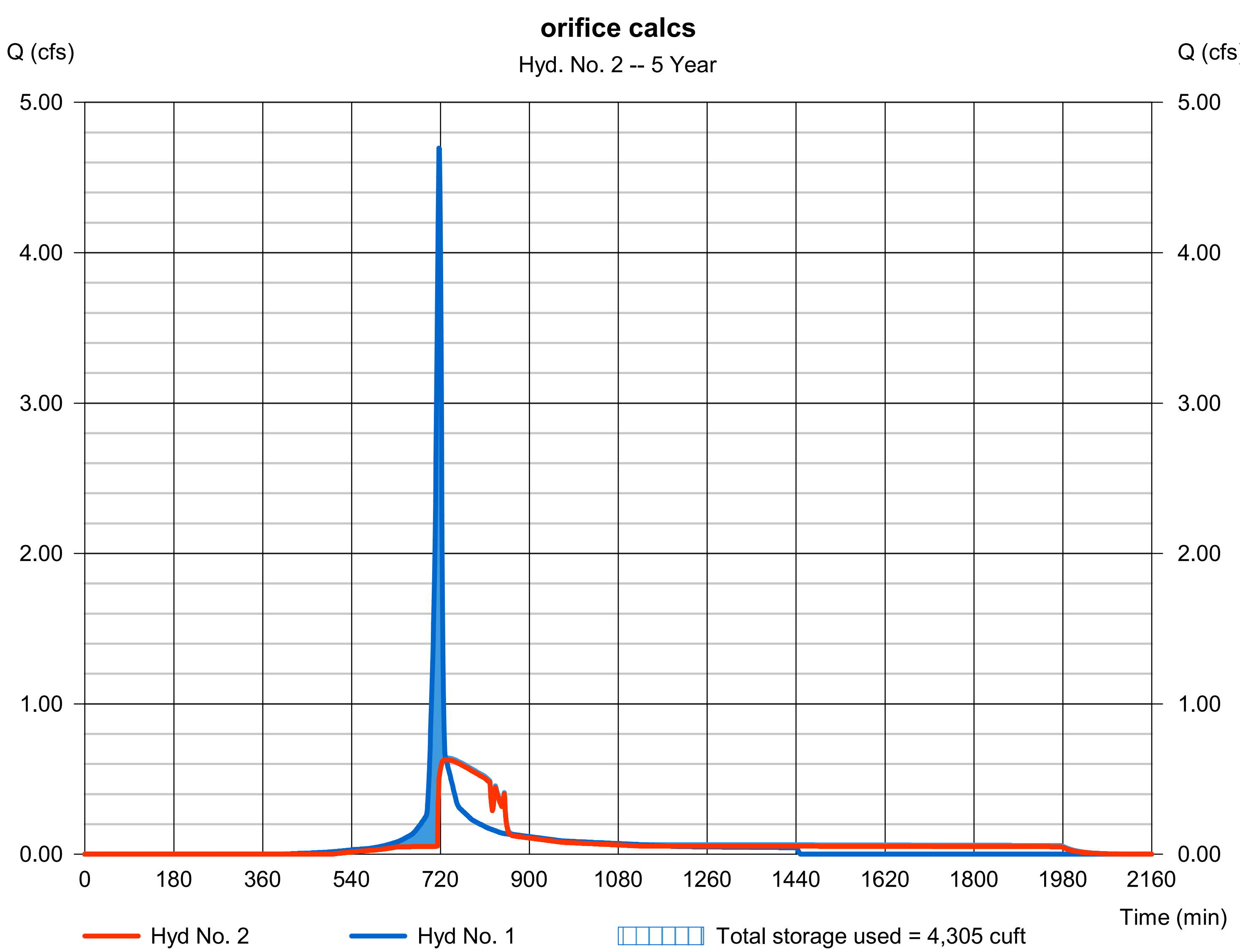
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 0.628 cfs
Storm frequency	= 5 yrs	Time to peak	= 730 min
Time interval	= 1 min	Hyd. volume	= 8,863 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 487.33 ft
Reservoir name	= <New Pond>	Max. Storage	= 4,305 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 1 - <New Pond>

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	475.00	n/a	0	0
3.20	478.20	n/a	20	20
7.00	482.00	n/a	24	44
7.20	482.20	n/a	108	152
8.20	483.20	n/a	2,185	2,337
9.20	484.20	n/a	663	3,000
50.00	525.00	n/a	17,000	20,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.60	0.00	0.00	0.00
Span (in)	= 1.60	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 476.17	0.00	0.00	0.00
Length (ft)	= 1.00	0.00	0.00	0.00
Slope (%)	= 1.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2000.00	0.00	0.00	0.00
Crest El. (ft)	= 483.20	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.170 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	475.00	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
0.32	2	475.32	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
0.64	4	475.64	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
0.96	6	475.96	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
1.28	8	476.28	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
1.60	10	476.60	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
1.92	12	476.92	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
2.24	14	477.24	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
2.56	16	477.56	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
2.88	18	477.88	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
3.20	20	478.20	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
3.58	22	478.58	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
3.96	25	478.96	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
4.34	27	479.34	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
4.72	30	479.72	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
5.10	32	480.10	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
5.48	34	480.48	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
5.86	37	480.86	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
6.24	39	481.24	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
6.62	41	481.62	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
7.00	44	482.00	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
7.02	55	482.02	0.00	---	---	---	0.00	---	---	---	0.001	---	0.006
7.04	65	482.04	0.00	---	---	---	0.00	---	---	---	0.002	---	0.012
7.06	76	482.06	0.00	---	---	---	0.00	---	---	---	0.002	---	0.017
7.08	87	482.08	0.00	---	---	---	0.00	---	---	---	0.003	---	0.023
7.10	98	482.10	0.00	---	---	---	0.00	---	---	---	0.004	---	0.029
7.12	109	482.12	0.00	---	---	---	0.00	---	---	---	0.005	---	0.035
7.14	120	482.14	0.00	---	---	---	0.00	---	---	---	0.006	---	0.041
7.16	130	482.16	0.00	---	---	---	0.00	---	---	---	0.007	---	0.046
7.18	141	482.18	0.00	---	---	---	0.00	---	---	---	0.007	---	0.052
7.20	152	482.20	0.00	---	---	---	0.00	---	---	---	0.008	---	0.058
7.30	371	482.30	0.00	---	---	---	0.00	---	---	---	0.008	---	0.058
7.40	589	482.40	0.00	---	---	---	0.00	---	---	---	0.008	---	0.059
7.50	808	482.50	0.00	---	---	---	0.00	---	---	---	0.008	---	0.059
7.60	1,026	482.60	0.00	---	---	---	0.00	---	---	---	0.009	---	0.060
7.70	1,245	482.70	0.00	---	---	---	0.00	---	---	---	0.009	---	0.061
7.80	1,463	482.80	0.00	---	---	---	0.00	---	---	---	0.009	---	0.061

Continues on next page...

<New Pond>

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
7.90	1,682	482.90	0.00	---	---	---	0.00	---	---	---	0.009	---	0.062
8.00	1,900	483.00	0.00	---	---	---	0.00	---	---	---	0.009	---	0.062
8.10	2,119	483.10	0.00	---	---	---	0.00	---	---	---	0.009	---	0.063
8.20	2,337	483.20	0.00	---	---	---	0.00	---	---	---	0.009	---	0.063
8.30	2,403	483.30	0.18 ic	---	---	---	0.00 s	---	---	---	0.009	---	0.421
8.40	2,470	483.40	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.321
8.50	2,536	483.50	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.366
8.60	2,602	483.60	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.413
8.70	2,669	483.70	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.460
8.80	2,735	483.80	0.18 ic	---	---	---	0.00 s	---	---	---	0.011	---	0.293
8.90	2,801	483.90	0.19 ic	---	---	---	0.00 s	---	---	---	0.011	---	0.488
9.00	2,867	484.00	0.19 ic	---	---	---	0.00	---	---	---	0.011	---	0.497
9.10	2,934	484.10	0.19 ic	---	---	---	0.00	---	---	---	0.012	---	0.507
9.20	3,000	484.20	0.19 ic	---	---	---	0.00	---	---	---	0.012	---	0.517
13.28	4,700	488.28	0.23 ic	---	---	---	0.00	---	---	---	0.013	---	0.678
17.36	6,400	492.36	0.27 ic	---	---	---	0.00	---	---	---	0.013	---	0.825
21.44	8,100	496.44	0.30 ic	---	---	---	0.00	---	---	---	0.014	---	0.963
25.52	9,800	500.52	0.33 ic	---	---	---	0.00	---	---	---	0.015	---	1.095
29.60	11,500	504.60	0.36 ic	---	---	---	0.00	---	---	---	0.016	---	1.222
33.68	13,200	508.68	0.38 ic	---	---	---	0.00	---	---	---	0.017	---	1.345
37.76	14,900	512.76	0.41 ic	---	---	---	0.00	---	---	---	0.017	---	1.465
41.84	16,600	516.84	0.43 ic	---	---	---	0.00	---	---	---	0.018	---	1.583
45.92	18,300	520.92	0.45 ic	---	---	---	0.00	---	---	---	0.019	---	1.699
50.00	20,000	525.00	0.47 ic	---	---	---	0.00	---	---	---	0.020	---	1.812

...End

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	6.018	1	717	12,552	------	------	------	Post-Dev
2	Reservoir	0.754	1	733	11,664	1	490.75	5,727	orifice calcs

Hydrograph Report

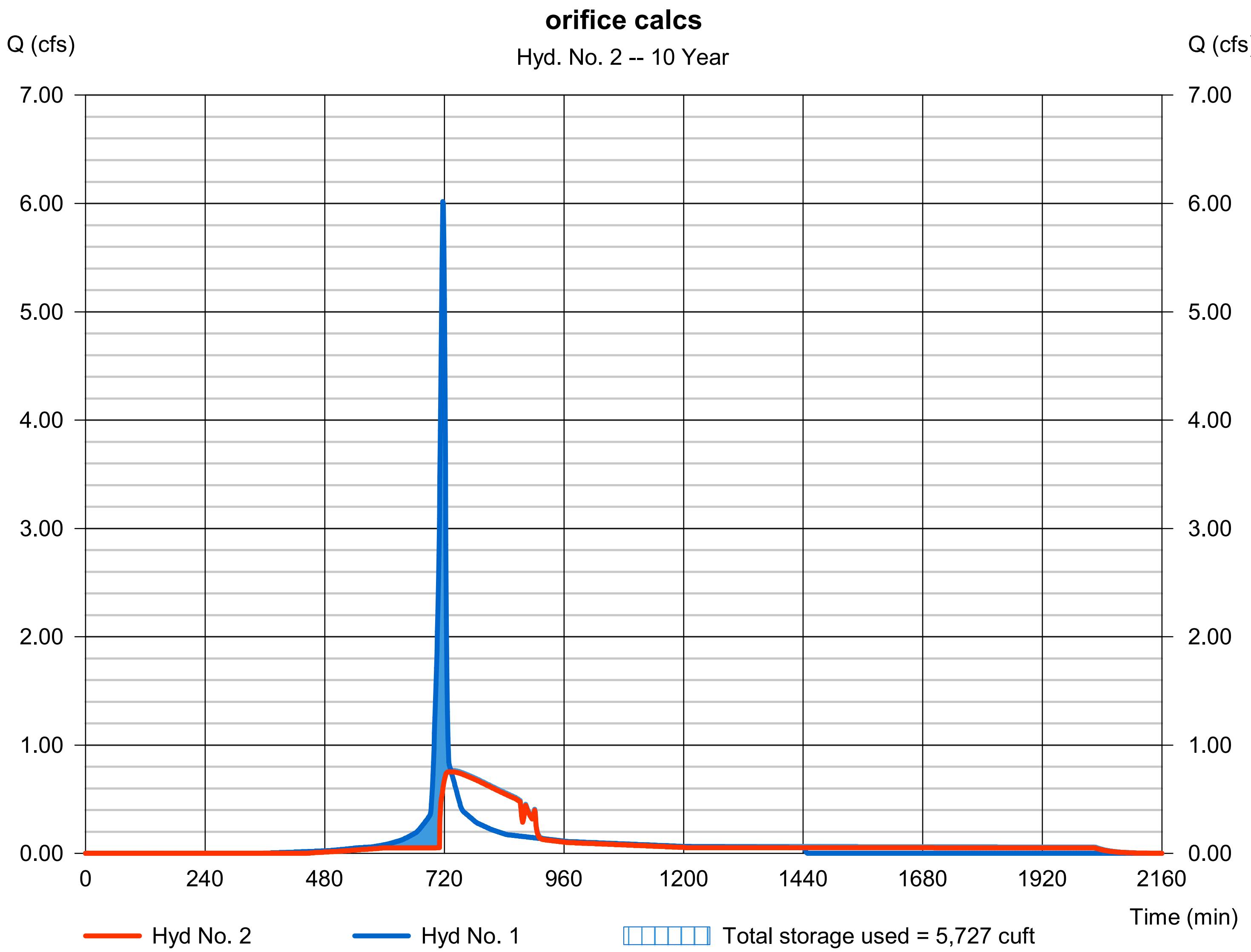
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 0.754 cfs
Storm frequency	= 10 yrs	Time to peak	= 733 min
Time interval	= 1 min	Hyd. volume	= 11,664 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 490.75 ft
Reservoir name	= <New Pond>	Max. Storage	= 5,727 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	7.345	1	717	15,487	------	------	------	Post-Dev
2	Reservoir	0.879	1	734	14,550	1	494.37	7,235	orifice calcs

Hydrograph Report

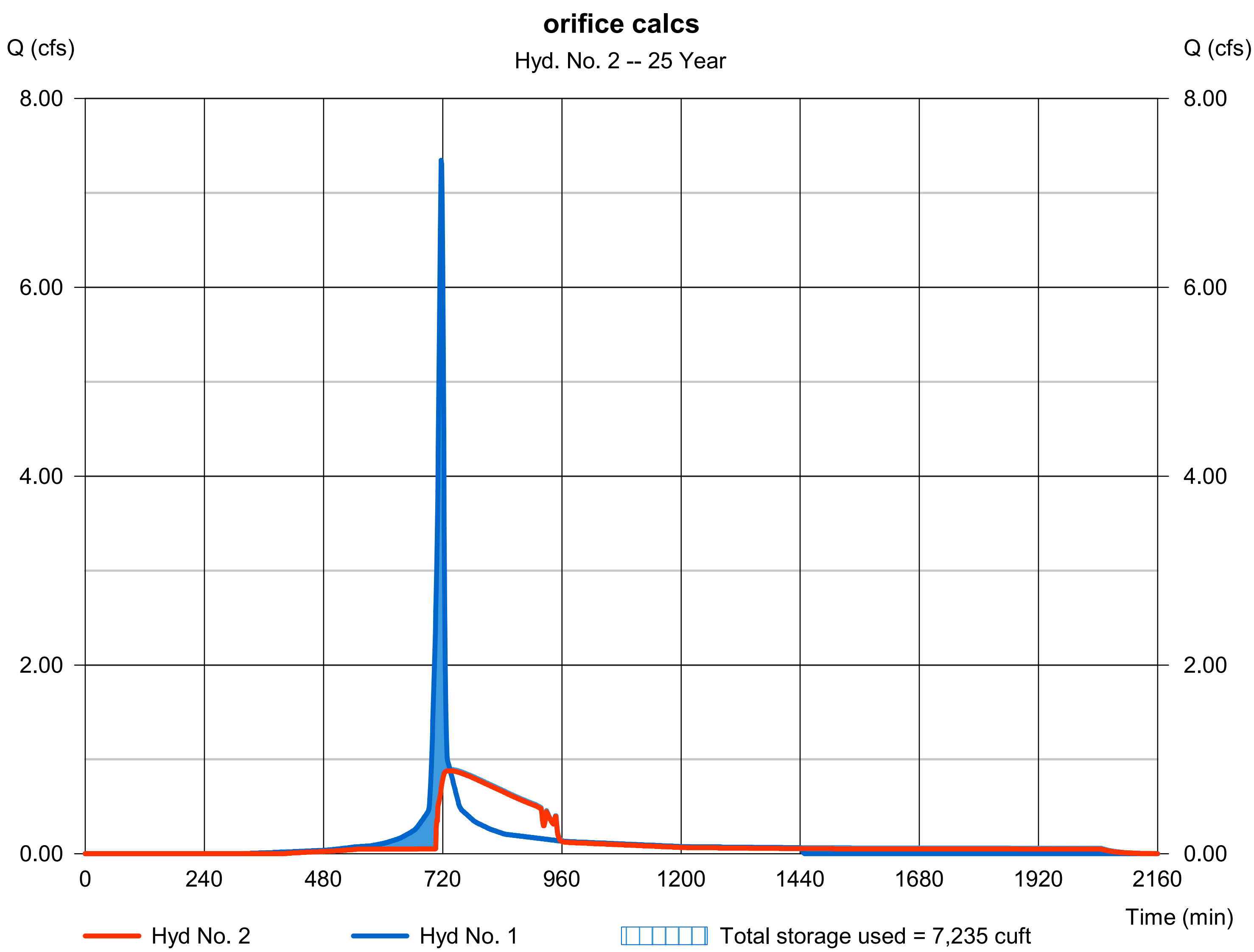
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 0.879 cfs
Storm frequency	= 25 yrs	Time to peak	= 734 min
Time interval	= 1 min	Hyd. volume	= 14,550 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 494.37 ft
Reservoir name	= <New Pond>	Max. Storage	= 7,235 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	8.671	1	717	18,468	------	------	------	Post-Dev
2	Reservoir	1.001	1	736	17,495	1	498.08	8,782	orifice calcs

Hydrograph Report

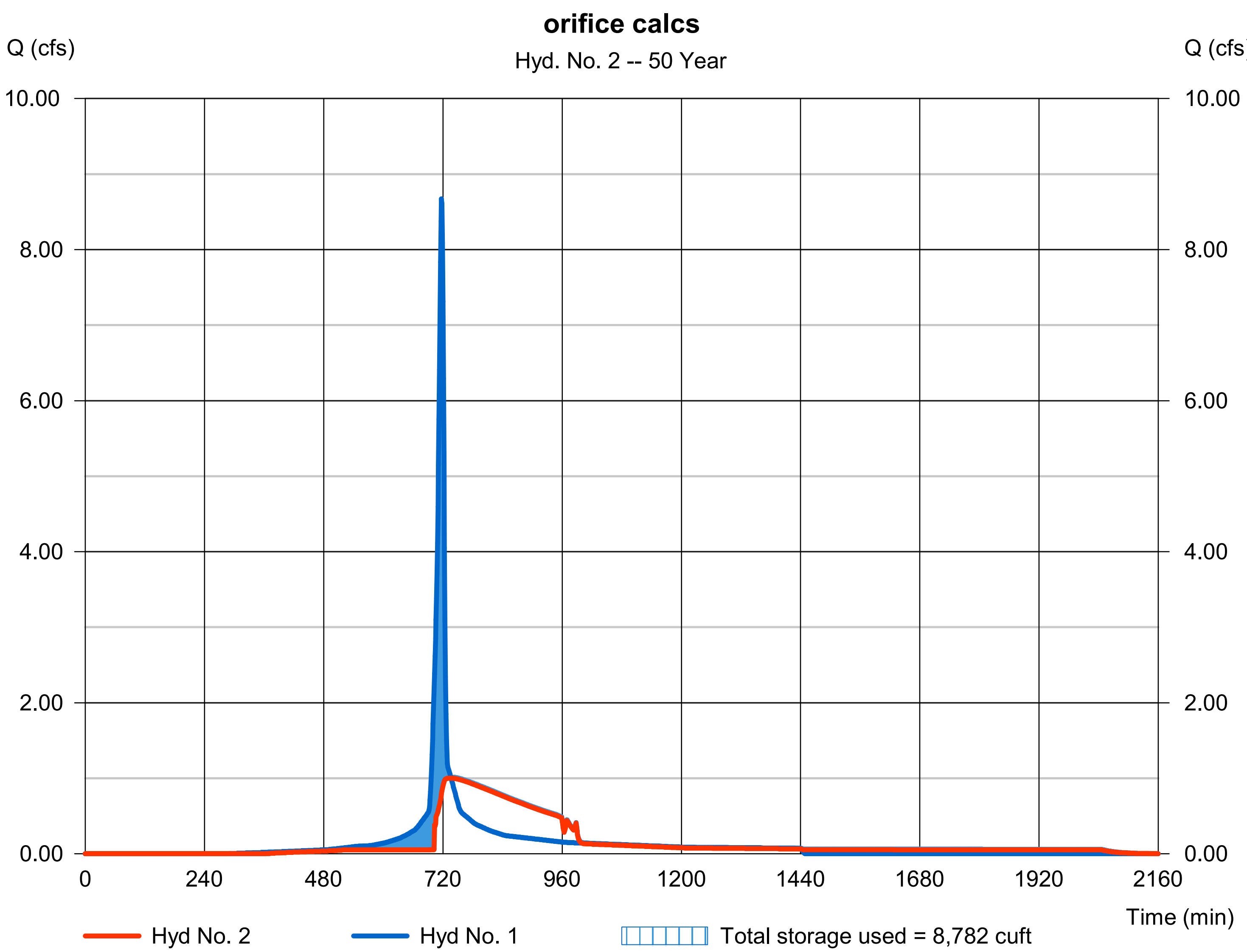
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 1.001 cfs
Storm frequency	= 50 yrs	Time to peak	= 736 min
Time interval	= 1 min	Hyd. volume	= 17,495 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 498.08 ft
Reservoir name	= <New Pond>	Max. Storage	= 8,782 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	9.995	1	717	21,483	------	------	------	Post-Dev
2	Reservoir	1.121	1	736	20,475	1	501.85	10,353	orifice calcs

Hydrograph Report

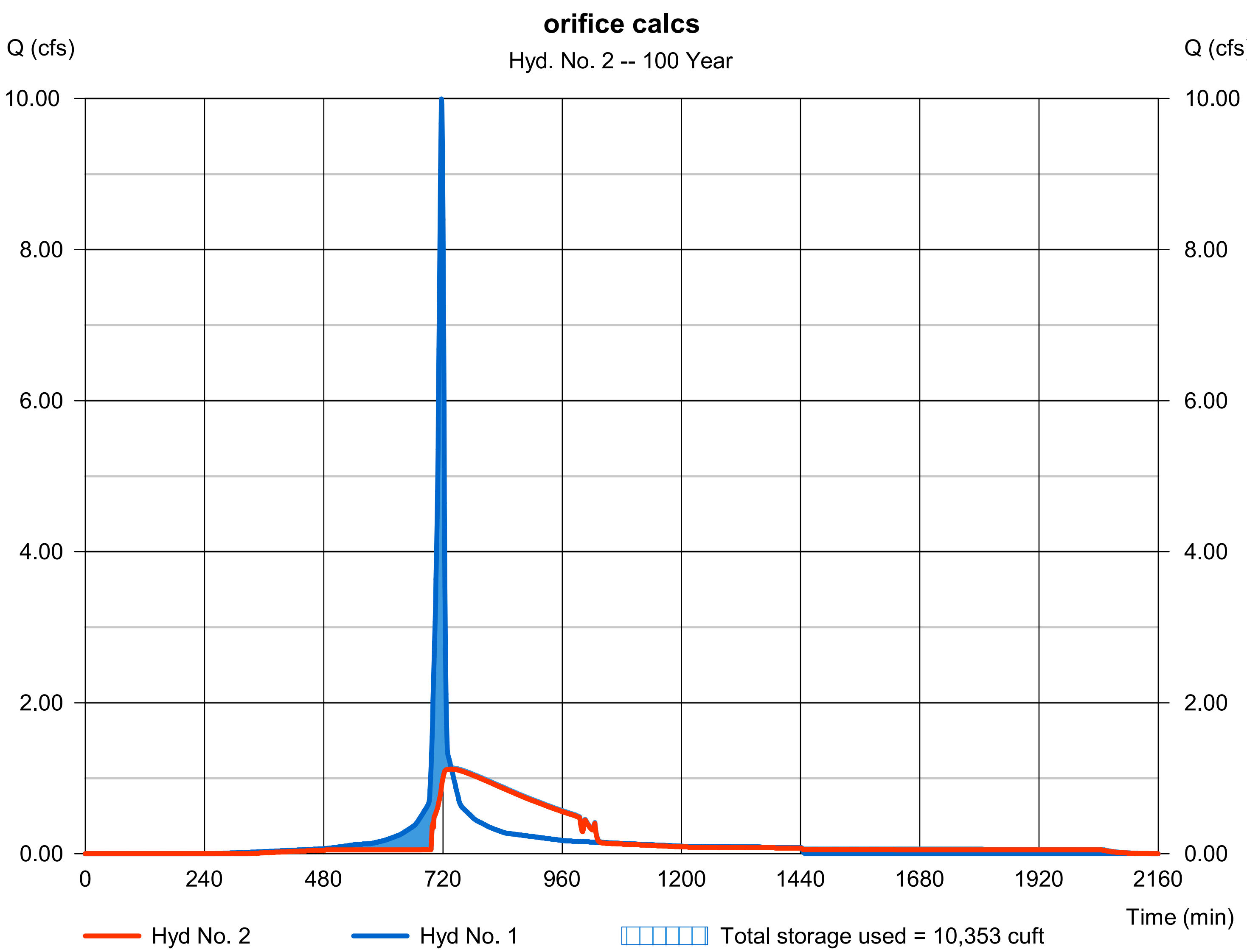
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 1.121 cfs
Storm frequency	= 100 yrs	Time to peak	= 736 min
Time interval	= 1 min	Hyd. volume	= 20,475 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 501.85 ft
Reservoir name	= <New Pond>	Max. Storage	= 10,353 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	3.7551	0.4000	0.5228	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	6.1774	0.9000	0.5439	--------
25	0.0000	0.0000	0.0000	--------
50	0.0000	0.0000	0.0000	--------
100	9.8068	0.8000	0.5439	--------

File name: LA County IDF NOAAA.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1.55	1.10	0.90	0.78	0.69	0.63	0.58	0.54	0.51	0.48	0.46	0.44
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.35	1.68	1.37	1.18	1.05	0.96	0.88	0.82	0.77	0.73	0.69	0.66
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	3.77	2.69	2.19	1.88	1.67	1.52	1.40	1.30	1.22	1.16	1.10	1.05

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	2.20	0.00	2.50	3.00	3.50	4.00	4.50
SCS 6-Hr	0.00	1.80	0.00	1.40	1.60	1.80	2.30	2.50
Huff-1st	0.00	1.55	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00

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Attachment 6
Geotechnical and Groundwater Investigation Report

Attach project's geotechnical and groundwater investigation report. Refer to Appendix C.4 to determine the reporting requirements.

GEOTECHNICAL INVESTIGATION REPORT

7-Eleven Store No. 32290
Expansion
8395 Otay Mesa Road
San Diego, California

Prepared for:
7-Eleven, Inc.
330 East Lambert Road, Suite 150
Brea, CA 92821

Prepared by:
Stantec Consulting Corporation
25864-F Business Center Drive
Redlands, CA 92374
(909) 335-6116 tel
(909) 335-6120 fax
Stantec JN: 185850175

September 13, 2013

Prepared by:

LICENSED PROFESSIONAL ENGINEER
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EXP. 3/31/2015
CIVIL
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Reviewed by:

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September 13, 2013

Ms. Georgina Davila
7-Eleven, Inc.
330 East Lambert Road, Suite 150
Brea, California 92821

RE: GEOTECHNICAL INVESTIGATION REPORT
7-Eleven Store No. 32290 Expansion
8395 Otay Mesa Road
San Diego, California

Dear Ms. Davila,

Pursuant to the request of 7-Eleven, Inc., Stantec Consulting Services Inc. (Stantec) is pleased to present the attached Geotechnical Investigation for the 7-Eleven Store Number 32290 expansion, located at 8395 Otay Mesa Road, in the city of San Diego, California.

This investigation was performed in general accordance with Stantec's standard protocol for geotechnical investigations. The objective of the geotechnical investigation was to assess the soil conditions underlying the Site and make geotechnical recommendations for design and construction of the proposed development, which includes a new fuel dispenser island canopy and two new diesel underground storage tanks (USTs).

Based upon the results of this investigation, development of the Site is geotechnically feasible provided that the recommendations presented herein are implemented in the design and construction of the project.

- The native subsurface soils encountered below the site were composed of various mixtures and combinations of interbedded layers of low to high plasticity clay (CL and CH USCS soil types), sand (SC USCS soil type), and gravel (GC USCS soil type) from the ground surface to the maximum depth of exploration (approximately 20.5 feet below the ground surface (bgs)).
- Near surface clay soils exhibit high expansion potential based on expansion index and consolidometer testing.
- Removal of near surface expansive soils will be required in the structural areas to reduce the potential for differential settlement.

The complete findings of this investigation and recommendations for Site development are presented in the attached report. It is our pleasure to be of service to you and we look forward to providing the 7-Eleven, Inc. with future engineering services. Should you have any questions regarding the information contained in the attached report, please contact the undersigned at your convenience.

Respectfully submitted,
Stantec Consulting Services Inc.

Jaret Fischer, P.E.
Associate Engineer

Enclosure: Geotechnical Investigation Report

cc: Mr. Pat McConnell
Stantec Consulting Services Inc.
7179 Aero Drive
San Diego, California 92123

Facility: 7-Eleven 32291
Location: 8395 Otay Mesa Road
San Diego, California

Consultant: Stantec
Stantec JN: 185850175

REPORT SUMMARY

Footing Bearing Pressures	- Canopy Foundations	2,500 psf
Passive Lateral Pressures	- Canopy Foundations	250D psf/ft
Coefficient of Friction	- Canopy Foundations	0.30

Expansive Soils — x Yes o No

Expansion Potential (EI = 92) — o V. Low o Low o Medium **x High** o V. High

R-Value (presumes 2.5 feet of non-expansive fill below pavement section) — 30

Truck Traffic	(TI = 9.0)	6.0" AC / 10.0" AB
Truck Traffic	(TI = 9.5)	6.0" AC / 12.0" AB
Truck Traffic	(TI = 10.0)	7.0" AC / 11.0" AB

Artificial Fill	o Yes	x No
Relatively Loose Near-Surface Soils	o Yes	x No
Groundwater Within 20 Feet of Surface	o Yes	x No
Monitoring Well Installed	o Yes	x No
Hydrocarbons Detected	o Yes	x No
Existing Underground Tanks (on vacant portion of Site)	o Yes	x No
Existing Structures (on vacant portion of Site)	o Yes	x No

Special Considerations:

- To provide uniform support for the proposed pavement area, removal and replacement of the existing highly expansive subgrade soils will be required to a minimum depth of 3 feet below the bottom of the pavement section. Alternatively, subgrade soils in the upper 3 fet may be treated using lime (or other stabilizing compound).

- Design and construction considerations will be necessary for expansive soils.

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1.0 INTRODUCTION

1.1 AUTHORIZATION AND LIMITATIONS

This report presents the results of a geotechnical investigation performed at the request of 7-Eleven, Inc., by Stantec Consulting Services (Stantec), for the 7-Eleven Store Number 32290, located at 8395 Otay Mesa Road, in the city of San Diego, California. This report has been prepared for 7-Eleven, Inc. and their project design consultants to be used solely in the design of the proposed project, as described herein. This report may not contain sufficient information for other uses or the purposes of other parties.

1.2 PURPOSE AND SCOPE OF WORK

The objective of this investigation was to assess the nature and engineering properties of the encountered subsurface soils and to provide geotechnical design recommendations for Site development, which includes a new fuel dispenser island canopy and two new underground storage tanks (USTs). The scope of work was performed in general accordance with Stantec's standard protocol for geotechnical assessments, and included the following tasks:

- Review available subsurface information for the Site,
- Drill, log and sample four soil borings,
- Perform soil mechanics laboratory testing on select soil samples,
- Evaluate geotechnical properties of soils pertinent to the design and construction of the proposed development, and
- Summarize findings, conclusions, and recommendations in a report.

1.3 SITE LOCATION

The Site is located at 8395 Otay Mesa Road, in the city of San Diego, California. The Site is bounded by the existing 7-Eleven facility followed by Otay Mesa Road followed by vacant land to the north, La Media Road followed by vacant land to the east, Otay Mesa Center Road followed by a used automotive dealership to the south, and retail businesses and an automotive repair facility to the west. The Brownfield Municipal Airport is located approximately 0.25 miles northwest of the Site.

1.4 SITE DESCRIPTION

The Site is rectangular in shape, is approximately 1.3 acres in size, and is currently vacant land covered with knee high weeds and shrubs and a perimeter security fence.

The existing 7-Eleven retail gasoline facility, located north of the Site, includes a convenience store building, one fuel dispenser island canopy, two underground storage tanks (USTs), asphaltic concrete paved parking and driving areas, and several small landscaped areas.

2.0 PROJECT DESCRIPTION

Harrison French and Associates, LTD, of Bentonville, Arkansas provided the preliminary development layout for the proposed project. The proposed development will consist of a new fuel dispenser island canopy and two new USTs. The Site location and the layout of the proposed structures are shown on Figure 2.

There were no building and grading plans or design loads available at the time of this report. Based on our experience with similar projects and the available information, it is assumed that the canopy is typically founded on square or round column footings, approximately four feet in width/diameter and embedded a minimum of seven feet below adjacent grade. The foundation loads for the proposed structure was estimated for the purpose of this report at less than 20 kilopounds (kips) for canopy column loads. If actual design loading conditions differ from those indicated above, the recommendations of this report should be re-evaluated and are subject to change.

Based upon Stantec's review of the existing Site topography, it is assumed that the final surface elevations will not vary more than 0.5 to 1.0 foot from existing grades and that minor grade changes will be made for the purpose of establishing Site drainage. Stantec recommends that the final grading plan be provided to the Project Soils Engineer for review. The recommendations of this report are subject to change based upon review of the final grading plan.

3.0 SUBSURFACE INVESTIGATION

3.1 PRE-DRILLING PROCEDURES

Underground Service Alert (USA) was notified several days prior to commencing drilling activities to identify any public utilities that may conflict with the proposed boring locations. In addition, potential conflict with underground utilities was prevented by conducting a geophysical survey and manually augering the upper five feet of soil at each proposed soil boring location, prior to drilling.

3.2 HOLLOW STEM AUGER DRILLING

Four hollow stem auger (HSA) soil borings were drilled on August 30, 2013, by ABC Liovin Drilling (ABC) under the direction of a Stantec field engineer. ABC drilled the soil borings using a CME 85 HSA drill rig. All drilling and soil sampling were performed under the general guidance of ASTM D 6151 (Standard Practice for Using Hollow-Stem Augers (HSA) for Geotechnical Exploration and Soil Sampling).

The HSA soil borings drilled for this geotechnical investigation were advanced using eight-inch outside diameter auger, to a maximum depth of approximately 20.5 feet below the ground surface (bgs), at the location shown on Figure 2. The rationale for placement of the borings was to locate at least one boring in the vicinity of each of the proposed structures to investigate the underlying subsurface conditions.

At each boring location, drilling was initiated by pushing the lead HSA auger below the ground surface and rotating at a low velocity. Firm downward pressure and low rotation velocity were maintained in the beginning to produce a straight borehole. Once a straight hole was initiated and the HSA auger appeared clear of potential underground utilities, rotation velocity and downward pressure were increased. The rotation velocity and downward pressures were adjusted during drilling to optimize penetration rates with appropriate drill cutting return up the HSA auger flight. Additional five-foot sections of HSA auger flight were attached to the drill column to achieve the desired drilling/sampling depths.

When the desired sampling depth was achieved, the bottom of the borehole was cleaned by slowly rotating the auger with minimal downward pressure. When the borehole was sufficiently clean, soil samples were collected as described in the section below.

Following completion of drilling and soil sampling, the borings were abandoned by removing the auger and/or sampling equipment from the borehole and subsequently backfilling with the soil cuttings.

3.3 SPLIT SPOON SOIL SAMPLING

A Stantec field engineer or geologist was onsite to supervise field operations, log subsurface soil conditions, and to collect soil samples for physical and chemical analysis. Soil samples were collected using a California Modified (CM) and Standard Penetration Test (SPT) split-spoon samplers, under the general guidance of ASTM D 1586 (Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils), 3550 (Standard Practice for Ring-Lined Barrel Sampling of Soils) and 6066 (Standard Practice for Determining the Normalized

Penetration Resistance of Sands for Evaluation of Liquefaction Potential). The CM sampler is approximately 18-inches long by 2.5 inches inside diameter (ID). The SPT sampler is approximately 18-inches long by 1.5 inches ID. The samplers were driven at approximately five-foot intervals with a 140-pound hammer, free-falling 30 inches. Unless otherwise indicated on the boring logs, the samplers were advanced 18 inches at each sample interval and the blow counts required to advance the sampler each six-inch drive length were recorded on the boring logs. The blow counts are used in the evaluation of the consistency of the soils and are correlated to various engineering properties.

Unless otherwise indicated on field boring logs, soil sampling was performed at approximately five-foot intervals, to the total depth of exploration, to develop a description of the subsurface stratigraphy and to collect samples for potential geotechnical testing. The observed soils in soil samples and drill cuttings were classified in accordance with the Unified Soil Classification System, under the guidance of ASTM D 2488-00 (Standard Practice for Description and Identification of Soils [Visual-Manual Method]).

Geotechnical samples were collected from the CM and SPT samplers. Six relatively undisturbed brass rings were carefully removed from the CM sampler, placed in a plastic sleeve and sealed with plastic end caps. Electrical tape was used to secure the end caps to the plastic sleeve to preserve natural moisture content. Disturbed samples were also collected from the lowermost brass tube of the SPT sampler. The soil was extruded from the brass tube and placed in a sealed plastic bag. Geotechnical ring and bulk samples were labeled and transported to a soil mechanics laboratory for physical testing. The CM soil samples were securely packed with foam or other shipping materials to minimize sample disturbance, under the guidance of ASTM D 4220-00 (Standard Practice for Preserving and Transporting Soil Samples).

3.4 LABORATORY SOIL TESTING

The following laboratory tests were performed on samples collected at the Site either in general accordance with the American Society for Testing and Materials (ASTM) or contemporary practices of the soil engineering profession:

- In-Situ Moisture and Density (ASTM D 2216): In-situ moisture and density are calculated by weighing and measuring the drive samples obtained from the borings to determine their in-place moisture and density. These results are used to analyze the consistency of the subsurface soils.
- Direct Shear Test (ASTM D 3080): The tests were performed on an undisturbed sandy soil sample in order to obtain the soil shear strength values, which are among the basic soil parameters that are used to estimate soil bearing capacity, slope stability and lateral earth pressures.
- No. 200 Sieve Wash (ASTM D 1140): This test is used to evaluate the distribution of soil grain sizes finer than the 0.075 mm (no. 200 sieve) and is used in soil classification and assessment of soil engineering behavior.
- Sieve Analysis (ASTM D-422 and ASTM C-136): This test is used to evaluate the distribution of soil grain sizes, which constitute the soil fabric and is used in soil classification and assessment of soil engineering behavior.
- Atterberg Limits (ASTM D 4318): The Atterberg Limits are utilized to classify fine-grained soils and correlate them to specific engineering properties. The Atterberg limits are composed of the liquid limit, and the plastic limit. The liquid limit is the moisture

where the soil changes from a plastic to a liquid state and the plastic limit is the moisture content where the soil changes from a semi-solid state to a plastic state.

- Consolidation Tests (ASTM D 2435): One-dimensional consolidation tests were conducted to evaluate soil compressibility and estimate the potential settlement of the structures. A one-inch thick sample contained in a 2.5-inch diameter ring was subjected to various load increments. The compression under each load increment was recorded and plotted against the logarithm of applied effective stress.
- Expansion Index (ASTM D 4829 and UBC Standard 18-2): This test is performed on a near surface bulk sample, remolded to approximately 50 percent saturation, to determine the expansion potential of the soil when fully saturated.
- Maximum Dry Density and Optimum Moisture Content (ASTM D 1557): The compaction curve defines the relationship between water content and dry unit weight of soils compacted under modified compaction effort. The maximum dry density and optimum water content are used to determine the relative density of existing soils and to determine the level of compaction during grading activities.
- Chemical Tests for Corrosion Potential (Applicable EPA, ASTM or local test methods): The red-ox potential, pH, water extractable sulfates, water extractable chlorides, sulfides, and resistivity were evaluated in a near surface soil sample.

The laboratory results of all laboratory tests are presented in Appendix B and significant results are discussed in detail in Section 5.0.

4.0 REGIONAL GEOLOGIC CONDITIONS

4.1 REGIONAL PHYSIOGRAPHIC CONDITIONS

The Site is located in the southwestern portion of the Peninsular Range Geomorphic Province in the southwestern part of California. The region is separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault. The Site resides in the portion of the Province drained by the Tijuana River.

The California Highway 905 is located approximately 0.1 miles south of the Site, Mexico is located approximately 1.3 miles south of the site, the Tijuana River is located approximately 5.1 miles west-southwest of the Site, and the Pacific Ocean is located approximately 10 miles west of the Site. Based on interpretation of the ground surface elevation contour lines drawn on the topographic map, the Site is located at an elevation of approximately 485 feet above mean sea level (msl). The topography in the vicinity of the Site is variable, with a regional slope to the southwest toward the Tijuana River (USGS, 1955).

4.2 REGIONAL GEOLOGY

The regional surficial geology is described as Lindavista Formation deposits of the Pleistocene or Pliocene era consisting of reddish-brown interbedded sandstone and conglomerate overlain by alluvial fan deposits consisting of clay, silt, sand, and gravel (USGS, 2004).

The Site is located in Southern California, a seismically active area. The nearest recently active fault includes the Rose Canyon Fault located approximately 13.9 miles northwest of the Site. The Site is not located within an Alquist-Priolo Earthquake Fault Zone (CDMG, 2000).

4.3 REGIONAL HYDROGEOLOGY

According to the California Department of Water Resources (CDWR) Bulletin 118 Report, the Site is not located within a water bearing formation. The closest groundwater basin is the Tijuana Groundwater Basin, located southwest of the site in the South Coast Hydrologic Region. The basin is approximately 11.6 square miles and is bounded by the international border with Mexico to the south, semi-permeable Pleistocene and Pliocene marine deposits to the east and north, and the Pacific Ocean to the west (DWR, 2006).

Based on groundwater monitoring data from a site located approximately 1.5 miles southeast of the Site, the depth to first groundwater is approximately 39 feet bgs. Groundwater in the site vicinity flows to the west-southwest toward the Tijuana River (SECOR, 2005). Groundwater was not encountered during this investigation.

5.0 SUBSURFACE SOIL AND GROUNDWATER CONDITIONS

5.1 STANTEC FIELD INVESTIGATION

The subsurface soils encountered during Stantec's field exploration were consistent with the soil deposits encountered in the site vicinity. The native subsurface soils encountered below the site were composed of various mixtures and combinations of interbedded layers of low to high plasticity clay (CL and CH USCS soil types) with variable amounts of sand (SC USCS soil type) and clayey gravel (GC USCS soil type) from the ground surface to the maximum depth of exploration. The clays typically exhibited medium to high plasticity and were hard to very hard in consistency in the upper 15 feet bgs.

The subsurface soils were difficult to penetrate at depths between 15.5 feet bgs and 20.5 feet bgs, where drilling refusal was encountered. The borings did not cave to the maximum depth of exploration. Groundwater was not encountered during this investigation.

A more detailed description of the interpreted soil profile in each borehole is presented on boring logs in Appendix A. The groupings represent the predominant materials encountered in soil samples. Also, stratification lines indicate the approximate boundary between the major material types. The actual transition may be gradual.

6.0 REGIONAL SEISMIC CONDITIONS

6.1 REGIONAL SEISMICITY

The Site, as is most of California, is located in a seismically active area. The estimated distance of the Site to the nearest expected surface expression of nearby faults is presented in the table below.

Fault	Fault Type (1)	Distance (miles) (2)	Maximum Moment Magnitude (1)
Rose Canyon	B	13.9	6.5
Coronado Bank	B	18.0	7.4
Elsinore - Julian	A	43.0	7.1
Elsinore – Coyote Mountain	B	44.5	6.8
Earthquake Valley	B	46.3	6.5
Newport – Inglewood (offshore)	B	48.9	6.5

1. From ICBO, 1997.
2. Measured from Maps of Known Active Faults Near Source Zones in California and Adjacent Portions of Nevada (ICBO, 1997), CDMG, 1993 and 1994.

6.2 CALIFORNIA BUILDING CODE SEISMIC CRITERIA

Based on the specified design criteria of the 2010 California Building Code, the following Site seismic information may be considered for earthquake design.

Design Criteria	Design Value
Site Class	C
Mapped Spectral Response Acceleration for Short Periods S_s (g)	0.949
Mapped Spectral Response Acceleration for 1-second Period S_1 (g)	0.349
Maximum Considered Earthquake Spectral Acceleration for Short Periods S_{MS} (g)	0.968
Maximum Considered Earthquake Spectral Response Acceleration for 1-second Periods S_{M1} (g)	0.507
5-percent Design Spectral Response Acceleration for Short Periods S_{DS} (g)	0.645
5-percent Design Spectral Response Acceleration for 1-second Periods S_{D1} (g)	0.338
Site Coefficient F_a	1.02
Site Coefficient F_v	1.451

6.3 REGIONAL SEISMIC HAZARDS

6.3.1 Fault Rupture Hazard

The Site is not located within a currently mapped California Earthquake Special Studies Fault Zone. As described above, the nearest fault is the Rose Canyon Fault, located approximately 13.9 miles northwest of the Site. Based on available geologic data, there is low potential for surface fault rupture from the Rose Canyon Fault and other nearby active faults propagating to the surface of the Site during the design life of the proposed development.

6.3.2 Liquefaction Hazard

Liquefaction Background

Liquefaction of saturated sandy soils is generally caused by the sudden decrease in soil shear strength due to vibration. During cyclic shaking, typically caused by an earthquake, the soil mass is distorted, and interparticulate stresses are transferred from the soil particles to the pore water. As pore pressure increases the bearing capacity decreases and the soil may behave temporarily as a viscous fluid (liquefaction) and, consequently, loses its capacity to support the structures founded thereon.

Engineering research of soil liquefaction potential (Seed, et. al., 1982 and 1985) indicates that generally three basic factors must exist concurrently in order for liquefaction to occur, namely:

- A source of ground shaking, such as an earthquake, capable of generating soil mass distortions.
- A relatively loose sandy soil fabric exhibiting a potential for volume reduction.
- A relative shallow groundwater table (within approximately 50 feet below ground surface) or completely saturated soil conditions that will allow positive pore pressure generation.

Screening Investigation for Liquefaction Potential

The Site is not located within a current, mapped California Liquefaction Hazard Zone. However, a site specific liquefaction evaluation was conducted in accordance with the guidance outlined in Special Publication 117: Guidelines for Evaluating and Mitigating Seismic Hazards in California (CDMG, 1997). The in-situ characteristics of the subsurface soils were analyzed, and similarities and dissimilarities of the subsurface conditions were compared with those sites where the subsurface soils are known to have liquefied.

Following the specified steps of the Screening Investigation (CDMG, 1997), a historic high groundwater elevation was evaluated for the liquefaction analysis. Based on available groundwater information in the Site vicinity, the historic high groundwater depth at the Site is anticipated to be approximately 39 feet bgs (SECOR, 2005). As a result of the historic high depth to groundwater and the relatively dense and hard soil conditions, the onsite soils do not appear to be susceptible to soil liquefaction. As such, onsite subsurface soils were eliminated from further engineering evaluation of potential liquefaction hazard (CDMG, 1997).

6.3.3 Seismic Induced Settlement in Unsaturated Zone

Near surface soils in the unsaturated zone consist of relatively stiff to hard clayey soils with variable amounts of sand. These sediments may be prone to significant volumetric strain as a result of cyclic loading from seismic activity. Although difficult to predict, surface settlements in the unsaturated zone were estimated to be approximately 0.2 inches, following methods promulgated by Tokimatsu and Seed (1987).

7.0 ENGINEERING RECOMMENDATIONS

Based upon the results of the investigation and previous geotechnical documentation, development of the Site is geotechnically feasible provided that the recommendations presented herein are implemented in the design and construction of the project. Due to highly expansive soils beneath the Site, removal and replacement or treatment of the near surface soils will be required in the structural areas to provide a relatively uniform and firm engineered soil blanket for support of the proposed development and reduce the potential for differential settlement. Specific recommendations are included in the following sections.

7.1 EXPANSIVE SOIL POTENTIAL

The near-surface soils encountered in the proposed building area are predominantly clay with variable amounts of sand and silt. Based on visual classification during field sampling, near surface soils exhibit variable plasticity and consistency. Expansion index (EI) testing was conducted on a composite bulk sample representing the upper 5 feet of boring B2. The reported EI was 92, which indicates that near surface exhibit high expansion potential, as defined by the 2010 California Building Code (CBC, 2010). In addition, expansion tests were conducted in the consolidometer by preloading relatively undisturbed samples to the approximate overburden pressure and then saturating the sample prior to additional loading. The results show variable levels of expansion ranging from approximately 0.6 to 6 percent and expansion pressures ranging from approximately 1,000 to 10,000 pounds per square foot (psf). Design for expansive soils is recommended.

If imported soils are used for earthwork at the Site, Stantec recommends that the proposed soils be tested for expansion potential prior to import. To avoid the use of expansive soils on the project, all imported soils must be pre-approved by the Project Soils Engineer prior to utilization.

7.2 CORROSIVE SOIL POTENTIAL

Chemical tests to evaluate corrosive soil potential of near surface soils were performed by Converse Consultants. The test results indicated pH of 7.4, water soluble sulfate = 250 ppm, soluble chlorides = 878 ppm, and saturated resistivity = 348 ohm-cm.

Based on the test results, the near surface soils are expected to exhibit a low corrosion potential for concrete and a very severe corrosion potential for steel. As a result, corrosion resistant piping is recommended for the Site. Stantec recommends that corrosion resistant piping (e.g. non-metallic pipe), be utilized for all subsurface utilities in contact with onsite soils. Cathodic protection may be utilized in lieu of the corrosion resistant piping if properly designed and approved by an engineer competent in corrosion design.

Material Type	Degree of Corrosivity	Recommendation
Concrete	Low	--
Steel	Very Severe	Corrosion Resistant Piping

If imported soil is utilized for earthwork at the site, Stantec recommends that the proposed soils be tested for corrosive soil potential prior to import. To avoid the use of corrosive soils on the project, all imported soils should be pre-approved by the Project Soils Engineer prior to utilization. Proposed import soils exhibiting corrosion potential for steel or concrete should not be utilized at the Site unless appropriate mitigation measures are implemented.

7.3 FOUNDATION DESIGN

7.3.1 Canopy Foundations

Due to the highly expansive soils beneath the site, the typical footings for the canopy columns, as described in Section 2.0, are not expected to provide adequate support for the proposed structure. Stantec recommends canopy column footings consisting of reinforced concrete drilled piers having a minimum diameter or width of 4.0 feet and embedded at a minimum depth of 13 feet bgs. Based on these assumptions and the anticipated subsurface conditions, the soils at the foundation level will be supported on allowable bearing pressure of 2,500 psf may be used in the design. For resistance to transient lateral loads, such as earthquake and wind loads, the aforementioned allowable bearing capacity may be increased by one-third.

Canopy foundation structural design for resistance of lateral forces may be based upon a passive lateral earth pressure/resistance (equivalent fluid pressure) of 250D psf/ft, where D corresponds to the embedment depth of the footing in feet.

7.3.2 Foundation Construction

Proper footing construction will be dependant upon the quality of the contractor’s workmanship. Any deviation from the methods proposed herein should be approved by the Project Soils Engineer prior to implementation.

It is essential that the Project Soils Engineer review and approve the foundation plans and observe the building foundation excavations prior concrete placement, to verify that the contractor utilizes proper construction methods, and that foundation excavations are adequately sized and founded on suitable material. The bottom of the foundation excavations should be drilled or excavated in such a way as to minimize slough, debris and unsuitable material from collecting at the bottom of the excavation. The contractor should provide the Project Soils Engineer a safe method to verify that a competent footing bottom has been achieved by the contractor.

7.3.3 Estimated Foundation Settlement

Assuming that the engineering recommendations of this report will be strictly adhered to, static foundation settlement for the above described building foundations is estimated to be less than one-inch total and less than one-half inch differential over a lateral distance of 50 feet, between similarly loaded footings of the same size.

7.4 SLOPES

Although pertinent grading information is currently unavailable, no permanent slopes are anticipated for the project. The stability of slopes, if any, should be evaluated when design-grading information becomes available.

7.5 UNDERGROUND STORAGE TANK EXCAVATION

Temporary excavations should be shored or excavated with a slope not steeper than 1:1 (horizontal to vertical) in accordance with OSHA and 7-Eleven requirements. The OSHA and 7-Eleven requirements for excavation should be strictly adhered to ensure safety of personnel and equipment around the excavations. The excavations should be inspected by the Project Civil Engineer to verify safe working conditions on a regular basis (at least daily). Surcharges from soil stockpiles, structures, vehicles, etc., should not be positioned within ten feet of the excavation.

To maintain the necessary lateral support for canopy footings, it is imperative that the UST excavation sidewalls not encroach within a distance equal to the embedment depth of the proposed canopy footings. If necessary, shoring should be installed within the excavation adjacent to the canopy footing locations. In addition, the UST excavation should be completely backfilled prior to excavating the canopy footings.

Where shoring is used in lieu of sloping the temporary excavation sidewalls, the shoring design may be tentatively based upon the following lateral earth pressures (equivalent fluid pressures with a triangular pressure distribution), up to an excavation depth of 16 feet bgs.

Active:	40H psf/ft,
Passive:	400H psf/ft,
At-rest:	60H psf/ft,

where H is the height of the sheet shoring. These equivalent fluid pressures should be applied as a triangular pressure distribution behind the shoring and assume level backfill behind and in front of shoring. For braced shoring, a uniform rectangular pressure distribution should be used from top to bottom of the shoring equivalent to the following,

Bracing:	25H psf/ft

where H is the depth of the excavation.

The earth pressures are based on drained conditions (no hydrostatic or buoyant conditions) and the assumption that the shoring is vertical (no batter), and the ground surface in front and behind the shoring is level. For different geometries or conditions, the above lateral earth pressures should be reevaluated. The earth pressures indicated above do not include a safety factor, therefore the shoring design should include an appropriate safety factor for the overall performance of the system.

At this point, no permanent retaining walls or shoring systems are anticipated at the site. If retaining walls or permanent shoring is incorporated in the design and development of the property, geotechnical recommendations for design (e.g. lateral earth pressures) should be evaluated based on the specific geometry and loading conditions for the proposed structures.

7.6 UNDERGROUND STORAGE TANK BACKFILL

Backfilling adjacent to and over the top of the underground storage tanks should be performed in accordance with the tank manufacturer’s specifications. If gravel is used for tank backfill, in lieu of compacted soil backfill, the backfill should be covered with a structural concrete slab designed to bridge over localized settlement of the gravel backfill.

Depending on the actual quality and composition of the gravel utilized to backfill the USTs, little or no mechanical compactive effort is generally necessary to place the gravel in a dense manner. However, to increase the density of the gravel backfill and to mitigate future settlement of the gravel backfill the following methods should be utilized. During gravel placement, the backfill should be flooded with water to ensure complete saturation of the gravel. The water shall be applied in a manner, quantity and rate that is sufficient to thoroughly saturate the thickness of the lift being densified. In addition to flooding the gravel backfill, the gravel shall be further compacted with a concrete vibrator or mechanical compaction equipment, at approximate two to three foot intervals. Backfilling adjacent to and over the top of the underground storage tanks should be performed in accordance with the tank manufacturer's specifications.

7.7 TENTATIVE PAVEMENT DESIGN

As indicated in Section 7.8.2, pavement will be supported on at least 3 feet of non-expansive fill soil. Tentative pavement structural sections were developed based on an assumed laboratory subgrade resistance R-Value of 30 for the non-expansive fill soil and assumed loading conditions for an equivalent single axle load (ESAL) value comparable to the referenced traffic index (TI) values below, and an AASHTO Reliability Factor of 75%. An appropriate TI value should be determined by the project civil or traffic engineer. The design below applies to pavement sections supported on compacted and treated existing onsite soils or non-expansive import fill. An R-Value test should be completed on the imported or treated soil to confirm the pavement design prior to placement of aggregate base.

7.7.1 Asphalt Concrete Pavement

Traffic Type	Truck Traffic TI = 9.0	Truck Traffic TI =9.5	Truck Traffic TI =10.0	Truck Traffic TI =10.5
Asphalt Concrete (AC) Thickness	6.0"	6.0"	7.0"	7.0"
Aggregate Base (AB) Thickness	10.0"	12.0"	11.0"	13.0"

*AASHTO Highway Design Method

7.7.2 Portland Cement Concrete Pavement

Proposed portland cement concrete pavement areas that are subject to vehicle traffic loads, should have a minimum thickness of 8 inches. In addition, a minimum of 6 inches of aggregate base should be placed beneath all concrete pavement areas subject to traffic loads. The structural section should be underlain by 3 feet of non-expansive soil.

The concrete should exhibit a minimum compressive strength of 3,500 psi and approximate three-inch slump (± one inch). Minimum reinforcement for concrete pavement in vehicle traffic areas should include a synthetic fibermesh or #4 reinforcing bars, placed each way on 12-inch centers. Additional reinforcement and/or slab thickness may be appropriate as structural conditions dictate, as determined by the project structural or civil engineer. Other design and construction criteria for concrete floor slabs, such as mix design, strength, durability, reinforcement, joint spacing, etc., should conform to current specifications promulgated by the American Concrete Institute (ACI).

7.7.3 Subgrade and Aggregate Base Specifications

The above pavement sections are based upon the assumption that the subgrade is uniformly compacted to at least 90 percent relative compaction with uniform moisture content of 120 percent of the optimum moisture content, as determined by ASTM Standard D 1557, to a depth of 2.5 feet at the time of base placement. Final geotechnical observation and testing of subgrade should be performed just prior to the placement of aggregate base or concrete.

The pavement sections should be reinforced and placed over 2.5 feet of non-expansive soil. The non-expansive soil fill may consist of import fill with an EI of less than 20, or on-site clay treated with lime or other stabilizing agent as described in Section 7.8.2.

The aggregate base for asphalt concrete and concrete pavement sections should meet Caltrans specifications for Class 2 base or the specifications for Processed Miscellaneous Base (PMB), as contained in the Standard Specifications for Public Works Construction. Aggregate base should be compacted to at least 95 percent relative compaction with uniform moisture content near the optimum percent, as determined by ASTM Standard D 1557. Final geotechnical observation and testing of aggregate base should be performed just prior to the placement of asphalt concrete.

It is possible that Site grading, use of import fill soils, utility line backfilling, and/or underground storage tank installation could alter the distribution of near-surface materials, thus requiring re-evaluation of the recommended pavement structural sections. If any of the above named conditions occurs, which warrants a re-evaluation of the pavement sections, Stantec recommends that at least one near surface soil sample be tested to evaluate the subgrade R-value, following rough grading of the pavement areas. If necessary, the above described tentative pavement structural section recommendations should be revised based on the actual R-value test result.

7.8 SITE GRADING

Site grading will be required to achieve plan grades and to provide uniform support for foundations, slabs-on-grade and pavement. Recommendations for Site grading are presented in the following subsections, while general guide specifications for earthwork and grading are presented in Appendix C. The following grading recommendations are subject to change, depending on the actual earthwork required for the project and the subsurface conditions encountered during grading.

7.8.1 Clearing and Grubbing

The ground surface of the Site should be cleared and grubbed all of vegetation and deleterious materials, prior to grading. Clearing and grubbing is considered complete when soil supporting structural fill material or soil to be excavated as reused as structural fill materials contains less than five percent organic materials (by volume). Excavations created by removing underground structures, construction debris, vegetation roots, contaminated soils, and any other unsuitable materials should be backfilled with clean fill soil and should be compacted in accordance with the requirements presented below.

7.8.2 Removal Requirements

Pavement Areas:

To provide uniform and firm support for the proposed pavement areas, removal and replacement or treatment of the existing soils will be required to a minimum depth of 3 feet below the final subgrade elevation. The removed soils may not be reused onsite unless treated to reduce the expansion index to less than 20. Removal and recompaction for pavement areas should extend horizontally at least two feet beyond the rear curb face or as property line constraints dictate.

The pavement sections should be reinforced and placed over 3 feet of non-expansive soil. The non-expansive soil fill may consist of import fill with an EI of less than 20, or on-site clay treated with lime or other stabilizing agent.

Lime treatment at a rate of 3 to 7 percent is typically used to reduce soil expansion potential. However, expansion index (EI) testing at varying percentages of lime will be required to evaluate the optimum percentage of lime required to reduce the EI to less than 20. If lime treatment is considered feasible, the lime must be thoroughly mixed using a pug mill, other insitu mixing equipment approved by the Soils Engineer (e.g.; Caterpillar RR-250). The mixing method must thoroughly mix the clay with the lime using high speed pulverizer. For insitu mixers, the tines much be sufficiently long to mix the entire thickness of the fill lift (12 inches). Mixing with excavation equipment (i.e.; backhoe, excavator or loader) is not an acceptable method of mixing.

If pavement area recompaction results in substandard relative compaction as a result of unsuitable subsurface conditions, unsuitable areas should be removed to a minimum depth of one foot. Depending on the condition of the subexcavation bottom, additional removal depth may be required. Once a suitable subexcavation bottom is achieved, the exposed surface at the bottom of the subexcavation should be moisture-conditioned to 120 percent of the optimum moisture content and surface compacted to the specified density.

Required Inspection of Subexcavation:

It is imperative that the Project Soils Engineer inspect the bottoms of all subexcavations. As a general rule, a suitable subexcavation bottom should have a minimum dry density of 85 percent of the maximum dry density. Final determination of a suitable subexcavation bottom is at the discretion of the Project Soils Engineer. Should any deeper artificial fill or relatively loose soils, not in conformance with the above described conditions, be encountered within the exposed bottom of the subexcavations, the depth of removal may be extended in accordance with the professional judgment of the Project Soils Engineer.

7.8.3 Placement of Compacted Fill

General guide specifications for placement of fill and backfill are provided in Appendix C. The bottom of subexcavations and areas to receive fill should be scarified to a depth of six inches, moisture conditioned to 120 percent of optimum moisture content and then surface compacted to the relative compaction specified below.

Placement of compacted fill should be performed in thin lifts within two percent (+/-) of the optimum moisture content using mechanical compaction equipment and maintained until after pavement, slabs, or foundations are constructed. Unless specified otherwise, all fill should be compacted to a minimum of 90 percent relative compaction based upon the maximum density obtained in accordance with ASTM Standard D 1557. Gravel should not be used to backfill any excavations onsite without the approval of the Project Soils Engineer. If the Project Soils Engineer approves the use of gravel in excavations, vibratory compaction and "burrito wrapping" in a geosynthetic filter fabric may be required.

During grading, frequent density testing should be performed by a representative of the geotechnical engineer to evaluate compliance with grading specifications. Where testing indicates insufficient relative compaction, additional compactive effort should be applied, with the adjustment of moisture content where necessary, until the required relative compaction is obtained.

7.9 POST INVESTIGATION SERVICES

Post investigation services are an important and necessary continuation of this investigation, and it is recommended that Stantec be retained as the Project Soils Engineer to perform such services to assure adherence with the intent of the geotechnical recommendations presented herein.

Final project grading and foundation plans, foundation details and specifications should be reviewed by Stantec, prior to construction, to confirm that the full intent of the recommendations presented herein have been applied to the designs. Following review of plans and specifications, sufficient and timely observation during construction should be performed to correlate the findings of this investigation with the actual subsurface conditions exposed during construction.

The following should be inspected observed, and tested by the Project Soils Engineer to ensure compliance with the recommendations contained herein.

- Rough Site grading, including the bottom of subexcavations.
- Footing excavations to confirm that the foundation elements are founded in the recommended materials.
- Utility trench backfill.
- Subgrade preparation, base placement and compaction.
- All other items of work requiring an opinion of adequacy from the Project Soils Engineer to be included in a final geotechnical report.

During construction, the Project Soils Engineer and/or their authorized representatives, are present at the Site to provide a source of advice to the client regarding the geotechnical aspects of the project and to observe and test the earthwork. Their presence should not be construed as an acceptance of responsibility for site safety or for the performance of the completed work since it is the sole responsibility of the contractor performing the work to ensure that the work complies with federal, state, and local safety procedures/regulations and with all applicable plans, specifications, ordinances, etc.

8.0 CLOSURE

Our conclusions, recommendations and discussions presented herein are (1) based upon an evaluation and interpretation of the findings of the field and laboratory programs, (2) based upon an interpolation of subsurface conditions between and beyond the explorations, (3) subject to confirmation of the actual conditions encountered during construction, and (4) based upon the assumption that sufficient observation and testing will be provided by Stantec during construction.

Any person using this report for bidding or construction purposes should perform such independent investigations as he deems necessary to satisfy himself as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

This report contains information which is valid as of this date. However, conditions that are beyond our control or that may occur with the passage of time may invalidate, either partially or wholly, the conclusions and recommendations presented herein.

The conclusions of this report are based on an interpolation of subsurface conditions encountered at the boring locations. The actual subsurface conditions at unexplored locations may be different. Consequently, the findings and recommendations of this report will require re-evaluation if subsurface conditions different than stated herein are encountered.

Inherent in most projects performed in the heterogeneous subsurface environment, continuing subsurface investigations and analyses may reveal findings that are different than those presented herein. This facet of the geotechnical profession should be considered when formulating professional opinions on the limited data collected on this project.

The findings and recommendations contained in this report were developed in accordance with generally accepted current professional principles and practice ordinarily exercised, under similar circumstances, by geotechnical engineers and geologists practicing in this locality. No other warranty, expressed or implied, is made.

9.0 REFERENCES

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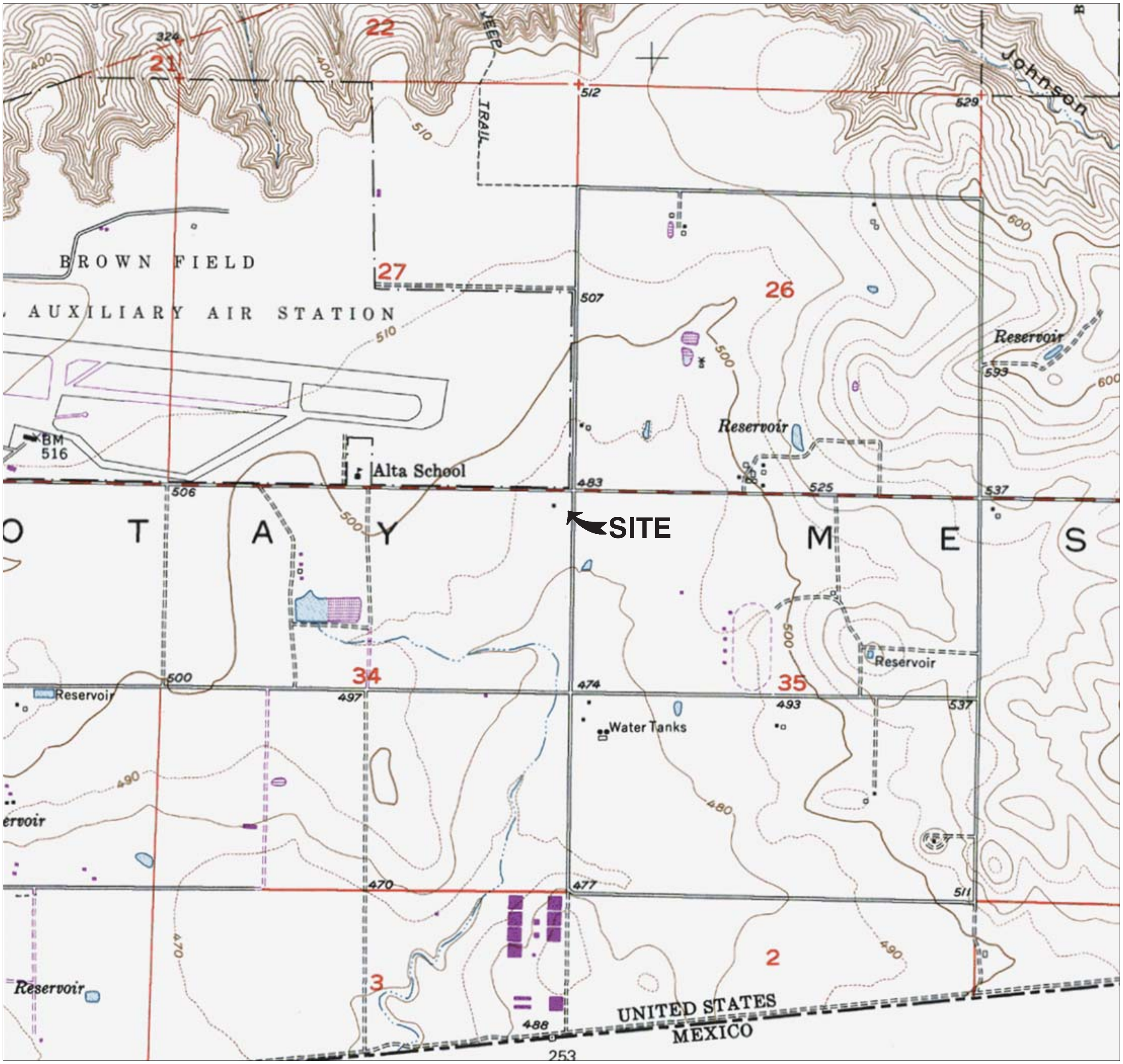
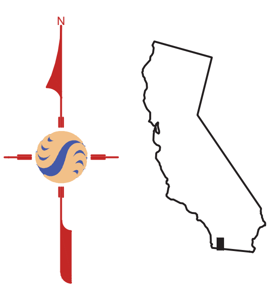
FIGURES





1 1/2 0 1

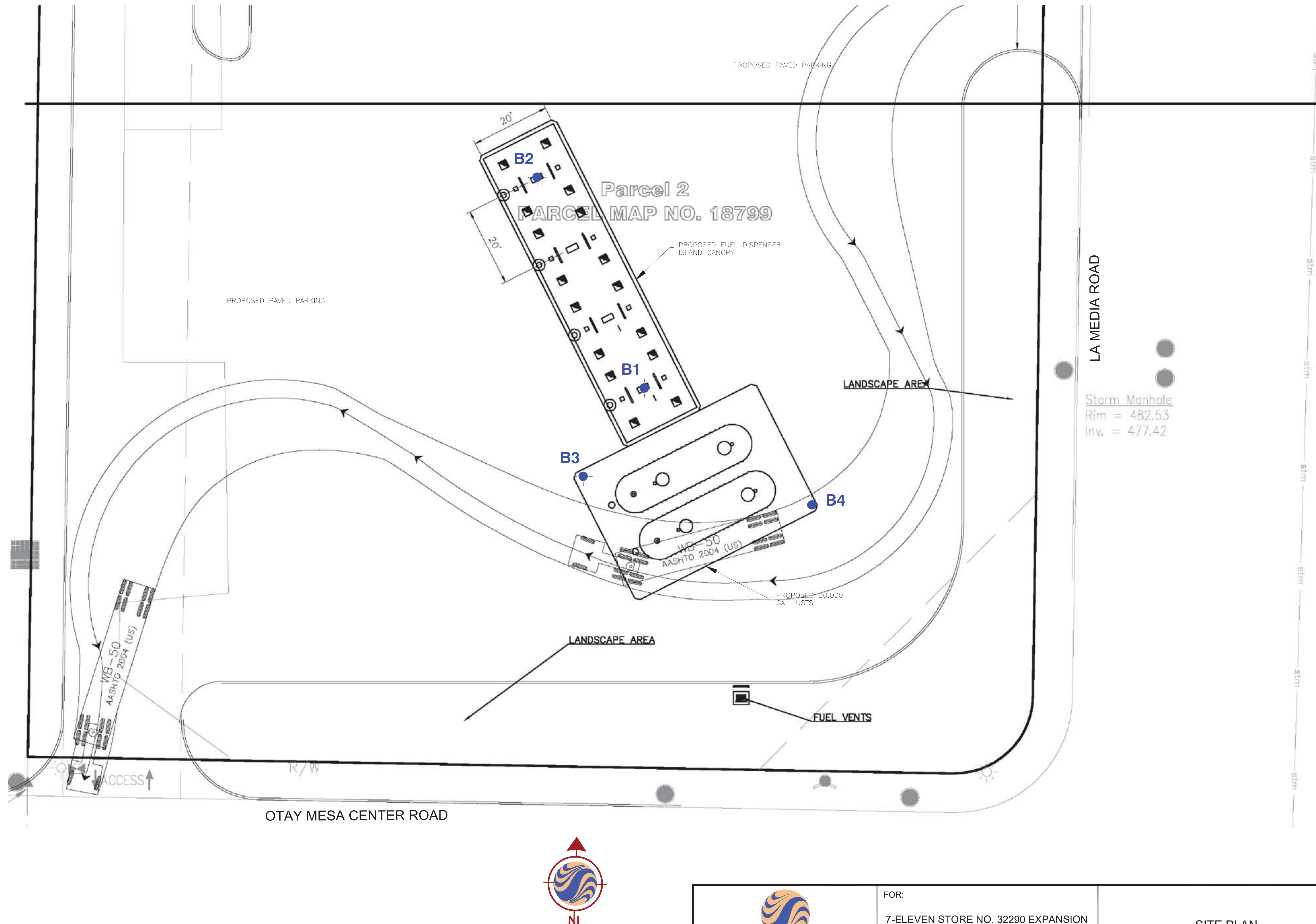
SCALE IN MILE

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE IN FEET

REFERENCE: USGS 7.5 X 15 MINUTE QUADRANGLE; OTAY MESA, 1955, PHOTOREVISED 1971

Stantec 25864-F BUSINESS CENTER DRIVE REDLANDS, CA 92374 PHONE: (909) 335-6116 FAX: (909) 335-6120	FOR: 7-ELEVEN STORE NO. 32290 EXPANSION 8395 OTAY MESA ROAD SAN DIEGO, CALIFORNIA 92154		SITE LOCATION MAP	FIGURE: 1
	JOB NUMBER: 185850175	DRAWN BY: JEF	CHECKED BY: JEF / APPROVED BY: JEF	DATE: 9/6/13



EXPLANATION

B4 — APPROXIMATE GEOTECHNICAL SOIL BORING LOCATIONS

PROPSOED SITE IMPROVEMENTS

0 25 50

APPROXIMATE SCALE (FEET)

Stantec 25864-F BUSINESS CENTER DRIVE REDLANDS, CA 92374 PHONE: (909) 335-6116 FAX: (909) 335-6120	FOR: 7-ELEVEN STORE NO. 32290 EXPANSION 8395 OTAY MESA ROAD SAN DIEGO, CALIFORNIA 92154		SITE PLAN	FIGURE: 2
	JOB NUMBER: 185850175	DRAWN BY: JEF	CHECKED BY: JEF / APPROVED BY: JEF	DATE: 9/6/13

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APPENDIX A
BORING LOGS

PROJECT: **Geotechnical Legend**
LOCATION: **123 Main St. Anywhere USA**
PROJECT NUMBER: **00AB.12345.00**

WELL / PROBEHOLE / BOREHOLE NO:
Legend PAGE 1 OF 1

DRILLING: STARTED **1/1/06** COMPLETED: **1/1/06**	NORTHING (ft):
INSTALLATION: STARTED **1/1/06** COMPLETED: **1/1/06**	EASTING (ft):
DRILLING COMPANY: **Drilling Sub-contractor**	LATITUDE:
DRILLING EQUIPMENT: **Drilling Equipment**	LONGITUDE:
DRILLING METHOD: **Drilling Method**	GROUND ELEV (ft):
SAMPLING EQUIPMENT: **Sampling Equipment**	TOC ELEV (ft):
	INITIAL DTW (ft): **NE**
	BOREHOLE DEPTH (ft): **25.0**
	STATIC DTW (ft): **NE**
	WELL DEPTH (ft): **25.0**
	WELL CASING DIAMETER (in): **NA**
	BOREHOLE DIAMETER (in):
	LOGGED BY: **Onsite Technician**
	CHECKED BY: **Project Eng.**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Geotechnical Lab Testing	Environmental Lab Testing	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
			Geotechnical Lab Testing							Surface Completion
			CNSL - Consolidation		CNSL					
			CRSN - Corrosion		CRSN					
			EI - Expansion Index		EI					
			HA - Hydrometer Analysis		HA					
5			MD - Moisture Density		MD				5	
			M - Moisture		M					
			R-Val - R-Value		R-Val			As Shown		
			SA - Sieve Analysis		SA					
			DS - Direct Shear		DS					
			UC - Unconfined Compression		UC					
			AL - Atterberg Limits		AL					
			#200 - #200 Sieve Wash		#200					
10			MP - Modified Proctor		MP				10	
			Environmental Lab Testing							
			8015M - Volatile and/or Extractable Petroleum Hydrocarbons			8015M				Backfill Description
			8260 - Halogenated Volatile Organic Compounds with Oxygenates			8260				
15			8270 - Semi-Volatile Organic Compounds			8270			15	
			8081 - Organochlorine Pesticides			8081				
			Hand Auger Sample							
20			Driven Sample, Blows Per 6 Inches, 2.5 Inch ID California Modified Sample Interval				10 11 15		20	
			Driven Sample, Blows Per 6 Inches, 1.5 Inch ID SPT Sample Interval				20 22 23			
25			Hole terminated at 25 feet.						25	
30									30	
35									35	

GEO FORM 304 GEOTECHNICAL LEGEND.GPJ SECOR INTL.GDT 12/5/06

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

SOIL DESCRIPTION

Terminology describing common soil genesis:

Topsoil	- mixture of soil and humus capable of supporting vegetative growth
Peat	- mixture of visible and invisible fragments of decayed organic matter
Till	- unstratified glacial deposit which may range from clay to boulders
Fill	- material below the surface identified as placed by humans (excluding buried services)

Terminology describing soil structure:

Desiccated	- having visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.
Fissured	- having cracks, and hence a blocky structure
Varved	- composed of regular alternating layers of silt and clay
Stratified	- composed of alternating successions of different soil types, e.g. silt and sand
Layer	- > 75 mm in thickness
Seam	- 2 mm to 75 mm in thickness
Parting	- < 2 mm in thickness

Terminology describing soil types:
The classification of soil types are made on the basis of grain size and plasticity in accordance with the Unified Soil Classification System (USCS) (ASTM D 2487 or D 2488). The classification excludes particles larger than 76 mm (3 inches). The USCS provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification.

Terminology describing cobbles, boulders, and non-matrix materials (organic matter or debris):
Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter, construction debris) is based upon the proportion of these materials present:

Trace, or occasional	Less than 10%
Some	10-20%
Frequent	> 20%

Terminology describing compactness of cohesionless soils:
The standard terminology to describe cohesionless soils includes compactness (formerly "relative density"), as determined by the Standard Penetration Test N-Value (also known as N-Index). A relationship between compactness condition and N-Value is shown in the following table.

Compactness Condition	SPT N-Value
Very Loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very Dense	>50

Terminology describing consistency of cohesive soils:
The standard terminology to describe cohesive soils includes the consistency, which is based on undrained shear strength as measured by *in situ* vane tests, penetrometer tests, or unconfined compression tests.

Consistency	Undrained Shear Strength	
	kips/sq.ft.	kPa
Very Soft	<0.25	<12.5
Soft	0.25 - 0.5	12.5 - 25
Firm	0.5 - 1.0	25 - 50
Stiff	1.0 - 2.0	50 – 100
Very Stiff	2.0 - 4.0	100 - 200
Hard	>4.0	>200

ROCK DESCRIPTION

Terminology describing rock quality:

RQD	Rock Mass Quality
0-25	*Very Poor*
25-50	*Poor*
50-75	*Fair*
75-90	*Good*
90-100	*Excellent*

Rock quality classification is based on a modified core recovery percentage (RQD) in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be due to close shearing, jointing, faulting, or weathering in the rock mass and are not counted. RQD was originally intended to be done on NW core; however, it can be used on different core sizes if the bulk of the fractures caused by drilling stresses are easily distinguishable from *in situ* fractures. The terminology describing rock mass quality based on RQD is subjective and is underlain by the presumption that sound strong rock is of higher engineering value than fractured weak rock.

Terminology describing rock mass:

Spacing (mm)	Joint Classification	Bedding, Laminations, Bands
> 6000	*Extremely Wide*	-
2000-6000	*Very Wide*	*Very Thick*
600-2000	*Wide*	*Thick*
200-600	*Moderate*	*Medium*
60-200	*Close*	*Thin*
20-60	*Very Close*	*Very Thin*
<20	*Extremely Close*	*Laminated*
<6	-	*Thinly Laminated*

Terminology describing rock strength:

Strength Classification	Unconfined Compressive Strength (MPa)
Extremely Weak	< 1
Very Weak	1 – 5
Weak	5 – 25
Medium Strong	25 – 50
Strong	50 – 100
Very Strong	100 – 250
Extremely Strong	> 250

Terminology describing rock weathering:

Term	Description
Fresh	No visible signs of rock weathering. Slight discolouration along major discontinuities
Slightly Weathered	Discolouration indicates weathering of rock on discontinuity surfaces. All the rock material may be discoloured.
Moderately Weathered	Less than half the rock is decomposed and/or disintegrated into soil.
Highly Weathered	More than half the rock is decomposed and/or disintegrated into soil.
Completely Weathered	All the rock material is decomposed and/or disintegrated into soil. The original mass structure is still largely intact.

STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols. The dimensions within the strata symbols are not indicative of the particle size, layer thickness, etc.

Boulders Cobbles Gravel | Sand | Silt | Clay | Organics | Asphalt | Concrete | Fill | Igneous Bedrock | Meta-morphic Bedrock | Sedi-mentary Bedrock

SAMPLE TYPE

SS	Split spoon sample (obtained by performing the Standard Penetration Test)
ST	Shelby tube or thin wall tube
DP	Direct-Push sample (small diameter tube sampler hydraulically advanced)
PS	Piston sample
BS	Bulk sample
WS	Wash sample
HQ, NQ, BQ, etc.	Rock core samples obtained with the use of standard size diamond coring bits.

WATER LEVEL MEASUREMENT

measured in standpipe, piezometer, or well

inferred

RECOVERY

For soil samples, the recovery is recorded as the length of the soil sample recovered. For rock core, recovery is defined as the total cumulative length of all core recovered in the core barrel divided by the length drilled and is recorded as a percentage on a per run basis.

N-VALUE

Numbers in this column are the field results of the Standard Penetration Test: the number of blows of a 140 pound (64 kg) hammer falling 30 inches (760 mm), required to drive a 2 inch (50.8 mm) O.D. split spoon sampler one foot (305 mm) into the soil. For split spoon samples where insufficient penetration was achieved and N-values cannot be presented, the number of blows are reported over sampler penetration in millimetres (e.g. 50/75). Some design methods make use of N value corrected for various factors such as overburden pressure, energy ratio, borehole diameter, etc. No corrections have been applied to the N-values presented on the log.

DYNAMIC CONE PENETRATION TEST (DCPT)

Dynamic cone penetration tests are performed using a standard 60 degree apex cone connected to A size drill rods with the same standard fall height and weight as the Standard Penetration Test. The DCPT value is the number of blows of the hammer required to drive the cone one foot (305 mm) into the soil. The DCPT is used as a probe to assess soil variability.

OTHER TESTS

S	Sieve analysis
H	Hydrometer analysis
k	Laboratory permeability
γ	Unit weight
G_s	Specific gravity of soil particles
CD	Consolidated drained triaxial
CU	Consolidated undrained triaxial with pore pressure measurements
UU	Unconsolidated undrained triaxial
DS	Direct Shear
C	Consolidation
Q_u	Unconfined compression
I_p	Point Load Index (I_p on Borehole Record equals $I_p(50)$ in which the index is corrected to a reference diameter of 50 mm)

	Single packer permeability test; test interval from depth shown to bottom of borehole
	Double packer permeability test; test interval as indicated
	Falling head permeability test using casing
	Falling head permeability test using well point or piezometer

PROJECT: **7-Eleven #32291** LOCATION: **8395 Otay Mesa Rd. San Diego, CA** PROJECT NUMBER: **185850175**	WELL / PROBEHOLE / BOREHOLE NO: **B-1** PAGE 1 OF 1 Stantec
DRILLING: STARTED **8/30/13** COMPLETED: **8/30/13** INSTALLATION: STARTED **8/30/13** COMPLETED: **8/30/13** DRILLING COMPANY: **ABC Liovin Drilling** DRILLING EQUIPMENT: **CME 85** DRILLING METHOD: **Hollow Stem Auger** SAMPLING EQUIPMENT: **Split Spoon**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.3** STATIC DTW (ft): **NE** WELL DEPTH (ft): **---** WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **5** LOGGED BY: **J. Fischer** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
0800		CL	**SANDY CLAY WITH GRAVEL** ; CL; 10YR 5/4 yellowish brown; 53.4% fines; 30% fine to coarse grained sand; 30.7% fine to medium gravel; hard; dry; no petroleum hydrocarbon odor (PHCO); no staining		0800 B-1-2	SA	23 26 29	0.0		
0805 5		CH	**SANDY CLAY** ; CH; 10YR 4/3 brown; 75% fines; 20% fine to coarse grained sand; 5% fine grained gravel; high plasticity; hard; moist; no PHCO; no staining		0805 B-1-5	DS	50-6"	0.0	5	
0815			...same as above ; 72.8% fines; 10% fine to coarse grained sand; 17.2% fine grained gravel; rounded to angular		0815 B-1-7	#200, AL	30 50-6"	0.0		Backfilled With Native Soil
0820 10			...same as above		0820 B-1-10	DS	26 50-6"	0.3	10	
0825 15		SC	**CLAYEY SAND WITH GRAVEL** ; SC; 10YR 6/3 pale brown; 60% fine to coarse grained sand; 30% fines; 10% fine grained gravel; very dense; moist; no PHCO; no staining		0825 B-1-15		50-3"	0.0	15	
			Refusal @ ~15.5' BGS. Groundwater not encountered. Hole terminated at 15.25 feet.							
20									20	

PROJECT: **7-Eleven #32291**
LOCATION: **8395 Otay Mesa Rd. San Diego, CA**
PROJECT NUMBER: **185850175**

WELL / PROBEHOLE / BOREHOLE NO: **B-2** PAGE 1 OF 1

Stantec

DRILLING: STARTED **8/30/13**	COMPLETED: **8/30/13**	NORTHING (ft):	EASTING (ft):
INSTALLATION: STARTED **8/30/13**	COMPLETED: **8/30/13**	LATITUDE:	LONGITUDE:
DRILLING COMPANY: **ABC Liovin Drilling**		GROUND ELEV (ft):	TOC ELEV (ft):
DRILLING EQUIPMENT: **CME 85**		INITIAL DTW (ft): **NE**	BOREHOLE DEPTH (ft): **20.3**
DRILLING METHOD: **Hollow Stem Auger**		STATIC DTW (ft): **NE**	WELL DEPTH (ft): **---**
SAMPLING EQUIPMENT: **Split Spoon**		WELL CASING DIAMETER (in): **---**	BOREHOLE DIAMETER (in): **5**
		LOGGED BY: **J. Fischer**	CHECKED BY:

Time & Depth (feet)	USCS	Description	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
0850	CL	**CLAY WITH SAND** ; CL; 2.5Y 3/2 very dark grayish brown; 70% fines;30% fine grained sand; medium plasticity; hard; moist; no PHCO; no staining	0850 B-2-2	MD	30 50-6"	1.4		
0855 5		...same as above; 76.6% fines; 23.4% fine grained sand	0855 B-2-5	#200, AL	21 23 27	0.0	5	
0900		...same as above	0900 B-2-7	DS	21 25 29	0.0		
0905 10	CH	**FAT CLAY WITH SAND** ; CH; 2.5Y very dark grayish brown; 3/2; 87% fines; 13% fine sand; high plasticity; hard; moist; no PHCO; no staining	0905 B-2-10	#200, AL	16 24 28	0.0	10	Backfilled With Native Soil
0910 15	CL	**SANDY CLAY** ; CL; 2.5Y very dark grayish brown; 50% fines; 30% fine to coarse grained sand; 20% fine grained gravel; low plasticity; hard; moist, no PHCO, no staining	0910 B-2-15		50-4"	0.0	15	
0920 20	SC	**CLAYEY SAND WITH GRAVEL** ; SC; 2.5Y 5/3 light olive brown; 60% fine to coarse grained sand; 25% fines; 15% fine grained gravel; very dense; moist; no PHCO; no staining	0920 B-2-20		50-3"	0.0	20	

Refusal @ ~20.5' BGS. Groundwater not encountered.
Hole terminated at 20.25 feet.

PROJECT: **7-Eleven #32291**
LOCATION: **8395 Otay Mesa Rd. San Diego, CA**
PROJECT NUMBER: **185850175**

WELL / PROBEHOLE / BOREHOLE NO: **B-3** PAGE 1 OF 1

Stantec

DRILLING: STARTED **8/30/13** COMPLETED: **8/30/13**
INSTALLATION: STARTED **8/30/13** COMPLETED: **8/30/13**
DRILLING COMPANY: **ABC Liovin Drilling**
DRILLING EQUIPMENT: **CME 85**
DRILLING METHOD: **Hollow Stem Auger**
SAMPLING EQUIPMENT: **Split Spoon**

NORTHING (ft):
EASTING (ft):
LATITUDE:
LONGITUDE:
GROUND ELEV (ft):
TOC ELEV (ft):
INITIAL DTW (ft): **NE**
BOREHOLE DEPTH (ft): **16.0**
STATIC DTW (ft): **NE**
WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---**
BOREHOLE DIAMETER (in): **5**
LOGGED BY: **J. Fischer**
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
1000		CL	**CLAY WITH SAND** ; CL; 2.5Y 4/2 dark grayish brown; 83.2% fines; 16.8% fine grained sand; medium plasticity; moist; hard; no PHCO; no staining		1000 B-3-2	#200, AL	17 24 36	0.4		
1010 5			...same as above ; 70% fines; 15% fine to coarse grained sand; 15% fine grained gravel; very stiff		1010 B-3-5		10 11 13	1.3	5	
1015			...same as above ; 85% fines; 15% fine grained sand		1015 B-3-7		12 14 17	1.0		Backfilled With Native Soil
1020 10			...same as above ; 75% fines; 10% fine to coarse grained sand; 15% fine grained gravel; hard		1020 B-3-10		12 15 25	1.4	10	
1025 15			...same as above ; 60% fines; 15% fine to coarse grained sand; 25% fine grained gravel		1025 B-3-15		30 50-4"	--	15	
			Rock in shoe							
			Refusal @ ~16' BGS. Groundwater not erncountered. Hole terminated at 16 feet.							
20									20	

PROJECT: **7-Eleven #32291**
LOCATION: **8395 Otay Mesa Rd. San Diego, CA**
PROJECT NUMBER: **185850175**

WELL / PROBEHOLE / BOREHOLE NO:
B-4 PAGE 1 OF 1

Stantec

DRILLING: STARTED **8/30/13** COMPLETED: **8/30/13**
INSTALLATION: STARTED **8/30/13** COMPLETED: **8/30/13**
DRILLING COMPANY: **ABC Liovin Drilling**
DRILLING EQUIPMENT: **CME 85**
DRILLING METHOD: **Hollow Stem Auger**
SAMPLING EQUIPMENT: **Split Spoon**

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): **NE**
STATIC DTW (ft): **NE**
WELL CASING DIAMETER (in): **---**
LOGGED BY: **J. Fischer**

EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): **20.5**
WELL DEPTH (ft): **---**
BOREHOLE DIAMETER (in): **5**
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
1045		SC	**CLAYEY SAND** ; SC; 2.5Y 6/5 light olive brown; 60% fine to coarse grained sand; 40% fines; medium dense; moist; no PHCO; no staining		1045 B-4-2		18 19 14	0.0		
1050 5		CL	**SANDY CLAY** ; CL; 2.5Y 3/3 dark olive brown; 75% fines; 25% fine to coarse grained sand; medium plasticity; hard; moist; no PHCO; no staining		1050 B-4-5	CNSL, MD	18 24 27	0.0	5	
1055			...same as above		1055 B-4-7		25 28 33	0.0		
1105 10			...same as above ; 60% fines; 20% fine to coarse grained sand; 20% fine grained gravel		1105 B-4-10	CNSL, MD	25 29 36	0.0	10	Backfilled With Native Soil
1110 15		GC	**CLAYEY GRAVEL WITH SAND** ; GC; 2.5Y 5/3 light olive brown; 50% fine to coarse grained gravel; 20% fines; 30% fine to coarse grained sand; very dense; dry; no PHCO; no staining		1110 B-4-15		50-4"	0.0	15	
1120 20		SC	**CLAYEY SAND WITH GRAVEL** ; SC; 2.5Y 5/2 light olive brown; 60% fine to coarse grained sand; 30% fines; 10% fine grained gravel; moist; very dense; no PHCO; no staining		1120 B-4-20		50-6"	0.0	20	

Groundwater not encountered.
Hole terminated at 20.5 feet.

APPENDIX B
LABORATORY TEST RESULTS

SUMMARY OF MOISTURE DENSITY TEST RESULTS
ASTM D 2216

Boring Location	Sample Depth (ft)	Wet Density (lb/ft^3)	Dry Density (lb/ft^3)	Moisture Content (percent)
B2-2	2	114.7	106.2	8.0
B4-5	5	124.1	104.5	18.7
B4-10	10	130.4	116.4	12.0

Stantec

Gradation Analysis
ASTM D 422

Project Name 7-Eleven 32291
Source B1-2

Preparation Method ASTM D 1140 Method A
Particle Shape Angular
Particle Hardness Hard and Durable
Sample Dry Mass (g) 421.50
Moisture Content (%) 5.3

Project Number 185850175
Lab ID B1-2
Date Received 09-02-2013
Preparation Date 09-04-2013
Test Date 07-13-2012

Analysis based on total sample.

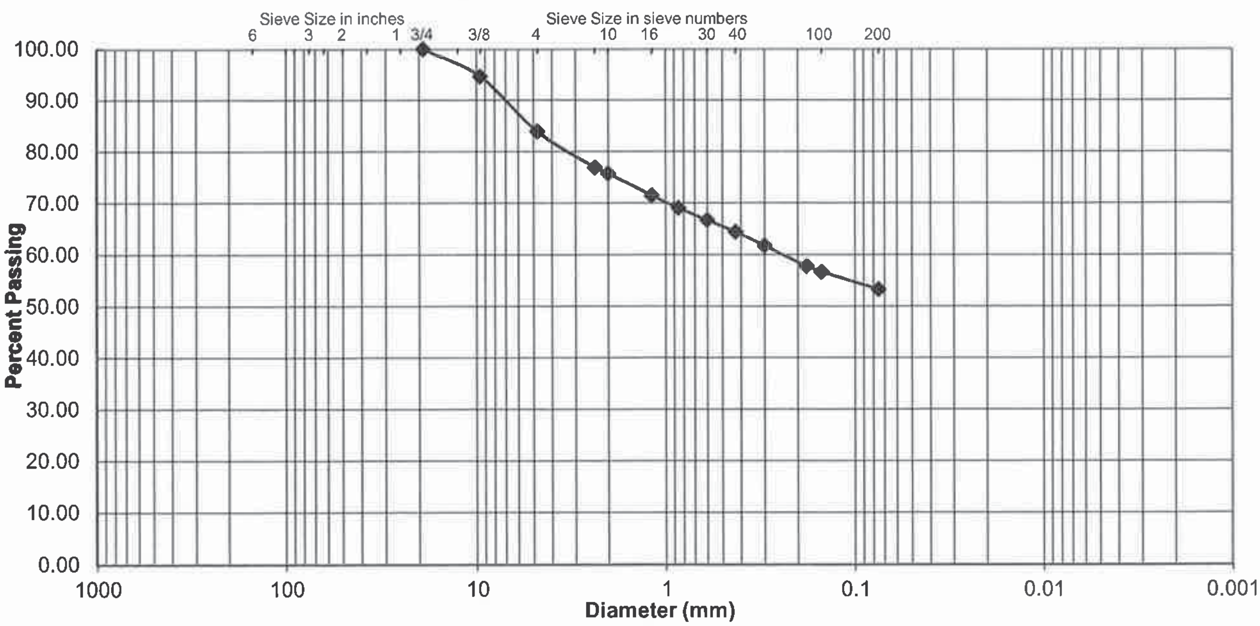
Sieve Size	Grams Retained	% Retained	% Passing
3/4"	0.00	0.0	100.0
3/8"	22.19	5.3	94.7
No. 4	45.01	10.7	84.1
No. 8	29.48	7.0	77.1
No. 10	4.94	1.2	75.9
No. 16	18.18	4.3	71.6
No. 20	10.22	2.4	69.2
No. 30	9.93	2.4	66.8
No. 40	9.55	2.3	64.5
No. 50	11.28	2.7	61.9
No. 80	16.72	4.0	57.9
No. 100	4.62	1.1	56.8
No. 200	14.43	3.4	53.4
Pan	224.95	53.4	---

% Gravel 15.9
% Sand 30.7
% Fines 53.4
Fines Classification CL

D_{10} (mm) N/A
D_{30} (mm) N/A
D_{60} (mm) N/A

Cu N/A
Cc N/A

Particle Size Distribution



Comments

Reviewed By

Stantec

Materials Finer Than 75µm (No. 200) Sieve
ASTM D 1140

Project Name	7-Eleven 32291
Source	B1-7
Preparation Method	ASTM D 1140 Method A

Project Number	185850175
Lab ID	B1-7
Date Received	09-02-2013
Test Date	09-04-2013

Initial Sample Wet Mass (g)	145.49
Initial Oven Dry Sample Mass (g)	115.92
Final Oven Dry Sample Mass (g)	31.56
Materials Finer Than 75µm (No. 200) Sieve (g)	84.36
Percent Finer Than 75µm (No. 200) Sieve (%)	72.8

Moisture Content (%) 25.5

Comments

Reviewed By

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	7-Eleven 32291	Project Number	185850175
Source	B2-5	Lab ID	B2-5
		Date Received	09-02-2013
Preparation Method	ASTM D 1140 Method A	Test Date	09-04-2013

Initial Sample Wet Mass (g)	184.64	Moisture Content (%)	19.7
Initial Oven Dry Sample Mass (g)	154.25		
Final Oven Dry Sample Mass (g)	36.11		
Materials Finer Than 75µm (No. 200) Sieve (g)	118.14		
Percent Finer Than 75µm (No. 200) Sieve (%)	76.6		

Comments

Reviewed By

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	7-Eleven 32291	Project Number	185850175
Source	B2-10	Lab ID	B2-10
		Date Received	09-02-2013
Preparation Method	ASTM D 1140 Method A	Test Date	09-04-2013

Initial Sample Wet Mass (g)	156.25	Moisture Content (%)	23.5
Initial Oven Dry Sample Mass (g)	126.52		
Final Oven Dry Sample Mass (g)	16.48		
Materials Finer Than 75µm (No. 200) Sieve (g)	110.04		
Percent Finer Than 75µm (No. 200) Sieve (%)	87.0		

Comments

Reviewed By

Materials Finer Than 75µm (No. 200) Sieve
ASTM D 1140

Project Name	7-Eleven 32291	Project Number	185850175
Source	B3-2	Lab ID	B3-2
		Date Received	09-02-2013
Preparation Method	ASTM D 1140 Method A	Test Date	09-04-2013

Initial Sample Wet Mass (g)	217.84	Moisture Content (%)	10.2
Initial Oven Dry Sample Mass (g)	197.67		
Final Oven Dry Sample Mass (g)	33.19		
Materials Finer Than 75µm (No. 200) Sieve (g)	164.48		
Percent Finer Than 75µm (No. 200) Sieve (%)	83.2		

Comments

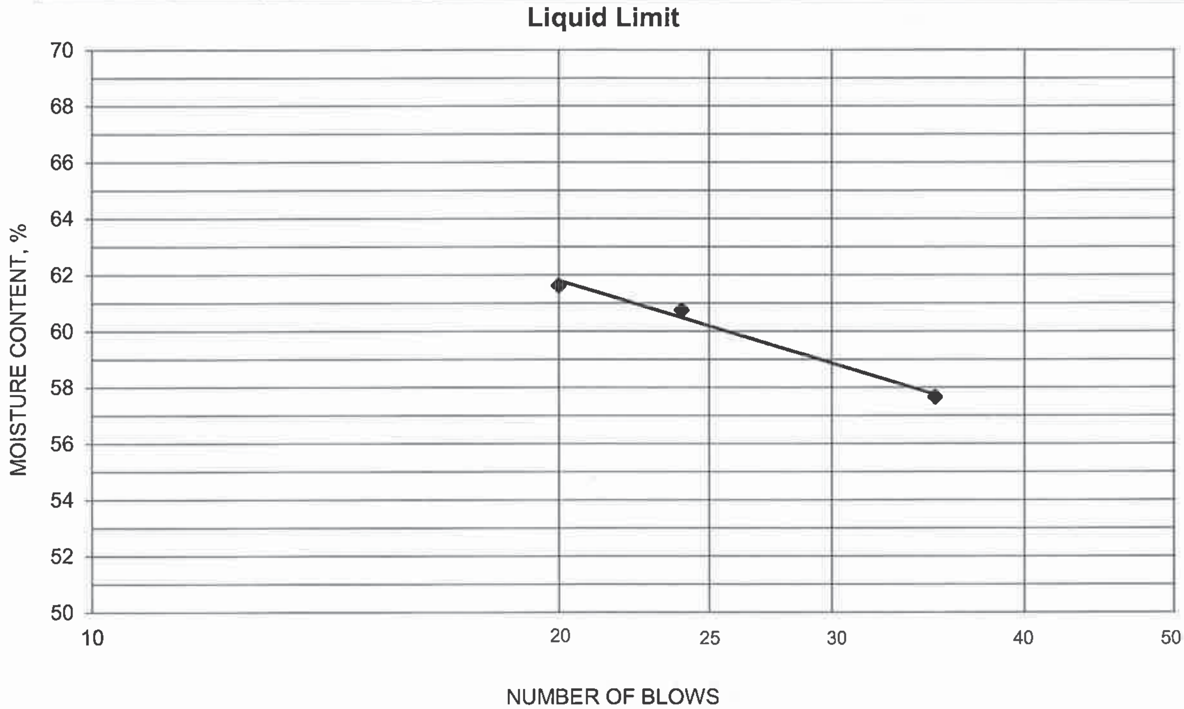
Reviewed By

Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291	Project No.	185850175
Source	B1-7	Lab ID	B1-7
Tested By	MAC Test Method ASTM D 4318	% + No. 40	10
Test Date	09-05-2013 Prepared Dry	Date Received	09-02-2013

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
52.95	41.41	21.40	35	57.7	
55.44	42.67	21.65	24	60.8	
52.45	40.63	21.45	20	61.6	60



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.64	20.70	12.09	22.5	23	37

Remarks: ______________________

Reviewed By ______________

File: 7-eleven_b1-7_al_lab.xlsm Sheet: LIMIT
Preparation Date: 10-1998
Revision Date: 1-2008

Stantec Consulting Services Inc

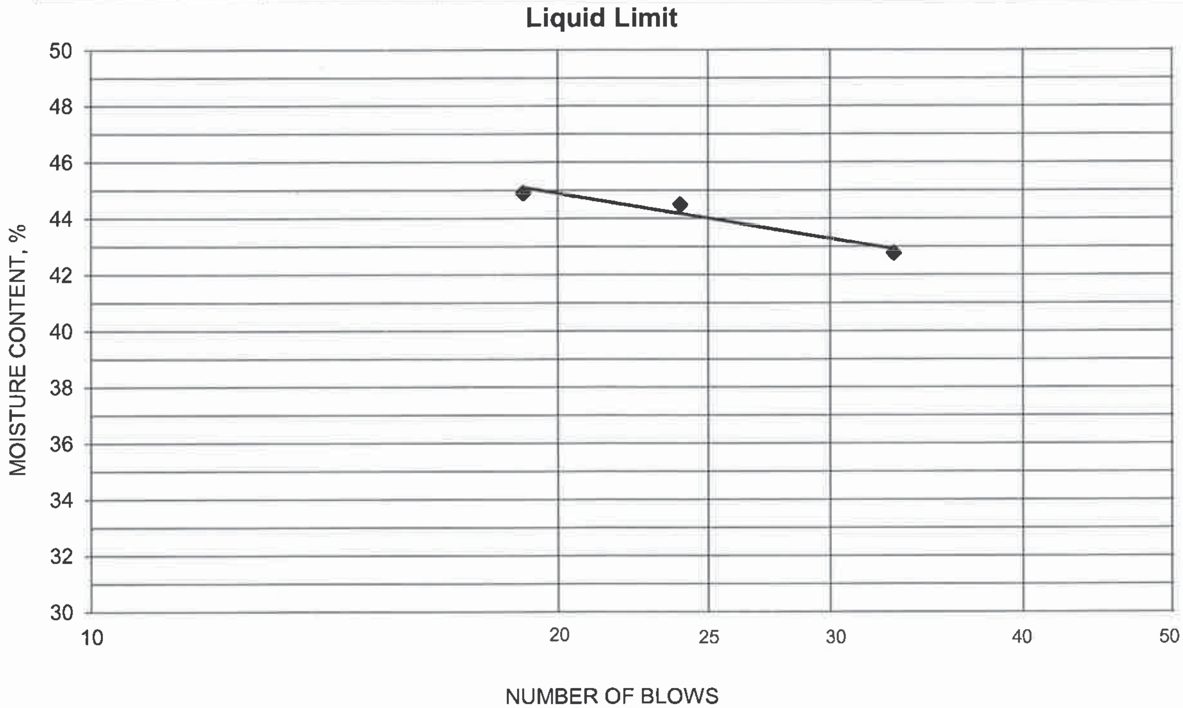
Laboratory Document
Prepared By: JW
Approved By: TLK

Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291	Project No.	185850175
Source	B2-5	Lab ID	B2-5
Tested By	MAC	Test Method	ASTM D 4318
% + No. 40	5		
Test Date	09-05-2013	Prepared	Dry
Date Received	09-02-2013		

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
51.73	42.67	21.49	33	42.8	44
52.56	42.64	20.35	24	44.5	
50.97	41.60	20.74	19	44.9	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.76	21.06	12.10	19.0	19	25

Remarks: ______________________

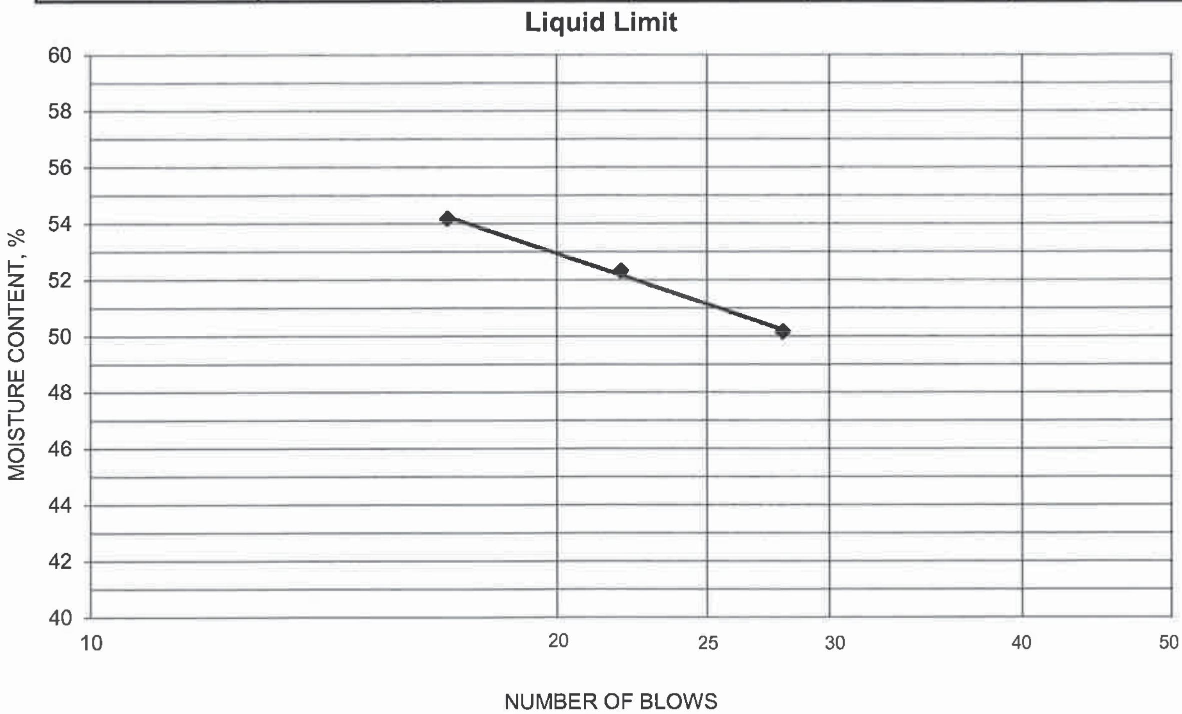
Reviewed By ______________

Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291	Project No.	185850175
Source	B2-10	Lab ID	B2-10
Tested By	MAC	Test Method	ASTM D 4318
% + No. 40	<5		
Test Date	09-05-2013	Prepared	Dry
Date Received	09-02-2013		

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
57.53	45.24	20.74	28	50.2	51
53.30	42.38	21.51	22	52.3	
53.83	42.31	21.05	17	54.2	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.32	20.67	12.10	19.3	19	32

Remarks: ______________________

Reviewed By ______________

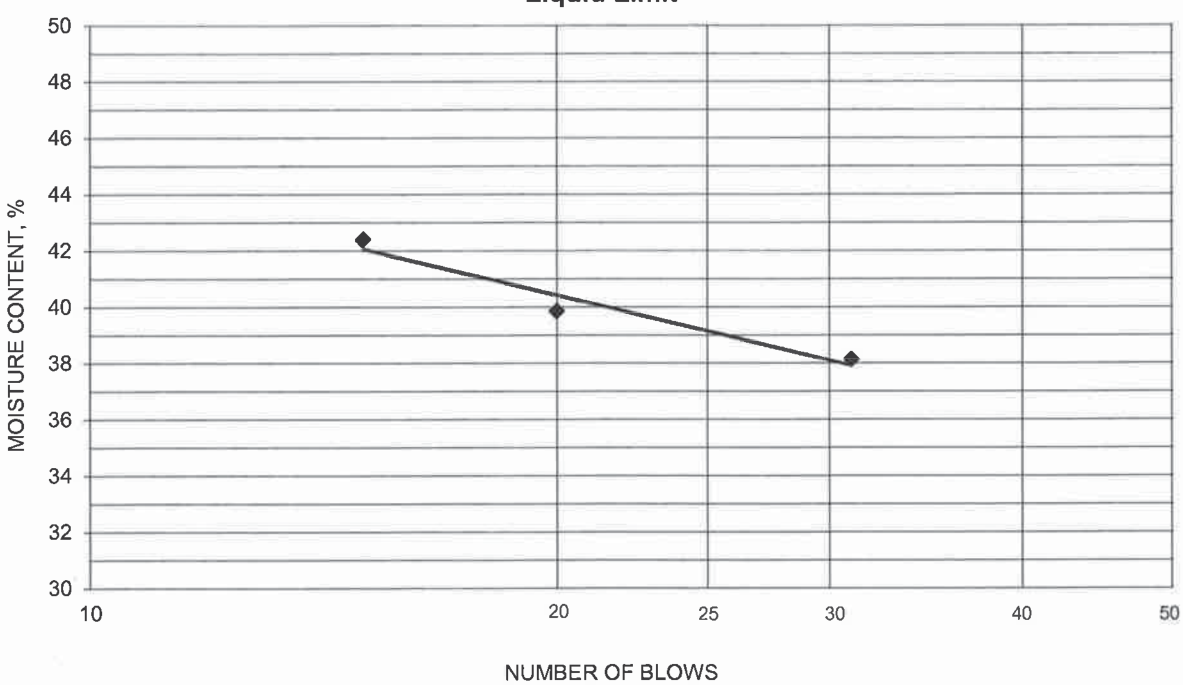
Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291	Project No.	185850175
Source	B3-2	Lab ID	B3-2
Tested By	MAC Test Method ASTM D 4318	% + No. 40	10
Test Date	09-05-2013 Prepared Dry	Date Received	09-02-2013

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
55.56	45.95	20.76	31	38.2	
58.22	47.74	21.45	20	39.9	
55.20	45.14	21.42	15	42.4	39

Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

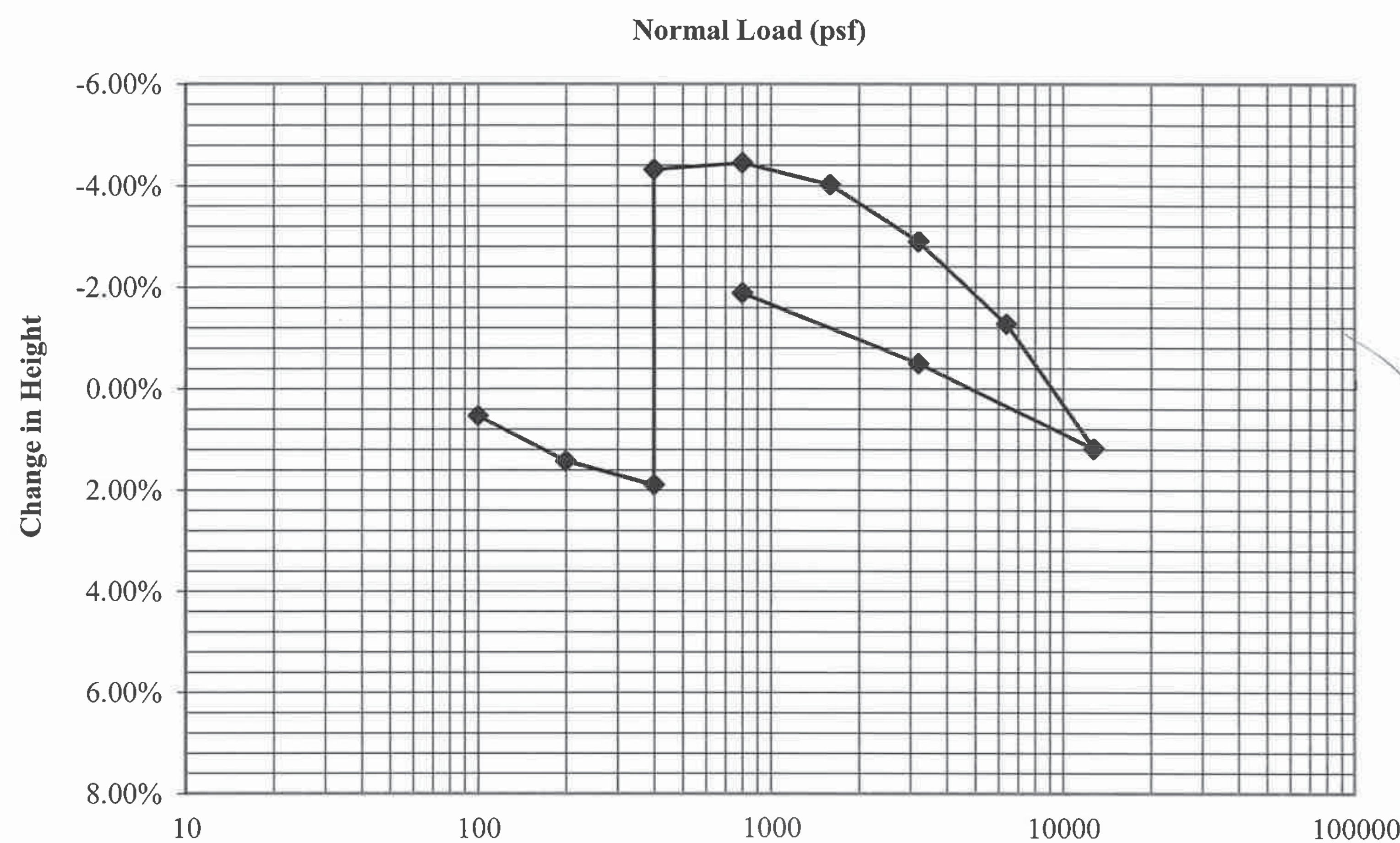
Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.49	20.93	12.09	17.6	18	21

Remarks: ____________

Reviewed By ____________

CONSOLIDATION TEST

7-Eleven 32291
B4-5



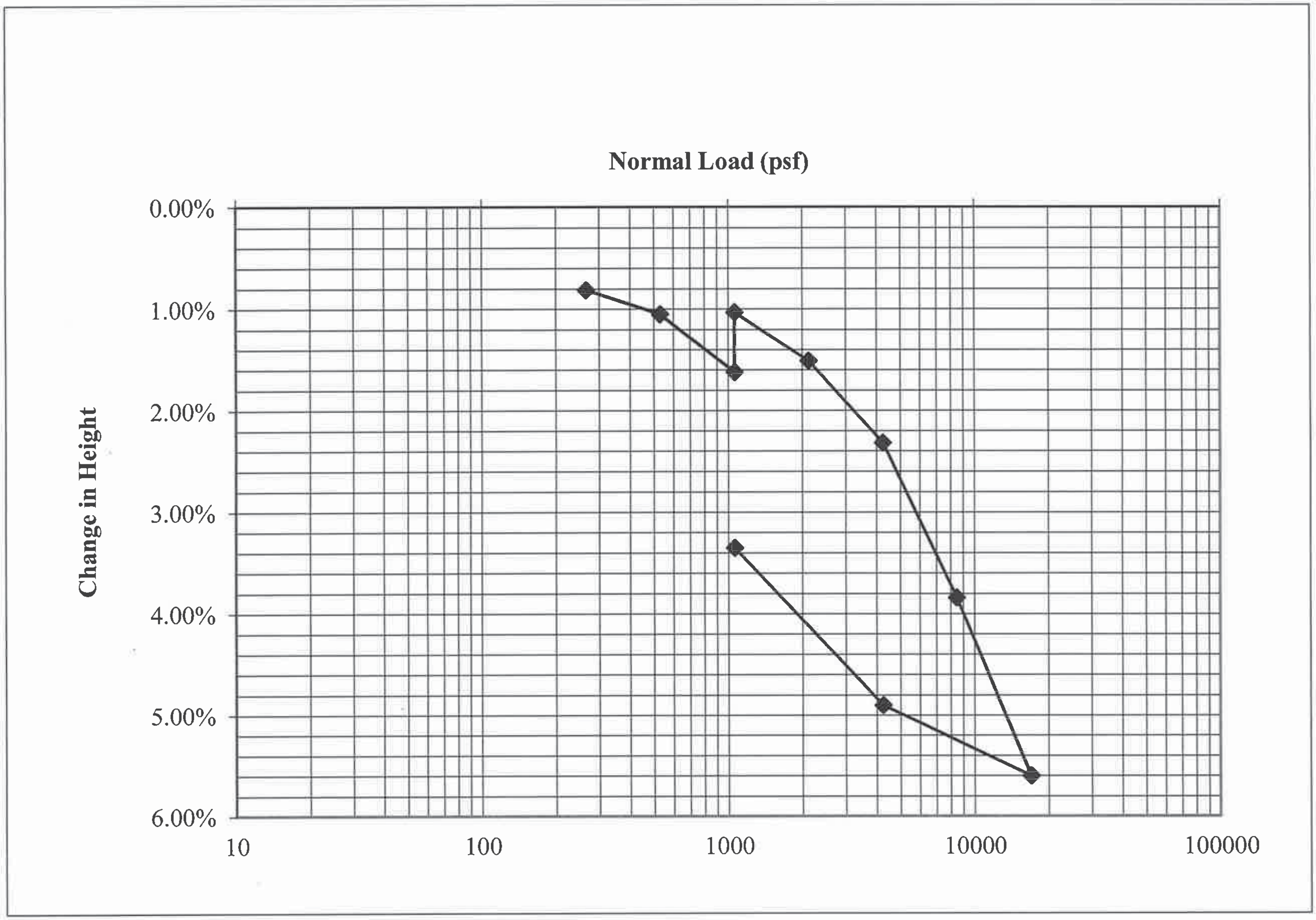
γw=126.7 pcf
m=19.0%

Note: Water was added at 400 psf normal load.

Figure B-1

CONSOLIDATION TEST

7-Eleven 32291
B4-10



Note: Water was added at 1,060 psf normal load.

γw=130.6pcf
m=13.8%

Figure B-1

September 11, 2013

Mr. Jaret Fischer
Stantec Consulting Inc.
25864-F Business Center Drive
Redlands, CA 92374

Subject: **LABORATORY TEST RESULTS**
185850175 – 7-Eleven 32291 Expansion
Converse Project No. 13-81-113-58

Dear Mr. Fischer:

Presented below are the results of the laboratory tests that you requested for the above-referenced project. We received the samples from your office on September 3, 2013. The following tests were performed in accordance with the relevant standard:

- One (1) Expansion Index Test (ASTM D4829)
- One (1) Soil Corrosivity Test (Caltrans 643, 422, 417, and 532) performed by Schiff Associates
- One (1) Maximum Dry Density and Optimum Moisture Content (ASTM D1557)
- One (1) Direct Shear Tests (ASTM D3080). No testing performed on samples No. B1-5 and B1-10 due to high gravel content. For reference, please see photos No. 1 and No. 2 below.

We appreciate the opportunity to be of continued service to Stantec Consulting Inc. If you should have any questions or need additional information, please feel free to contact us at (909) 796-0544.

CONVERSE CONSULTANTS

Harihar Shiwakoti, P. E.
Project Engineer

JR/kvg

Encl: Table No. 1, *Expansion Index Test Results*
Table No. 2, *Corrosivity Test Results*
Drawing No. 1, Moisture-Density Relationship Results
Drawing No. 2, *Direct Shear Test Results*

Table No. 1, Expansion Index Test Result

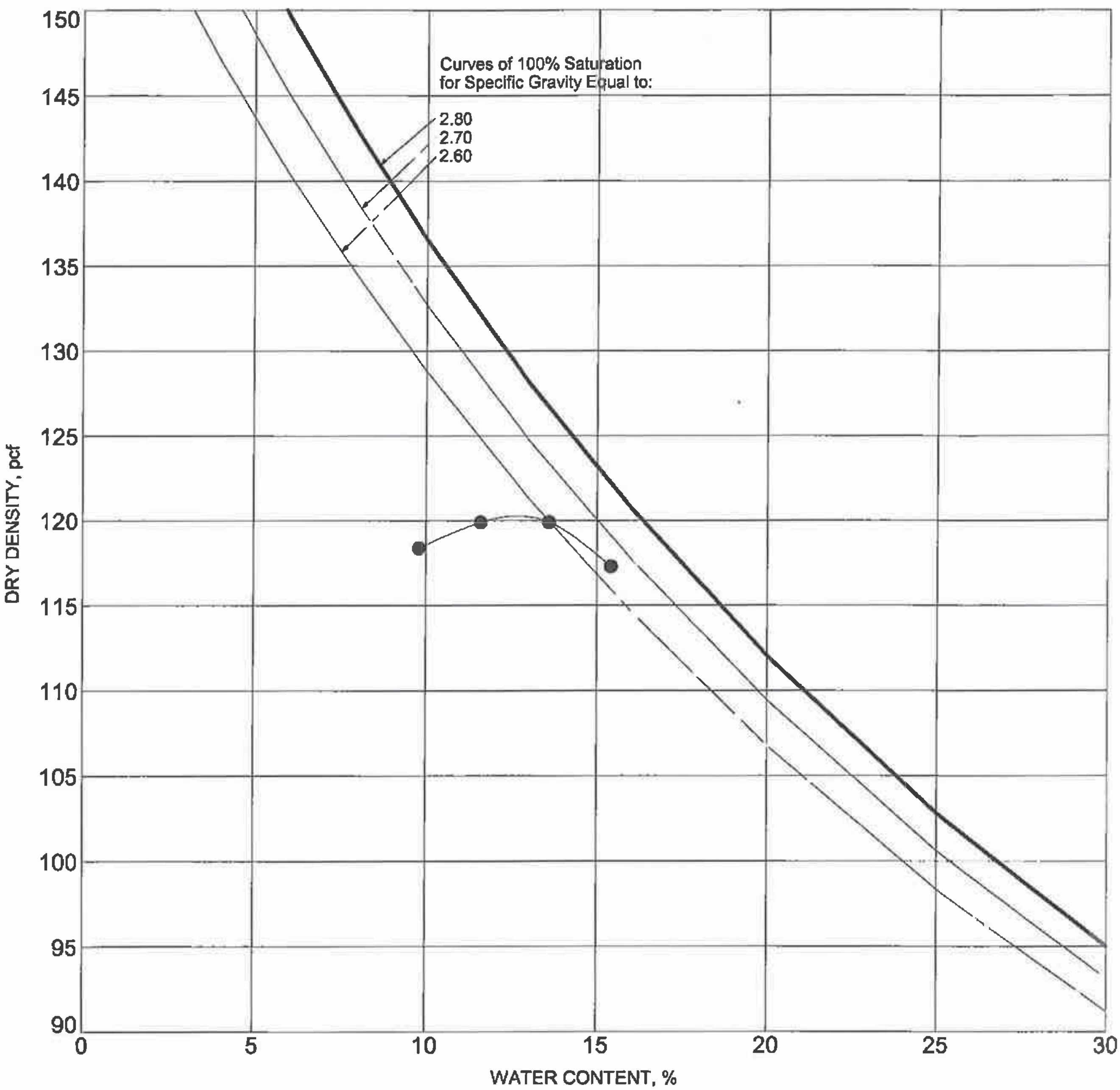
Sample ID	Sample Type	Soil Description	Expansion Index	Expansion Potential
B2	BULK	Fat Clay (CH)	92	High

Table No. 2, Corrosivity Test Results

Boring No./Sample	pH	Soluble Sulfate (CA 417) (ppm)	Soluble Chlorides (CA 422) (ppm)	Saturated Resistivity (CA 643) Ohm-cm
B4/BULK	7.4	250	878	348

Photo #1, Sample No. B1-5

Photo #2, Sample No. B1-10



SYMBOL	BORING NO.	SAMPLE TYPE	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	B2	BULK	Sandy Fat Clay (CH)	D1557 - B	13	120

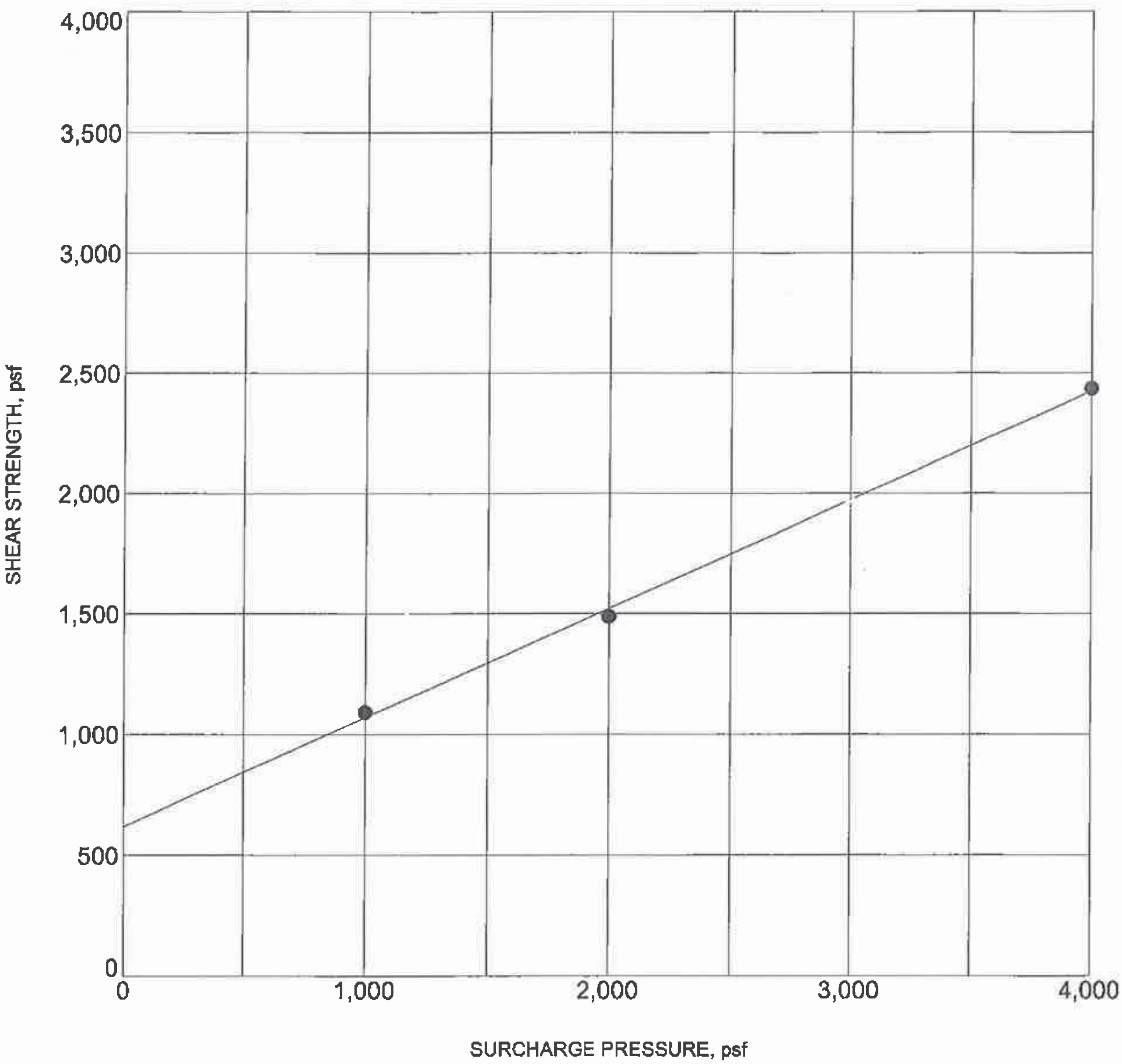
MOISTURE-DENSITY RELATIONSHIP RESULTS

Converse Consultants

7-Eleven 32291 Expansion
Job No 185850175
For: Stantec Consulting

Project No. 13-81-113-58

Drawing No. 1



BORING NO. :	B2	DEPTH (ft) :	7
DESCRIPTION :	Fat Clay (CH)		
COHESION (psf) :	600	FRICTION ANGLE (degrees):	24
MOISTURE CONTENT (%) :	24.4	DRY DENSITY (pcf) :	97.7

NOTE: Ultimate Strength.

DIRECT SHEAR TEST RESULTS

Converse Consultants

7-Eleven 32291 Expansion
Job No 185850175
For: Stantec Consulting

Project No.	Drawing No.
13-81-113-58	2

APPENDIX C
GENERAL EARTHWORK AND GRADING SPECIFICATIONS

APPENDIX C

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

These general earthwork and grading specifications are for the grading and earthwork shown on the approved grading plan(s) and/or as indicated in this geotechnical report(s). These specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these general specifications. However, observations of the earthwork by the Project Soils Engineer during the course of grading could result in new or revised recommendations that could supersede these specifications or the recommendations of the geotechnical report(s).

PROJECT SOILS ENGINEER

The owner shall contract with the Project Soils Engineer of Record. The Project Soils Engineer shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of grading. During the grading and earthwork operations, the Project Soils Engineer shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Project Soils Engineer shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include natural ground after it has been cleared for receiving fill but before fill is placed, bottoms of overexcavation areas, all key bottoms, and benches made on sloping ground to receive fill.

The Project Soils Engineer shall observe the moisture conditioning and processing of the areas to receive fill materials and the fill materials themselves, and perform compaction testing of fill to determine the level of compaction. The responsibility of achieving soil compaction is that of the Contractor. The Project Soils Engineer shall provide the test results to the owner and the Contractor on a routine and frequent basis to assist the Contractor in determining the best means to achieve the required soil compaction. The Project Soils Engineer shall schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing as informed by Contractor of the anticipated schedule. The purpose of these specifications, the term Project Soils Engineer includes workman working under the authority of the Project Soils Engineer.

EARTHWORK CONTRACTOR

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture conditioning, processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the plans and specifications.

If requested by the Owner, the Contractor shall prepare and submit to the owner and the Project Soils Engineer a work plan that indicates the sequence of earthwork grading and the estimated quantities of daily earthwork contemplated for the Site prior to commencement of grading. The Contractor shall inform the Owner and the Project Soils Engineer of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that the Project Soils Engineer is aware of all grading operations. The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Project Soils Engineer, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Contractor shall rectify the unsatisfactory conditions to the satisfaction of the Project Soils Engineer. If the unsatisfactory conditions cannot be rectified to the satisfaction of the Project Soils Engineer, the Owner should stop construction until an adequate plan to remedy the conditions can be established.

GUIDE SPECIFICATIONS

The following items of these guide specifications should be regarded as the minimum requirements for general earthwork and grading operations. On a Site specific basis, local governmental agencies may have more stringent requirements than specified herein.

1. All filling and backfilling operations should conform with applicable local building and safety codes and to the rules and regulations of those governmental agencies having jurisdiction over the subject construction. The earthworks contractor is responsible to notify governmental agencies, as required, and the Project Soils Engineer at the initiation of grading, and any time that grading operations are resumed after an interruption. Each step of the grading should be approved in a specific area by the Project Soils Engineer and, where required, by the applicable governmental agencies before proceeding with subsequent work.
2. Prior to the start of grading, the Site shall be cleared and grubbed of all debris, vegetation, deleterious materials, surface obstructions and loose unapproved fill shall be removed and disposed offsite. Any existing irrigation, drainage or utility lines, or other abandoned subsurface structures shall be removed, destroyed or abandoned in compliance with specifications and recommendations from the Project Soils Engineer, owner or local governing agencies. The Project Soils Engineer shall evaluate the extent of these removals depending on Site specific conditions. No fill material or soil supporting structural fill material shall contain more than five percent organic materials (by volume). As allowed by the Owner, unsuitable materials may potentially by utilized in non-structural fill areas.
3. Existing ground that has been declared satisfactory to support fill by the Project Soils Engineer shall be scarified a minimum depth of six inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.
4. In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, uncontrolled artificial fill, soft, loose, dry, saturated, spongy, organic-rich, highly fractured, porous, collapsible or otherwise unsuitable ground shall be overexcavated to competent ground, as evaluated by the Project Soils Engineer during grading. Competent ground may include dense, non-porous natural deposits of soil.

5. If potentially hazardous materials are encountered, the Contractor shall stop work in the area and the Project Environmental Engineer or Project Soils Engineer shall be informed immediately for proper evaluation and handling of these materials prior to continuing work in that area.
6. Where fill is placed on a sloping ground that is steeper than 20 percent, the ground to receive fill shall be prepared by proper keying and benching. The Project Soils Engineer shall determine the vertical and horizontal sizes of the keys and benches. In general, the lowest keyway shall be constructed under the toe of the fill at least 15 feet in width and at least two feet deep, into competent material, as evaluated by the Project Soils Engineer. Subsequent benches shall be excavated a minimum height of four feet into competent material or as otherwise recommended by the Project Soils Engineer. Fill placed on sloping ground that is flatter than 20 percent shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.
7. All areas to receive fill, including processed areas, overexcavation bottoms, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested to evaluate if geotechnically suitable materials have been exposed.
8. Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan or as recommended by the Project Soils Engineer. The Project Soils Engineer may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on the actual subsurface conditions encountered during grading. A registered land surveyor/civil engineer shall survey all subdrains after installation and prior to burial for line and grade.
9. Material to be used as fill shall be approved by the Project Soils Engineer and shall be essentially free of organic matter and other deleterious substances. Soils of poor quality, such as those with unacceptable gradation, expansive potential (import soils with an expansion index greater than 20), or low strength shall be placed in areas acceptable to the Project Soils Engineer and/or mixed with other soils to achieve satisfactory fill material.
10. Oversize material defined as rock, or other irreducible material with a maximum dimension greater than three inches, shall not be buried or incorporated in the fill unless the Project Soils Engineer specifically accepts the placement methods. If approved by the Project Soils Engineer, placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill.
11. If importing of fill material is required for grading, proposed import material shall meet the requirements specified herein. The potential import source shall be given to the Project Soils Engineer at least two working days before importing begins so that its suitability can be determined and appropriate tests can be performed.
12. Approved fill material shall be placed in areas prepared to receive fill in near-horizontal layers not exceeding eight inches in loose thickness. The Project Soils Engineer may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture content throughout. Thinner layers of soil may be necessary if the Contractor is unable to achieve the required compaction.
13. Fill soils shall be moisture conditioned (e.g. watered, dried back, blended, and/or mixed, as necessary) to attain a relatively uniform moisture content near the optimum. The maximum dry density and optimum soil moisture content of fill materials shall be performed in accordance with ASTM Test Method D 1557.
14. After each layer has been moisture-conditioned, mixed, and evenly placed, the soil shall be uniformly compacted to not less than 90 percent of maximum dry density, unless otherwise specified in the approved geotechnical report(s). The contractor shall utilize

equipment that is sized to efficiently achieve the specified level of compaction in a uniform manner. The contractor's earthwork operations should not result in movement or damage to completed work.

15. Field tests for moisture content and relative compaction of the fill soils shall be performed by the Project Soils Engineer in accordance with ASTM standards or as required by local governmental agencies. The location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Tests shall be taken at intervals not exceeding two feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. The Contractor shall allow the Project Soils Engineer a safe means to adequately test fill construction. If the Contractor achieves substandard compaction, the contractor shall adjust the earthwork operations (which may include additional compactive energy, adjustment of moisture content, thinner soil lifts, uniform soil placement, etc.) to meet the project specifications.
16. Wherever, in the opinion of the Project Soils Engineer or Owner, an unstable condition is being created by cutting or filling, the work shall not proceed in that area until an investigation has been made and the grading recommendations revised, if necessary.

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APPENDIX B

GEOTECH REPORT

GEOTECHNICAL INVESTIGATION REPORT

7-Eleven Store No. 32290
Expansion
8395 Otay Mesa Road
San Diego, California

Prepared for:
7-Eleven, Inc.
330 East Lambert Road, Suite 150
Brea, CA 92821

Prepared by:
Stantec Consulting Corporation
25864-F Business Center Drive
Redlands, CA 92374
(909) 335-6116 tel
(909) 335-6120 fax
Stantec JN: 185850175

September 13, 2013

Prepared by:

LICENSED PROFESSIONAL ENGINEER
JARET FISCHER
C 80383
EXP. 3/31/2015
CIVIL
STATE OF CALIFORNIA

Jaret Fischer, P.E.
Associate Engineer

Reviewed by:

Kevin Miskin, P.E.
Principal Engineer

September 13, 2013

Ms. Georgina Davila
7-Eleven, Inc.
330 East Lambert Road, Suite 150
Brea, California 92821

RE: GEOTECHNICAL INVESTIGATION REPORT
7-Eleven Store No. 32290 Expansion
8395 Otay Mesa Road
San Diego, California

Dear Ms. Davila,

Pursuant to the request of 7-Eleven, Inc., Stantec Consulting Services Inc. (Stantec) is pleased to present the attached Geotechnical Investigation for the 7-Eleven Store Number 32290 expansion, located at 8395 Otay Mesa Road, in the city of San Diego, California.

This investigation was performed in general accordance with Stantec's standard protocol for geotechnical investigations. The objective of the geotechnical investigation was to assess the soil conditions underlying the Site and make geotechnical recommendations for design and construction of the proposed development, which includes a new fuel dispenser island canopy and two new diesel underground storage tanks (USTs).

Based upon the results of this investigation, development of the Site is geotechnically feasible provided that the recommendations presented herein are implemented in the design and construction of the project.

- The native subsurface soils encountered below the site were composed of various mixtures and combinations of interbedded layers of low to high plasticity clay (CL and CH USCS soil types), sand (SC USCS soil type), and gravel (GC USCS soil type) from the ground surface to the maximum depth of exploration (approximately 20.5 feet below the ground surface (bgs)).

- Near surface clay soils exhibit high expansion potential based on expansion index and consolidometer testing.

- Removal of near surface expansive soils will be required in the structural areas to reduce the potential for differential settlement.

The complete findings of this investigation and recommendations for Site development are presented in the attached report. It is our pleasure to be of service to you and we look forward to providing the 7-Eleven, Inc. with future engineering services. Should you have any questions regarding the information contained in the attached report, please contact the undersigned at your convenience.

Respectfully submitted,
Stantec Consulting Services Inc.

Jaret Fischer, P.E.
Associate Engineer

Enclosure: Geotechnical Investigation Report

cc: Mr. Pat McConnell
Stantec Consulting Services Inc.
7179 Aero Drive
San Diego, California 92123

Facility: 7-Eleven 32291
Location: 8395 Otay Mesa Road
San Diego, California

Consultant: Stantec
Stantec JN: 185850175

REPORT SUMMARY

Footing Bearing Pressures	- Canopy Foundations	2,500 psf
Passive Lateral Pressures	- Canopy Foundations	250D psf/ft
Coefficient of Friction	- Canopy Foundations	0.30

Expansive Soils — x Yes o No

Expansion Potential (EI = 92) — o V. Low o Low o Medium **x High** o V. High

R-Value — 30
(presumes 2.5 feet of non-expansive fill below pavement section)

Truck Traffic	(TI = 9.0)	6.0" AC / 10.0" AB
Truck Traffic	(TI = 9.5)	6.0" AC / 12.0" AB
Truck Traffic	(TI = 10.0)	7.0" AC / 11.0" AB

Artificial Fill	o Yes	x No
Relatively Loose Near-Surface Soils	o Yes	x No
Groundwater Within 20 Feet of Surface	o Yes	x No
Monitoring Well Installed	o Yes	x No
Hydrocarbons Detected	o Yes	x No
Existing Underground Tanks (on vacant portion of Site)	o Yes	x No
Existing Structures (on vacant portion of Site)	o Yes	x No

Special Considerations:

- To provide uniform support for the proposed pavement area, removal and replacement of the existing highly expansive subgrade soils will be required to a minimum depth of 3 feet below the bottom of the pavement section. Alternatively, subgrade soils in the upper 3 fet may be treated using lime (or other stabilizing compound).

- Design and construction considerations will be necessary for expansive soils.

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1.0 INTRODUCTION

1.1 AUTHORIZATION AND LIMITATIONS

This report presents the results of a geotechnical investigation performed at the request of 7-Eleven, Inc., by Stantec Consulting Services (Stantec), for the 7-Eleven Store Number 32290, located at 8395 Otay Mesa Road, in the city of San Diego, California. This report has been prepared for 7-Eleven, Inc. and their project design consultants to be used solely in the design of the proposed project, as described herein. This report may not contain sufficient information for other uses or the purposes of other parties.

1.2 PURPOSE AND SCOPE OF WORK

The objective of this investigation was to assess the nature and engineering properties of the encountered subsurface soils and to provide geotechnical design recommendations for Site development, which includes a new fuel dispenser island canopy and two new underground storage tanks (USTs). The scope of work was performed in general accordance with Stantec's standard protocol for geotechnical assessments, and included the following tasks:

- Review available subsurface information for the Site,
- Drill, log and sample four soil borings,
- Perform soil mechanics laboratory testing on select soil samples,
- Evaluate geotechnical properties of soils pertinent to the design and construction of the proposed development, and
- Summarize findings, conclusions, and recommendations in a report.

1.3 SITE LOCATION

The Site is located at 8395 Otay Mesa Road, in the city of San Diego, California. The Site is bounded by the existing 7-Eleven facility followed by Otay Mesa Road followed by vacant land to the north, La Media Road followed by vacant land to the east, Otay Mesa Center Road followed by a used automotive dealership to the south, and retail businesses and an automotive repair facility to the west. The Brownfield Municipal Airport is located approximately 0.25 miles northwest of the Site.

1.4 SITE DESCRIPTION

The Site is rectangular in shape, is approximately 1.3 acres in size, and is currently vacant land covered with knee high weeds and shrubs and a perimeter security fence.

The existing 7-Eleven retail gasoline facility, located north of the Site, includes a convenience store building, one fuel dispenser island canopy, two underground storage tanks (USTs), asphaltic concrete paved parking and driving areas, and several small landscaped areas.

2.0 PROJECT DESCRIPTION

Harrison French and Associates, LTD, of Bentonville, Arkansas provided the preliminary development layout for the proposed project. The proposed development will consist of a new fuel dispenser island canopy and two new USTs. The Site location and the layout of the proposed structures are shown on Figure 2.

There were no building and grading plans or design loads available at the time of this report. Based on our experience with similar projects and the available information, it is assumed that the canopy is typically founded on square or round column footings, approximately four feet in width/diameter and embedded a minimum of seven feet below adjacent grade. The foundation loads for the proposed structure was estimated for the purpose of this report at less than 20 kilopounds (kips) for canopy column loads. If actual design loading conditions differ from those indicated above, the recommendations of this report should be re-evaluated and are subject to change.

Based upon Stantec's review of the existing Site topography, it is assumed that the final surface elevations will not vary more than 0.5 to 1.0 foot from existing grades and that minor grade changes will be made for the purpose of establishing Site drainage. Stantec recommends that the final grading plan be provided to the Project Soils Engineer for review. The recommendations of this report are subject to change based upon review of the final grading plan.

3.0 SUBSURFACE INVESTIGATION

3.1 PRE-DRILLING PROCEDURES

Underground Service Alert (USA) was notified several days prior to commencing drilling activities to identify any public utilities that may conflict with the proposed boring locations. In addition, potential conflict with underground utilities was prevented by conducting a geophysical survey and manually augering the upper five feet of soil at each proposed soil boring location, prior to drilling.

3.2 HOLLOW STEM AUGER DRILLING

Four hollow stem auger (HSA) soil borings were drilled on August 30, 2013, by ABC Liovin Drilling (ABC) under the direction of a Stantec field engineer. ABC drilled the soil borings using a CME 85 HSA drill rig. All drilling and soil sampling were performed under the general guidance of ASTM D 6151 (Standard Practice for Using Hollow-Stem Augers (HSA) for Geotechnical Exploration and Soil Sampling).

The HSA soil borings drilled for this geotechnical investigation were advanced using eight-inch outside diameter auger, to a maximum depth of approximately 20.5 feet below the ground surface (bgs), at the location shown on Figure 2. The rationale for placement of the borings was to locate at least one boring in the vicinity of each of the proposed structures to investigate the underlying subsurface conditions.

At each boring location, drilling was initiated by pushing the lead HSA auger below the ground surface and rotating at a low velocity. Firm downward pressure and low rotation velocity were maintained in the beginning to produce a straight borehole. Once a straight hole was initiated and the HSA auger appeared clear of potential underground utilities, rotation velocity and downward pressure were increased. The rotation velocity and downward pressures were adjusted during drilling to optimize penetration rates with appropriate drill cutting return up the HSA auger flight. Additional five-foot sections of HSA auger flight were attached to the drill column to achieve the desired drilling/sampling depths.

When the desired sampling depth was achieved, the bottom of the borehole was cleaned by slowly rotating the auger with minimal downward pressure. When the borehole was sufficiently clean, soil samples were collected as described in the section below.

Following completion of drilling and soil sampling, the borings were abandoned by removing the auger and/or sampling equipment from the borehole and subsequently backfilling with the soil cuttings.

3.3 SPLIT SPOON SOIL SAMPLING

A Stantec field engineer or geologist was onsite to supervise field operations, log subsurface soil conditions, and to collect soil samples for physical and chemical analysis. Soil samples were collected using a California Modified (CM) and Standard Penetration Test (SPT) split-spoon samplers, under the general guidance of ASTM D 1586 (Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils), 3550 (Standard Practice for Ring-Lined Barrel Sampling of Soils) and 6066 (Standard Practice for Determining the Normalized

Penetration Resistance of Sands for Evaluation of Liquefaction Potential). The CM sampler is approximately 18-inches long by 2.5 inches inside diameter (ID). The SPT sampler is approximately 18-inches long by 1.5 inches ID. The samplers were driven at approximately five-foot intervals with a 140-pound hammer, free-falling 30 inches. Unless otherwise indicated on the boring logs, the samplers were advanced 18 inches at each sample interval and the blow counts required to advance the sampler each six-inch drive length were recorded on the boring logs. The blow counts are used in the evaluation of the consistency of the soils and are correlated to various engineering properties.

Unless otherwise indicated on field boring logs, soil sampling was performed at approximately five-foot intervals, to the total depth of exploration, to develop a description of the subsurface stratigraphy and to collect samples for potential geotechnical testing. The observed soils in soil samples and drill cuttings were classified in accordance with the Unified Soil Classification System, under the guidance of ASTM D 2488-00 (Standard Practice for Description and Identification of Soils [Visual-Manual Method]).

Geotechnical samples were collected from the CM and SPT samplers. Six relatively undisturbed brass rings were carefully removed from the CM sampler, placed in a plastic sleeve and sealed with plastic end caps. Electrical tape was used to secure the end caps to the plastic sleeve to preserve natural moisture content. Disturbed samples were also collected from the lowermost brass tube of the SPT sampler. The soil was extruded from the brass tube and placed in a sealed plastic bag. Geotechnical ring and bulk samples were labeled and transported to a soil mechanics laboratory for physical testing. The CM soil samples were securely packed with foam or other shipping materials to minimize sample disturbance, under the guidance of ASTM D 4220-00 (Standard Practice for Preserving and Transporting Soil Samples).

3.4 LABORATORY SOIL TESTING

The following laboratory tests were performed on samples collected at the Site either in general accordance with the American Society for Testing and Materials (ASTM) or contemporary practices of the soil engineering profession:

- <u>In-Situ Moisture and Density (ASTM D 2216)</u>: In-situ moisture and density are calculated by weighing and measuring the drive samples obtained from the borings to determine their in-place moisture and density. These results are used to analyze the consistency of the subsurface soils.
- <u>Direct Shear Test (ASTM D 3080)</u>: The tests were performed on an undisturbed sandy soil sample in order to obtain the soil shear strength values, which are among the basic soil parameters that are used to estimate soil bearing capacity, slope stability and lateral earth pressures.
- <u>No. 200 Sieve Wash (ASTM D 1140)</u>: This test is used to evaluate the distribution of soil grain sizes finer than the 0.075 mm (no. 200 sieve) and is used in soil classification and assessment of soil engineering behavior.
- <u>Sieve Analysis (ASTM D-422 and ASTM C-136):</u> This test is used to evaluate the distribution of soil grain sizes, which constitute the soil fabric and is used in soil classification and assessment of soil engineering behavior.
- <u>Atterberg Limits (ASTM D 4318)</u>: The Atterberg Limits are utilized to classify fine-grained soils and correlate them to specific engineering properties. The Atterberg limits are composed of the liquid limit, and the plastic limit. The liquid limit is the moisture

where the soil changes from a plastic to a liquid state and the plastic limit is the moisture content where the soil changes from a semi-solid state to a plastic state.

- Consolidation Tests (ASTM D 2435): One-dimensional consolidation tests were conducted to evaluate soil compressibility and estimate the potential settlement of the structures. A one-inch thick sample contained in a 2.5-inch diameter ring was subjected to various load increments. The compression under each load increment was recorded and plotted against the logarithm of applied effective stress.
- Expansion Index (ASTM D 4829 and UBC Standard 18-2): This test is performed on a near surface bulk sample, remolded to approximately 50 percent saturation, to determine the expansion potential of the soil when fully saturated.
- Maximum Dry Density and Optimum Moisture Content (ASTM D 1557): The compaction curve defines the relationship between water content and dry unit weight of soils compacted under modified compaction effort. The maximum dry density and optimum water content are used to determine the relative density of existing soils and to determine the level of compaction during grading activities.
- Chemical Tests for Corrosion Potential (Applicable EPA, ASTM or local test methods): The red-ox potential, pH, water extractable sulfates, water extractable chlorides, sulfides, and resistivity were evaluated in a near surface soil sample.

The laboratory results of all laboratory tests are presented in Appendix B and significant results are discussed in detail in Section 5.0.

4.0 REGIONAL GEOLOGIC CONDITIONS

4.1 REGIONAL PHYSIOGRAPHIC CONDITIONS

The Site is located in the southwestern portion of the Peninsular Range Geomorphic Province in the southwestern part of California. The region is separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault. The Site resides in the portion of the Province drained by the Tijuana River.

The California Highway 905 is located approximately 0.1 miles south of the Site, Mexico is located approximately 1.3 miles south of the site, the Tijuana River is located approximately 5.1 miles west-southwest of the Site, and the Pacific Ocean is located approximately 10 miles west of the Site. Based on interpretation of the ground surface elevation contour lines drawn on the topographic map, the Site is located at an elevation of approximately 485 feet above mean sea level (msl). The topography in the vicinity of the Site is variable, with a regional slope to the southwest toward the Tijuana River (USGS, 1955).

4.2 REGIONAL GEOLOGY

The regional surficial geology is described as Lindavista Formation deposits of the Pleistocene or Pliocene era consisting of reddish-brown interbedded sandstone and conglomerate overlain by alluvial fan deposits consisting of clay, silt, sand, and gravel (USGS, 2004).

The Site is located in Southern California, a seismically active area. The nearest recently active fault includes the Rose Canyon Fault located approximately 13.9 miles northwest of the Site. The Site is not located within an Alquist-Priolo Earthquake Fault Zone (CDMG, 2000).

4.3 REGIONAL HYDROGEOLOGY

According to the California Department of Water Resources (CDWR) Bulletin 118 Report, the Site is not located within a water bearing formation. The closest groundwater basin is the Tijuana Groundwater Basin, located southwest of the site in the South Coast Hydrologic Region. The basin is approximately 11.6 square miles and is bounded by the international border with Mexico to the south, semi-permeable Pleistocene and Pliocene marine deposits to the east and north, and the Pacific Ocean to the west (DWR, 2006).

Based on groundwater monitoring data from a site located approximately 1.5 miles southeast of the Site, the depth to first groundwater is approximately 39 feet bgs. Groundwater in the site vicinity flows to the west-southwest toward the Tijuana River (SECOR, 2005). Groundwater was not encountered during this investigation.

5.0 SUBSURFACE SOIL AND GROUNDWATER CONDITIONS

5.1 STANTEC FIELD INVESTIGATION

The subsurface soils encountered during Stantec's field exploration were consistent with the soil deposits encountered in the site vicinity. The native subsurface soils encountered below the site were composed of various mixtures and combinations of interbedded layers of low to high plasticity clay (CL and CH USCS soil types) with variable amounts of sand (SC USCS soil type) and clayey gravel (GC USCS soil type) from the ground surface to the maximum depth of exploration. The clays typically exhibited medium to high plasticity and were hard to very hard in consistency in the upper 15 feet bgs.

The subsurface soils were difficult to penetrate at depths between 15.5 feet bgs and 20.5 feet bgs, where drilling refusal was encountered. The borings did not cave to the maximum depth of exploration. Groundwater was not encountered during this investigation.

A more detailed description of the interpreted soil profile in each borehole is presented on boring logs in Appendix A. The groupings represent the predominant materials encountered in soil samples. Also, stratification lines indicate the approximate boundary between the major material types. The actual transition may be gradual.

6.0 REGIONAL SEISMIC CONDITIONS

6.1 REGIONAL SEISMICITY

The Site, as is most of California, is located in a seismically active area. The estimated distance of the Site to the nearest expected surface expression of nearby faults is presented in the table below.

Fault	Fault Type (1)	Distance (miles) (2)	Maximum Moment Magnitude (1)
Rose Canyon	B	13.9	6.5
Coronado Bank	B	18.0	7.4
Elsinore - Julian	A	43.0	7.1
Elsinore – Coyote Mountain	B	44.5	6.8
Earthquake Valley	B	46.3	6.5
Newport – Inglewood (offshore)	B	48.9	6.5

1. From ICBO, 1997.
2. Measured from Maps of Known Active Faults Near Source Zones in California and Adjacent Portions of Nevada (ICBO, 1997), CDMG, 1993 and 1994.

6.2 CALIFORNIA BUILDING CODE SEISMIC CRITERIA

Based on the specified design criteria of the 2010 California Building Code, the following Site seismic information may be considered for earthquake design.

Design Criteria	Design Value
Site Class	C
Mapped Spectral Response Acceleration for Short Periods S_s (g)	0.949
Mapped Spectral Response Acceleration for 1-second Period S_1 (g)	0.349
Maximum Considered Earthquake Spectral Acceleration for Short Periods S_{MS} (g)	0.968
Maximum Considered Earthquake Spectral Response Acceleration for 1-second Periods S_{M1} (g)	0.507
5-percent Design Spectral Response Acceleration for Short Periods S_{DS} (g)	0.645
5-percent Design Spectral Response Acceleration for 1-second Periods S_{D1} (g)	0.338
Site Coefficient F_a	1.02
Site Coefficient F_v	1.451

6.3 REGIONAL SEISMIC HAZARDS

6.3.1 Fault Rupture Hazard

The Site is not located within a currently mapped California Earthquake Special Studies Fault Zone. As described above, the nearest fault is the Rose Canyon Fault, located approximately 13.9 miles northwest of the Site. Based on available geologic data, there is low potential for surface fault rupture from the Rose Canyon Fault and other nearby active faults propagating to the surface of the Site during the design life of the proposed development.

6.3.2 Liquefaction Hazard

Liquefaction Background

Liquefaction of saturated sandy soils is generally caused by the sudden decrease in soil shear strength due to vibration. During cyclic shaking, typically caused by an earthquake, the soil mass is distorted, and interparticulate stresses are transferred from the soil particles to the pore water. As pore pressure increases the bearing capacity decreases and the soil may behave temporarily as a viscous fluid (liquefaction) and, consequently, loses its capacity to support the structures founded thereon.

Engineering research of soil liquefaction potential (Seed, et. al., 1982 and 1985) indicates that generally three basic factors must exist concurrently in order for liquefaction to occur, namely:

- A source of ground shaking, such as an earthquake, capable of generating soil mass distortions.
- A relatively loose sandy soil fabric exhibiting a potential for volume reduction.
- A relative shallow groundwater table (within approximately 50 feet below ground surface) or completely saturated soil conditions that will allow positive pore pressure generation.

Screening Investigation for Liquefaction Potential

The Site is not located within a current, mapped California Liquefaction Hazard Zone. However, a site specific liquefaction evaluation was conducted in accordance with the guidance outlined in Special Publication 117: Guidelines for Evaluating and Mitigating Seismic Hazards in California (CDMG, 1997). The in-situ characteristics of the subsurface soils were analyzed, and similarities and dissimilarities of the subsurface conditions were compared with those sites where the subsurface soils are known to have liquefied.

Following the specified steps of the Screening Investigation (CDMG, 1997), a historic high groundwater elevation was evaluated for the liquefaction analysis. Based on available groundwater information in the Site vicinity, the historic high groundwater depth at the Site is anticipated to be approximately 39 feet bgs (SECOR, 2005). As a result of the historic high depth to groundwater and the relatively dense and hard soil conditions, the onsite soils do not appear to be susceptible to soil liquefaction. As such, onsite subsurface soils were eliminated from further engineering evaluation of potential liquefaction hazard (CDMG, 1997).

6.3.3 Seismic Induced Settlement in Unsaturated Zone

Near surface soils in the unsaturated zone consist of relatively stiff to hard clayey soils with variable amounts of sand. These sediments may be prone to significant volumetric strain as a result of cyclic loading from seismic activity. Although difficult to predict, surface settlements in the unsaturated zone were estimated to be approximately 0.2 inches, following methods promulgated by Tokimatsu and Seed (1987).

7.0 ENGINEERING RECOMMENDATIONS

Based upon the results of the investigation and previous geotechnical documentation, development of the Site is geotechnically feasible provided that the recommendations presented herein are implemented in the design and construction of the project. Due to highly expansive soils beneath the Site, removal and replacement or treatment of the near surface soils will be required in the structural areas to provide a relatively uniform and firm engineered soil blanket for support of the proposed development and reduce the potential for differential settlement. Specific recommendations are included in the following sections.

7.1 EXPANSIVE SOIL POTENTIAL

The near-surface soils encountered in the proposed building area are predominantly clay with variable amounts of sand and silt. Based on visual classification during field sampling, near surface soils exhibit variable plasticity and consistency. Expansion index (EI) testing was conducted on a composite bulk sample representing the upper 5 feet of boring B2. The reported EI was 92, which indicates that near surface exhibit high expansion potential, as defined by the 2010 California Building Code (CBC, 2010). In addition, expansion tests were conducted in the consolidometer by preloading relatively undisturbed samples to the approximate overburden pressure and then saturating the sample prior to additional loading. The results show variable levels of expansion ranging from approximately 0.6 to 6 percent and expansion pressures ranging from approximately 1,000 to 10,000 pounds per square foot (psf). Design for expansive soils is recommended.

If imported soils are used for earthwork at the Site, Stantec recommends that the proposed soils be tested for expansion potential prior to import. To avoid the use of expansive soils on the project, all imported soils must be pre-approved by the Project Soils Engineer prior to utilization.

7.2 CORROSIVE SOIL POTENTIAL

Chemical tests to evaluate corrosive soil potential of near surface soils were performed by Converse Consultants. The test results indicated pH of 7.4, water soluble sulfate = 250 ppm, soluble chlorides = 878 ppm, and saturated resistivity = 348 ohm-cm.

Based on the test results, the near surface soils are expected to exhibit a low corrosion potential for concrete and a very severe corrosion potential for steel. As a result, corrosion resistant piping is recommended for the Site. Stantec recommends that corrosion resistant piping (e.g. non-metallic pipe), be utilized for all subsurface utilities in contact with onsite soils. Cathodic protection may be utilized in lieu of the corrosion resistant piping if properly designed and approved by an engineer competent in corrosion design.

Material Type	Degree of Corrosivity	Recommendation
Concrete	Low	--
Steel	Very Severe	Corrosion Resistant Piping

If imported soil is utilized for earthwork at the site, Stantec recommends that the proposed soils be tested for corrosive soil potential prior to import. To avoid the use of corrosive soils on the project, all imported soils should be pre-approved by the Project Soils Engineer prior to utilization. Proposed import soils exhibiting corrosion potential for steel or concrete should not be utilized at the Site unless appropriate mitigation measures are implemented.

7.3 FOUNDATION DESIGN

7.3.1 Canopy Foundations

Due to the highly expansive soils beneath the site, the typical footings for the canopy columns, as described in Section 2.0, are not expected to provide adequate support for the proposed structure. Stantec recommends canopy column footings consisting of reinforced concrete drilled piers having a minimum diameter or width of 4.0 feet and embedded at a minimum depth of 13 feet bgs. Based on these assumptions and the anticipated subsurface conditions, the soils at the foundation level will be supported on allowable bearing pressure of 2,500 psf may be used in the design. For resistance to transient lateral loads, such as earthquake and wind loads, the aforementioned allowable bearing capacity may be increased by one-third.

Canopy foundation structural design for resistance of lateral forces may be based upon a passive lateral earth pressure/resistance (equivalent fluid pressure) of 250D psf/ft, where D corresponds to the embedment depth of the footing in feet.

7.3.2 Foundation Construction

Proper footing construction will be dependant upon the quality of the contractor's workmanship. Any deviation from the methods proposed herein should be approved by the Project Soils Engineer prior to implementation.

It is essential that the Project Soils Engineer review and approve the foundation plans and observe the building foundation excavations prior concrete placement, to verify that the contractor utilizes proper construction methods, and that foundation excavations are adequately sized and founded on suitable material. The bottom of the foundation excavations should be drilled or excavated in such a way as to minimize slough, debris and unsuitable material from collecting at the bottom of the excavation. The contractor should provide the Project Soils Engineer a safe method to verify that a competent footing bottom has been achieved by the contractor.

7.3.3 Estimated Foundation Settlement

Assuming that the engineering recommendations of this report will be strictly adhered to, static foundation settlement for the above described building foundations is estimated to be less than one-inch total and less than one-half inch differential over a lateral distance of 50 feet, between similarly loaded footings of the same size.

7.4 SLOPES

Although pertinent grading information is currently unavailable, no permanent slopes are anticipated for the project. The stability of slopes, if any, should be evaluated when design-grading information becomes available.

7.5 UNDERGROUND STORAGE TANK EXCAVATION

Temporary excavations should be shored or excavated with a slope not steeper than 1:1 (horizontal to vertical) in accordance with OSHA and 7-Eleven requirements. The OSHA and 7-Eleven requirements for excavation should be strictly adhered to ensure safety of personnel and equipment around the excavations. The excavations should be inspected by the Project Civil Engineer to verify safe working conditions on a regular basis (at least daily). Surcharges from soil stockpiles, structures, vehicles, etc., should not be positioned within ten feet of the excavation.

To maintain the necessary lateral support for canopy footings, it is imperative that the UST excavation sidewalls not encroach within a distance equal to the embedment depth of the proposed canopy footings. If necessary, shoring should be installed within the excavation adjacent to the canopy footing locations. In addition, the UST excavation should be completely backfilled prior to excavating the canopy footings.

Where shoring is used in lieu of sloping the temporary excavation sidewalls, the shoring design may be tentatively based upon the following lateral earth pressures (equivalent fluid pressures with a triangular pressure distribution), up to an excavation depth of 16 feet bgs.

Active:	40H psf/ft,
Passive:	400H psf/ft,
At-rest:	60H psf/ft,

where H is the height of the sheet shoring. These equivalent fluid pressures should be applied as a triangular pressure distribution behind the shoring and assume level backfill behind and in front of shoring. For braced shoring, a uniform rectangular pressure distribution should be used from top to bottom of the shoring equivalent to the following,

Bracing:	25H psf/ft

where H is the depth of the excavation.

The earth pressures are based on drained conditions (no hydrostatic or buoyant conditions) and the assumption that the shoring is vertical (no batter), and the ground surface in front and behind the shoring is level. For different geometries or conditions, the above lateral earth pressures should be reevaluated. The earth pressures indicated above do not include a safety factor, therefore the shoring design should include an appropriate safety factor for the overall performance of the system.

At this point, no permanent retaining walls or shoring systems are anticipated at the site. If retaining walls or permanent shoring is incorporated in the design and development of the property, geotechnical recommendations for design (e.g. lateral earth pressures) should be evaluated based on the specific geometry and loading conditions for the proposed structures.

7.6 UNDERGROUND STORAGE TANK BACKFILL

Backfilling adjacent to and over the top of the underground storage tanks should be performed in accordance with the tank manufacturer's specifications. If gravel is used for tank backfill, in lieu of compacted soil backfill, the backfill should be covered with a structural concrete slab designed to bridge over localized settlement of the gravel backfill.

Depending on the actual quality and composition of the gravel utilized to backfill the USTs, little or no mechanical compactive effort is generally necessary to place the gravel in a dense manner. However, to increase the density of the gravel backfill and to mitigate future settlement of the gravel backfill the following methods should be utilized. During gravel placement, the backfill should be flooded with water to ensure complete saturation of the gravel. The water shall be applied in a manner, quantity and rate that is sufficient to thoroughly saturate the thickness of the lift being densified. In addition to flooding the gravel backfill, the gravel shall be further compacted with a concrete vibrator or mechanical compaction equipment, at approximate two to three foot intervals. Backfilling adjacent to and over the top of the underground storage tanks should be performed in accordance with the tank manufacturer's specifications.

7.7 TENTATIVE PAVEMENT DESIGN

As indicated in Section 7.8.2, pavement will be supported on at least 3 feet of non-expansive fill soil. Tentative pavement structural sections were developed based on an assumed laboratory subgrade resistance R-Value of 30 for the non-expansive fill soil and assumed loading conditions for an equivalent single axle load (ESAL) value comparable to the referenced traffic index (TI) values below, and an AASHTO Reliability Factor of 75%. An appropriate TI value should be determined by the project civil or traffic engineer. The design below applies to pavement sections supported on compacted and treated existing onsite soils or non-expansive import fill. An R-Value test should be completed on the imported or treated soil to confirm the pavement design prior to placement of aggregate base.

7.7.1 Asphalt Concrete Pavement

Traffic Type	Truck Traffic TI = 9.0	Truck Traffic TI =9.5	Truck Traffic TI =10.0	Truck Traffic TI =10.5
Asphalt Concrete (AC) Thickness	6.0"	6.0"	7.0"	7.0"
Aggregate Base (AB) Thickness	10.0"	12.0"	11.0"	13.0"

*AASHTO Highway Design Method

7.7.2 Portland Cement Concrete Pavement

Proposed portland cement concrete pavement areas that are subject to vehicle traffic loads, should have a minimum thickness of 8 inches. In addition, a minimum of 6 inches of aggregate base should be placed beneath all concrete pavement areas subject to traffic loads. The structural section should be underlain by 3 feet of non-expansive soil.

The concrete should exhibit a minimum compressive strength of 3,500 psi and approximate three-inch slump (± one inch). Minimum reinforcement for concrete pavement in vehicle traffic areas should include a synthetic fibermesh or #4 reinforcing bars, placed each way on 12-inch centers. Additional reinforcement and/or slab thickness may be appropriate as structural conditions dictate, as determined by the project structural or civil engineer. Other design and construction criteria for concrete floor slabs, such as mix design, strength, durability, reinforcement, joint spacing, etc., should conform to current specifications promulgated by the American Concrete Institute (ACI).

7.7.3 Subgrade and Aggregate Base Specifications

The above pavement sections are based upon the assumption that the subgrade is uniformly compacted to at least 90 percent relative compaction with uniform moisture content of 120 percent of the optimum moisture content, as determined by ASTM Standard D 1557, to a depth of 2.5 feet at the time of base placement. Final geotechnical observation and testing of subgrade should be performed just prior to the placement of aggregate base or concrete.

The pavement sections should be reinforced and placed over 2.5 feet of non-expansive soil. The non-expansive soil fill may consist of import fill with an EI of less than 20, or on-site clay treated with lime or other stabilizing agent as described in Section 7.8.2.

The aggregate base for asphalt concrete and concrete pavement sections should meet Caltrans specifications for Class 2 base or the specifications for Processed Miscellaneous Base (PMB), as contained in the Standard Specifications for Public Works Construction. Aggregate base should be compacted to at least 95 percent relative compaction with uniform moisture content near the optimum percent, as determined by ASTM Standard D 1557. Final geotechnical observation and testing of aggregate base should be performed just prior to the placement of asphalt concrete.

It is possible that Site grading, use of import fill soils, utility line backfilling, and/or underground storage tank installation could alter the distribution of near-surface materials, thus requiring re-evaluation of the recommended pavement structural sections. If any of the above named conditions occurs, which warrants a re-evaluation of the pavement sections, Stantec recommends that at least one near surface soil sample be tested to evaluate the subgrade R-value, following rough grading of the pavement areas. If necessary, the above described tentative pavement structural section recommendations should be revised based on the actual R-value test result.

7.8 SITE GRADING

Site grading will be required to achieve plan grades and to provide uniform support for foundations, slabs-on-grade and pavement. Recommendations for Site grading are presented in the following subsections, while general guide specifications for earthwork and grading are presented in Appendix C. The following grading recommendations are subject to change, depending on the actual earthwork required for the project and the subsurface conditions encountered during grading.

7.8.1 Clearing and Grubbing

The ground surface of the Site should be cleared and grubbed all of vegetation and deleterious materials, prior to grading. Clearing and grubbing is considered complete when soil supporting structural fill material or soil to be excavated as reused as structural fill materials contains less than five percent organic materials (by volume). Excavations created by removing underground structures, construction debris, vegetation roots, contaminated soils, and any other unsuitable materials should be backfilled with clean fill soil and should be compacted in accordance with the requirements presented below.

7.8.2 Removal Requirements

Pavement Areas:

To provide uniform and firm support for the proposed pavement areas, removal and replacement or treatment of the existing soils will be required to a minimum depth of 3 feet below the final subgrade elevation. The removed soils may not be reused onsite unless treated to reduce the expansion index to less than 20. Removal and recompaction for pavement areas should extend horizontally at least two feet beyond the rear curb face or as property line constraints dictate.

The pavement sections should be reinforced and placed over 3 feet of non-expansive soil. The non-expansive soil fill may consist of import fill with an EI of less than 20, or on-site clay treated with lime or other stabilizing agent.

Lime treatment at a rate of 3 to 7 percent is typically used to reduce soil expansion potential. However, expansion index (EI) testing at varying percentages of lime will be required to evaluate the optimum percentage of lime required to reduce the EI to less than 20. If lime treatment is considered feasible, the lime must be thoroughly mixed using a pug mill, other insitu mixing equipment approved by the Soils Engineer (e.g.; Caterpillar RR-250). The mixing method must thoroughly mix the clay with the lime using high speed pulverizer. For insitu mixers, the tines much be sufficiently long to mix the entire thickness of the fill lift (12 inches). Mixing with excavation equipment (i.e.; backhoe, excavator or loader) is not an acceptable method of mixing.

If pavement area recompaction results in substandard relative compaction as a result of unsuitable subsurface conditions, unsuitable areas should be removed to a minimum depth of one foot. Depending on the condition of the subexcavation bottom, additional removal depth may be required. Once a suitable subexcavation bottom is achieved, the exposed surface at the bottom of the subexcavation should be moisture-conditioned to 120 percent of the optimum moisture content and surface compacted to the specified density.

Required Inspection of Subexcavation:

It is imperative that the Project Soils Engineer inspect the bottoms of all subexcavations. As a general rule, a suitable subexcavation bottom should have a minimum dry density of 85 percent of the maximum dry density. Final determination of a suitable subexcavation bottom is at the discretion of the Project Soils Engineer. Should any deeper artificial fill or relatively loose soils, not in conformance with the above described conditions, be encountered within the exposed bottom of the subexcavations, the depth of removal may be extended in accordance with the professional judgment of the Project Soils Engineer.

7.8.3 Placement of Compacted Fill

General guide specifications for placement of fill and backfill are provided in Appendix C. The bottom of subexcavations and areas to receive fill should be scarified to a depth of six inches, moisture conditioned to 120 percent of optimum moisture content and then surface compacted to the relative compaction specified below.

Placement of compacted fill should be performed in thin lifts within two percent (+/-) of the optimum moisture content using mechanical compaction equipment and maintained until after pavement, slabs, or foundations are constructed. Unless specified otherwise, all fill should be compacted to a minimum of 90 percent relative compaction based upon the maximum density obtained in accordance with ASTM Standard D 1557. Gravel should not be used to backfill any excavations onsite without the approval of the Project Soils Engineer. If the Project Soils Engineer approves the use of gravel in excavations, vibratory compaction and "burrito wrapping" in a geosynthetic filter fabric may be required.

During grading, frequent density testing should be performed by a representative of the geotechnical engineer to evaluate compliance with grading specifications. Where testing indicates insufficient relative compaction, additional compactive effort should be applied, with the adjustment of moisture content where necessary, until the required relative compaction is obtained.

7.9 POST INVESTIGATION SERVICES

Post investigation services are an important and necessary continuation of this investigation, and it is recommended that Stantec be retained as the Project Soils Engineer to perform such services to assure adherence with the intent of the geotechnical recommendations presented herein.

Final project grading and foundation plans, foundation details and specifications should be reviewed by Stantec, prior to construction, to confirm that the full intent of the recommendations presented herein have been applied to the designs. Following review of plans and specifications, sufficient and timely observation during construction should be performed to correlate the findings of this investigation with the actual subsurface conditions exposed during construction.

The following should be inspected observed, and tested by the Project Soils Engineer to ensure compliance with the recommendations contained herein.

- Rough Site grading, including the bottom of subexcavations.
- Footing excavations to confirm that the foundation elements are founded in the recommended materials.
- Utility trench backfill.
- Subgrade preparation, base placement and compaction.
- All other items of work requiring an opinion of adequacy from the Project Soils Engineer to be included in a final geotechnical report.

During construction, the Project Soils Engineer and/or their authorized representatives, are present at the Site to provide a source of advice to the client regarding the geotechnical aspects of the project and to observe and test the earthwork. Their presence should not be construed as an acceptance of responsibility for site safety or for the performance of the completed work since it is the sole responsibility of the contractor performing the work to ensure that the work complies with federal, state, and local safety procedures/regulations and with all applicable plans, specifications, ordinances, etc.

8.0 CLOSURE

Our conclusions, recommendations and discussions presented herein are (1) based upon an evaluation and interpretation of the findings of the field and laboratory programs, (2) based upon an interpolation of subsurface conditions between and beyond the explorations, (3) subject to confirmation of the actual conditions encountered during construction, and (4) based upon the assumption that sufficient observation and testing will be provided by Stantec during construction.

Any person using this report for bidding or construction purposes should perform such independent investigations as he deems necessary to satisfy himself as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

This report contains information which is valid as of this date. However, conditions that are beyond our control or that may occur with the passage of time may invalidate, either partially or wholly, the conclusions and recommendations presented herein.

The conclusions of this report are based on an interpolation of subsurface conditions encountered at the boring locations. The actual subsurface conditions at unexplored locations may be different. Consequently, the findings and recommendations of this report will require re-evaluation if subsurface conditions different than stated herein are encountered.

Inherent in most projects performed in the heterogeneous subsurface environment, continuing subsurface investigations and analyses may reveal findings that are different than those presented herein. This facet of the geotechnical profession should be considered when formulating professional opinions on the limited data collected on this project.

The findings and recommendations contained in this report were developed in accordance with generally accepted current professional principles and practice ordinarily exercised, under similar circumstances, by geotechnical engineers and geologists practicing in this locality. No other warranty, expressed or implied, is made.

9.0 REFERENCES

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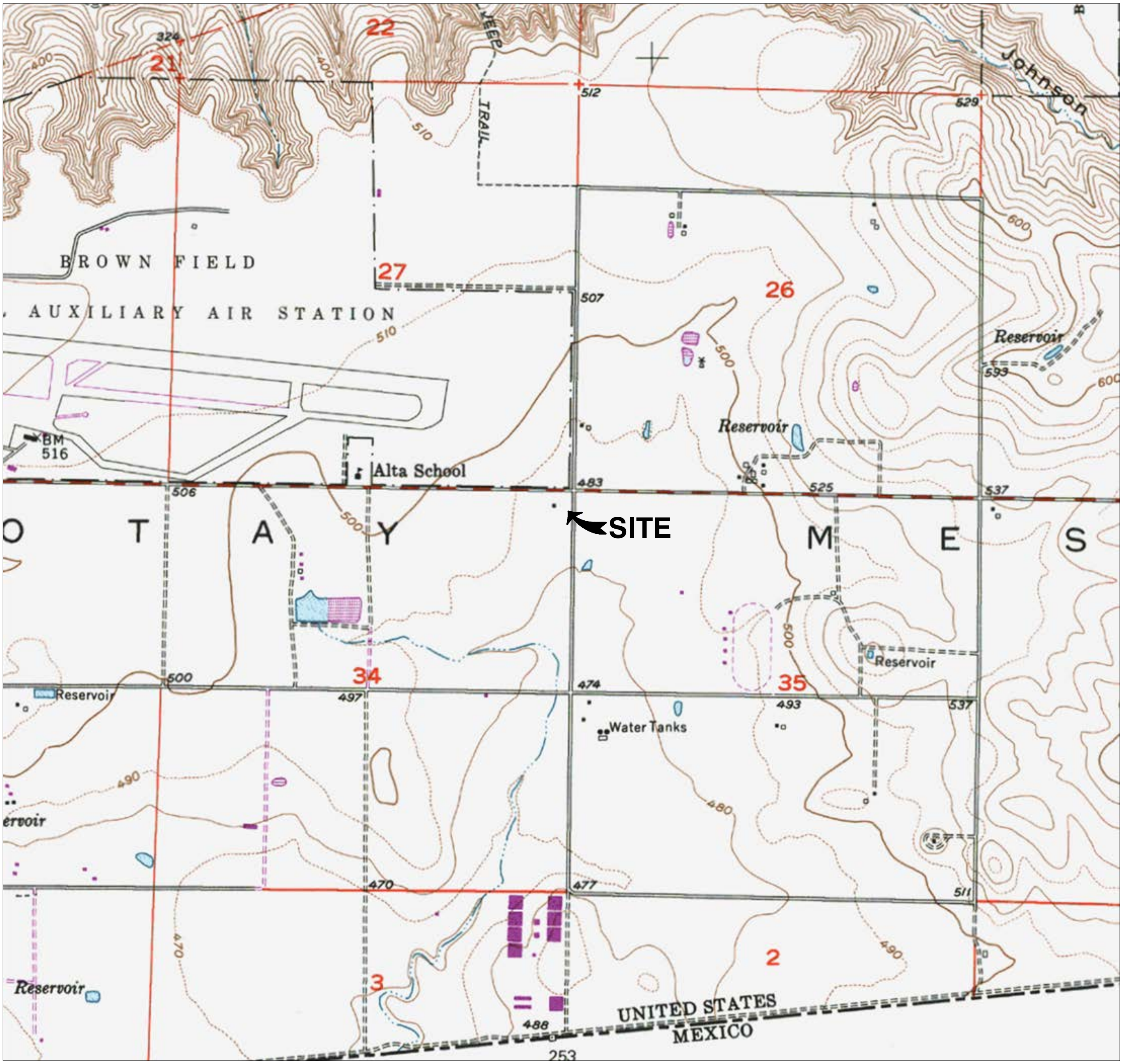
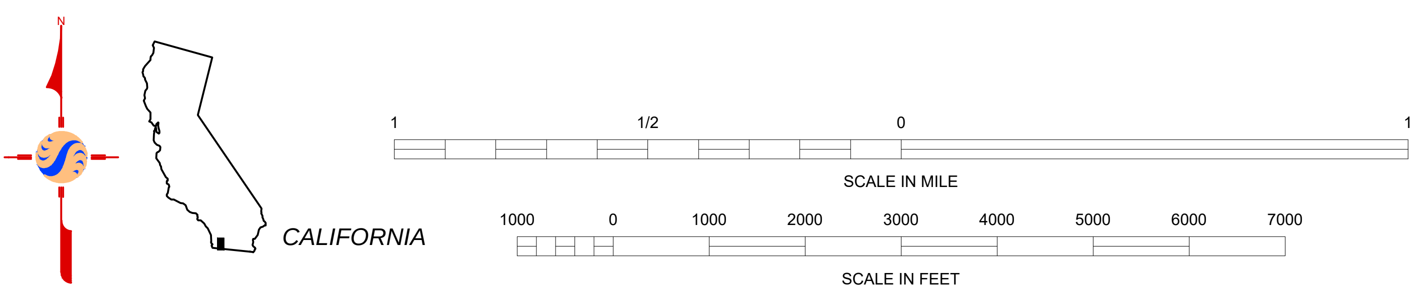
FIGURES





REFERENCE: USGS 7.5 X 15 MINUTE QUADRANGLE; OTAY MESA, 1955, PHOTOREVISED 1971

Stantec
25864-F BUSINESS CENTER DRIVE
REDLANDS, CA 92374
PHONE: (909) 335-6116 FAX: (909) 335-6120

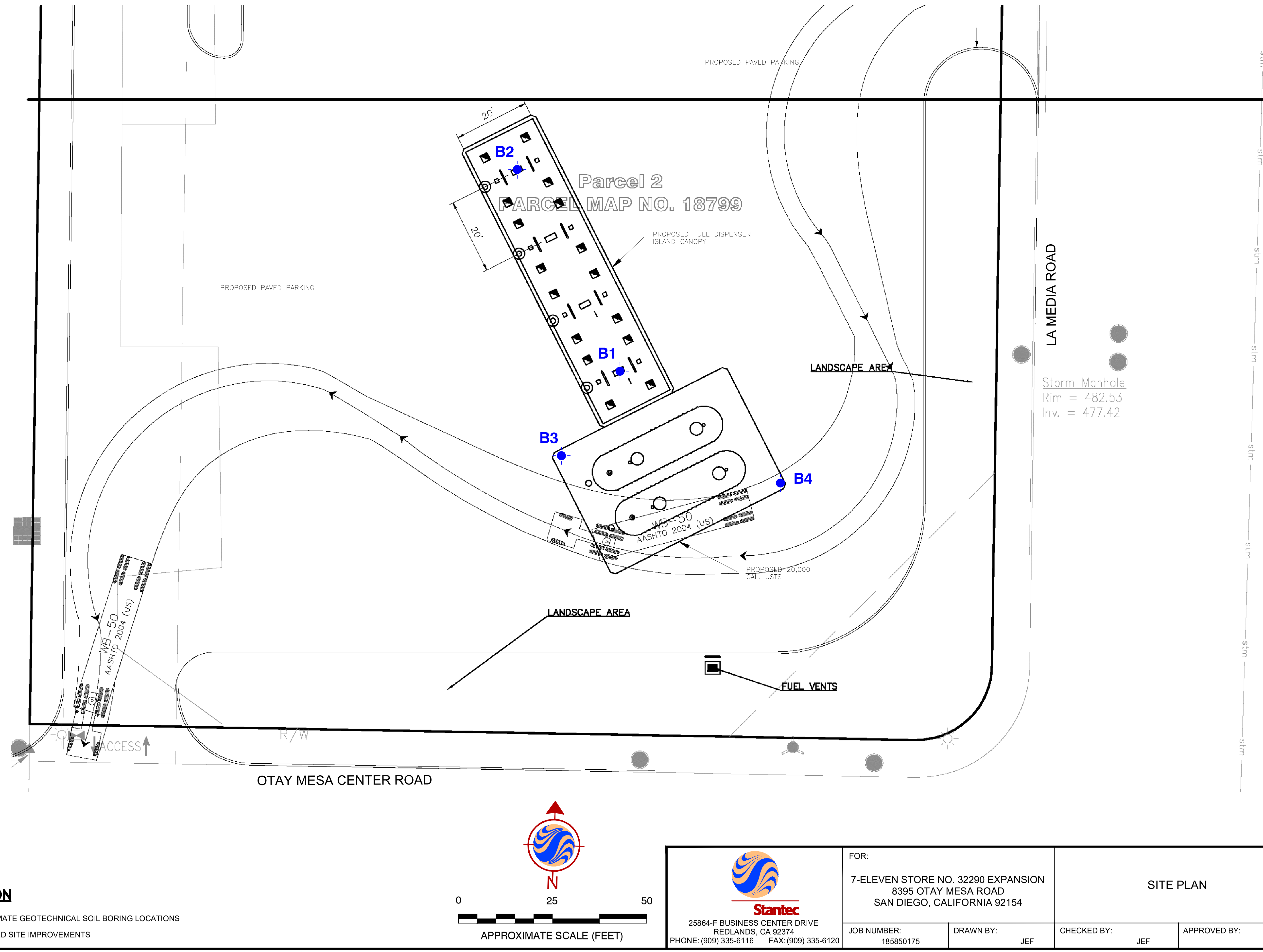
FOR:

7-ELEVEN STORE NO. 32290 EXPANSION
8395 OTAY MESA ROAD
SAN DIEGO, CALIFORNIA 92154

SITE LOCATION MAP

FIGURE: 1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850175	JEF	JEF	JEF	9/6/13



EXPLANATION

B4 — APPROXIMATE GEOTECHNICAL SOIL BORING LOCATIONS

— PROPSOED SITE IMPROVEMENTS

Stantec 25864-F BUSINESS CENTER DRIVE REDLANDS, CA 92374 PHONE: (909) 335-6116 FAX: (909) 335-6120	FOR: 7-ELEVEN STORE NO. 32290 EXPANSION 8395 OTAY MESA ROAD SAN DIEGO, CALIFORNIA 92154		SITE PLAN	FIGURE: 2
	JOB NUMBER: 185850175	DRAWN BY: JEF	CHECKED BY: JEF / APPROVED BY: JEF	DATE: 9/6/13

FILEPATH:V:\1858\inactive\7-Eleven\Otay Mesa\05_report_deliv\dwgs_desgn\7-eleven_canopy_ust_addition_figures.dwg modified by JFischer on Sep 13, 2013 at 12:20

APPENDIX A
BORING LOGS

PROJECT: **Geotechnical Legend** LOCATION: **123 Main St. Anywhere USA** PROJECT NUMBER: **00AB.12345.00**	WELL / PROBEHOLE / BOREHOLE NO: **Legend** PAGE 1 OF 1
DRILLING: STARTED **1/1/06** COMPLETED: **1/1/06** INSTALLATION: STARTED **1/1/06** COMPLETED: **1/1/06** DRILLING COMPANY: **Drilling Sub-contractor** DRILLING EQUIPMENT: **Drilling Equipment** DRILLING METHOD: **Drilling Method** SAMPLING EQUIPMENT: **Sampling Equipment**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **25.0** STATIC DTW (ft): **NE** WELL DEPTH (ft): **25.0** WELL CASING DIAMETER (in): **NA** BOREHOLE DIAMETER (in): LOGGED BY: **Onsite Technician** CHECKED BY: **Project Eng.**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Geotechnical Lab Testing	Environmental Lab Testing	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
			Geotechnical Lab Testing							Surface Completion
			CNSL - Consolidation		CNSL					
			CRSN - Corrosion		CRSN					
			EI - Expansion Index		EI					
			HA - Hydrometer Analysis		HA					
			MD - Moisture Density		MD					
5			M - Moisture		M				5	
			R-Val - R-Value		R-Val			As Shown		
			SA - Sieve Analysis		SA					
			DS - Direct Shear		DS					
			UC - Unconfined Compression		UC					
			AL - Atterberg Limits		AL					
			#200 - #200 Sieve Wash		#200					
10			MP - Modified Proctor		MP				10	
			Environmental Lab Testing							
			8015M - Volatile and/or Extractable Petroleum Hydrocarbons			8015M				Backfill Description
			8260 - Halogenated Volatile Organic Compounds with Oxygenates			8260				
15			8270 - Semi-Volatile Organic Compounds			8270			15	
			8081 - Organochlorine Pesticides			8081				
			Hand Auger Sample							
20			Driven Sample, Blows Per 6 Inches, 2.5 Inch ID California Modified Sample Interval				10 11 15		20	
			Driven Sample, Blows Per 6 Inches, 1.5 Inch ID SPT Sample Interval				20 22 23			
25			Hole terminated at 25 feet.						25	
30									30	
35									35	

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

SOIL DESCRIPTION

Terminology describing common soil genesis:

Topsoil	- mixture of soil and humus capable of supporting vegetative growth
Peat	- mixture of visible and invisible fragments of decayed organic matter
Till	- unstratified glacial deposit which may range from clay to boulders
Fill	- material below the surface identified as placed by humans (excluding buried services)

Terminology describing soil structure:

Desiccated	- having visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.
Fissured	- having cracks, and hence a blocky structure
Varved	- composed of regular alternating layers of silt and clay
Stratified	- composed of alternating successions of different soil types, e.g. silt and sand
Layer	- > 75 mm in thickness
Seam	- 2 mm to 75 mm in thickness
Parting	- < 2 mm in thickness

Terminology describing soil types:
The classification of soil types are made on the basis of grain size and plasticity in accordance with the Unified Soil Classification System (USCS) (ASTM D 2487 or D 2488). The classification excludes particles larger than 76 mm (3 inches). The USCS provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification.

Terminology describing cobbles, boulders, and non-matrix materials (organic matter or debris):
Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter, construction debris) is based upon the proportion of these materials present:

Trace, or occasional	Less than 10%
Some	10-20%
Frequent	> 20%

Terminology describing compactness of cohesionless soils:
The standard terminology to describe cohesionless soils includes compactness (formerly "relative density"), as determined by the Standard Penetration Test N-Value (also known as N-Index). A relationship between compactness condition and N-Value is shown in the following table.

Compactness Condition	SPT N-Value
Very Loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very Dense	>50

Terminology describing consistency of cohesive soils:
The standard terminology to describe cohesive soils includes the consistency, which is based on undrained shear strength as measured by *in situ* vane tests, penetrometer tests, or unconfined compression tests.

Consistency	Undrained Shear Strength	
	kips/sq.ft.	kPa
Very Soft	<0.25	<12.5
Soft	0.25 - 0.5	12.5 - 25
Firm	0.5 - 1.0	25 - 50
Stiff	1.0 - 2.0	50 – 100
Very Stiff	2.0 - 4.0	100 - 200
Hard	>4.0	>200

ROCK DESCRIPTION

Terminology describing rock quality:

RQD	Rock Mass Quality
0-25	*Very Poor*
25-50	*Poor*
50-75	*Fair*
75-90	*Good*
90-100	*Excellent*

Rock quality classification is based on a modified core recovery percentage (RQD) in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be due to close shearing, jointing, faulting, or weathering in the rock mass and are not counted. RQD was originally intended to be done on NW core; however, it can be used on different core sizes if the bulk of the fractures caused by drilling stresses are easily distinguishable from *in situ* fractures. The terminology describing rock mass quality based on RQD is subjective and is underlain by the presumption that sound strong rock is of higher engineering value than fractured weak rock.

Terminology describing rock mass:

Spacing (mm)	Joint Classification	Bedding, Laminations, Bands
> 6000	*Extremely Wide*	-
2000-6000	*Very Wide*	*Very Thick*
600-2000	*Wide*	*Thick*
200-600	*Moderate*	*Medium*
60-200	*Close*	*Thin*
20-60	*Very Close*	*Very Thin*
<20	*Extremely Close*	*Laminated*
<6	-	*Thinly Laminated*

Terminology describing rock strength:

Strength Classification	Unconfined Compressive Strength (MPa)
Extremely Weak	< 1
Very Weak	1 – 5
Weak	5 – 25
Medium Strong	25 – 50
Strong	50 – 100
Very Strong	100 – 250
Extremely Strong	> 250

Terminology describing rock weathering:

Term	Description
Fresh	No visible signs of rock weathering. Slight discolouration along major discontinuities
Slightly Weathered	Discolouration indicates weathering of rock on discontinuity surfaces. All the rock material may be discoloured.
Moderately Weathered	Less than half the rock is decomposed and/or disintegrated into soil.
Highly Weathered	More than half the rock is decomposed and/or disintegrated into soil.
Completely Weathered	All the rock material is decomposed and/or disintegrated into soil. The original mass structure is still largely intact.

STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols. The dimensions within the strata symbols are not indicative of the particle size, layer thickness, etc.

Boulders Cobbles Gravel	Sand	Silt	Clay	Organics	Asphalt	Concrete	Fill	Igneous Bedrock	Meta-morphic Bedrock	Sedi-mentary Bedrock

SAMPLE TYPE

SS	Split spoon sample (obtained by performing the Standard Penetration Test)
ST	Shelby tube or thin wall tube
DP	Direct-Push sample (small diameter tube sampler hydraulically advanced)
PS	Piston sample
BS	Bulk sample
WS	Wash sample
HQ, NQ, BQ, etc.	Rock core samples obtained with the use of standard size diamond coring bits.

WATER LEVEL MEASUREMENT

▼ measured in standpipe, piezometer, or well

▽ inferred

RECOVERY

For soil samples, the recovery is recorded as the length of the soil sample recovered. For rock core, recovery is defined as the total cumulative length of all core recovered in the core barrel divided by the length drilled and is recorded as a percentage on a per run basis.

N-VALUE

Numbers in this column are the field results of the Standard Penetration Test: the number of blows of a 140 pound (64 kg) hammer falling 30 inches (760 mm), required to drive a 2 inch (50.8 mm) O.D. split spoon sampler one foot (305 mm) into the soil. For split spoon samples where insufficient penetration was achieved and N-values cannot be presented, the number of blows are reported over sampler penetration in millimetres (e.g. 50/75). Some design methods make use of N value corrected for various factors such as overburden pressure, energy ratio, borehole diameter, etc. No corrections have been applied to the N-values presented on the log.

DYNAMIC CONE PENETRATION TEST (DCPT)

Dynamic cone penetration tests are performed using a standard 60 degree apex cone connected to A size drill rods with the same standard fall height and weight as the Standard Penetration Test. The DCPT value is the number of blows of the hammer required to drive the cone one foot (305 mm) into the soil. The DCPT is used as a probe to assess soil variability.

OTHER TESTS

S	Sieve analysis
H	Hydrometer analysis
k	Laboratory permeability
γ	Unit weight
G_s	Specific gravity of soil particles
CD	Consolidated drained triaxial
CU	Consolidated undrained triaxial with pore pressure measurements
UU	Unconsolidated undrained triaxial
DS	Direct Shear
C	Consolidation
Q_u	Unconfined compression
I_p	Point Load Index (I_p on Borehole Record equals $I_p(50)$ in which the index is corrected to a reference diameter of 50 mm)

	Single packer permeability test; test interval from depth shown to bottom of borehole
	Double packer permeability test; test interval as indicated
	Falling head permeability test using casing
	Falling head permeability test using well point or piezometer

PROJECT: **7-Eleven #32291** LOCATION: **8395 Otay Mesa Rd. San Diego, CA** PROJECT NUMBER: **185850175**	WELL / PROBEHOLE / BOREHOLE NO: **B-1** PAGE 1 OF 1
DRILLING: STARTED **8/30/13** COMPLETED: **8/30/13** INSTALLATION: STARTED **8/30/13** COMPLETED: **8/30/13** DRILLING COMPANY: **ABC Liovin Drilling** DRILLING EQUIPMENT: **CME 85** DRILLING METHOD: **Hollow Stem Auger** SAMPLING EQUIPMENT: **Split Spoon**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **15.3** STATIC DTW (ft): **NE** WELL DEPTH (ft): **---** WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **5** LOGGED BY: **J. Fischer** CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
0800		CL	**SANDY CLAY WITH GRAVEL** ; CL; 10YR 5/4 yellowish brown; 53.4% fines; 30% fine to coarse grained sand; 30.7% fine to medium gravel; hard; dry; no petroleum hydrocarbon odor (PHCO); no staining		0800 B-1-2	SA	23 26 29	0.0		
0805 5		CH	**SANDY CLAY** ; CH; 10YR 4/3 brown; 75% fines; 20% fine to coarse grained sand; 5% fine grained gravel; high plasticity; hard; moist; no PHCO; no staining		0805 B-1-5	DS	50-6"	0.0	5	
0815			...same as above ; 72.8% fines; 10% fine to coarse grained sand; 17.2% fine grained gravel; rounded to angular		0815 B-1-7	#200, AL	30 50-6"	0.0		Backfilled With Native Soil
0820 10			...same as above		0820 B-1-10	DS	26 50-6"	0.3	10	
0825 15		SC	**CLAYEY SAND WITH GRAVEL** ; SC; 10YR 6/3 pale brown; 60% fine to coarse grained sand; 30% fines; 10% fine grained gravel; very dense; moist; no PHCO; no staining		0825 B-1-15		50-3"	0.0	15	
			Refusal @ ~15.5' BGS. Groundwater not encountered. Hole terminated at 15.25 feet.							
20									20	

PROJECT: **7-Eleven #32291**
LOCATION: **8395 Otay Mesa Rd. San Diego, CA**
PROJECT NUMBER: **185850175**

WELL / PROBEHOLE / BOREHOLE NO: **B-2** PAGE 1 OF 1

Stantec

DRILLING: STARTED **8/30/13**	COMPLETED: **8/30/13**	NORTHING (ft):	EASTING (ft):
INSTALLATION: STARTED **8/30/13**	COMPLETED: **8/30/13**	LATITUDE:	LONGITUDE:
DRILLING COMPANY: **ABC Liovin Drilling**		GROUND ELEV (ft):	TOC ELEV (ft):
DRILLING EQUIPMENT: **CME 85**		INITIAL DTW (ft): **NE**	BOREHOLE DEPTH (ft): **20.3**
DRILLING METHOD: **Hollow Stem Auger**		STATIC DTW (ft): **NE**	WELL DEPTH (ft): **---**
SAMPLING EQUIPMENT: **Split Spoon**		WELL CASING DIAMETER (in): **---**	BOREHOLE DIAMETER (in): **5**
		LOGGED BY: **J. Fischer**	CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
0850		CL	**CLAY WITH SAND** ; CL; 2.5Y 3/2 very dark grayish brown; 70% fines;30% fine grained sand; medium plasticity; hard; moist; no PHCO; no staining		0850 B-2-2	MD	30 50-6"	1.4		
0855 5			...same as above; 76.6% fines; 23.4% fine grained sand		0855 B-2-5	#200, AL	21 23 27	0.0	5	
0900			...same as above		0900 B-2-7	DS	21 25 29	0.0		
0905 10		CH	**FAT CLAY WITH SAND** ; CH; 2.5Y very dark grayish brown; 3/2; 87% fines; 13% fine sand; high plasticity; hard; moist; no PHCO; no staining		0905 B-2-10	#200, AL	16 24 28	0.0	10	Backfilled With Native Soil
0910 15		CL	**SANDY CLAY** ; CL; 2.5Y very dark grayish brown; 50% fines; 30% fine to coarse grained sand; 20% fine grained gravel; low plasticity; hard; moist, no PHCO, no staining		0910 B-2-15		50-4"	0.0	15	
0920 20		SC	**CLAYEY SAND WITH GRAVEL** ; SC; 2.5Y 5/3 light olive brown; 60% fine to coarse grained sand; 25% fines; 15% fine grained gravel; very dense; moist; no PHCO; no staining		0920 B-2-20		50-3"	0.0	20	
			Refusal @ ~20.5' BGS. Groundwater not encountered. Hole terminated at 20.25 feet.							

PROJECT: **7-Eleven #32291** LOCATION: **8395 Otay Mesa Rd. San Diego, CA** PROJECT NUMBER: **185850175**	WELL / PROBEHOLE / BOREHOLE NO: **B-3** PAGE 1 OF 1

Stantec

DRILLING: STARTED **8/30/13** COMPLETED: **8/30/13**	NORTHING (ft):
INSTALLATION: STARTED **8/30/13** COMPLETED: **8/30/13**	EASTING (ft):
DRILLING COMPANY: **ABC Liovin Drilling**	LATITUDE:
DRILLING EQUIPMENT: **CME 85**	LONGITUDE:
DRILLING METHOD: **Hollow Stem Auger**	GROUND ELEV (ft):
SAMPLING EQUIPMENT: **Split Spoon**	TOC ELEV (ft):
	INITIAL DTW (ft): **NE**
	BOREHOLE DEPTH (ft): **16.0**
	STATIC DTW (ft): **NE**
	WELL DEPTH (ft): **---**
	WELL CASING DIAMETER (in): **---**
	BOREHOLE DIAMETER (in): **5**
	LOGGED BY: **J. Fischer**
	CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
1000		CL	**CLAY WITH SAND** ; CL; 2.5Y 4/2 dark grayish brown; 83.2% fines; 16.8% fine grained sand; medium plasticity; moist; hard; no PHCO; no staining		1000 B-3-2	#200, AL	17 24 36	0.4		Backfilled With Native Soil
1010 5			...same as above ; 70% fines; 15% fine to coarse grained sand; 15% fine grained gravel; very stiff		1010 B-3-5		10 11 13	1.3	5	
1015			...same as above ; 85% fines; 15% fine grained sand		1015 B-3-7		12 14 17	1.0		
1020 10			...same as above ; 75% fines; 10% fine to coarse grained sand; 15% fine grained gravel; hard		1020 B-3-10		12 15 25	1.4	10	
1025 15			...same as above ; 60% fines; 15% fine to coarse grained sand; 25% fine grained gravel		1025 B-3-15		30 50-4"	--	15	
			Rock in shoe							
			Refusal @ ~16' BGS. Groundwater not erncountered. Hole terminated at 16 feet.							
20									20	

PROJECT: **7-Eleven #32291**		WELL / PROBEHOLE / BOREHOLE NO:	
LOCATION: **8395 Otay Mesa Rd. San Diego, CA**		**B-4** PAGE 1 OF 1	
PROJECT NUMBER: **185850175**			
DRILLING: STARTED **8/30/13**	COMPLETED: **8/30/13**	NORTHING (ft):	EASTING (ft):
INSTALLATION: STARTED **8/30/13**	COMPLETED: **8/30/13**	LATITUDE:	LONGITUDE:
DRILLING COMPANY: **ABC Liovin Drilling**		GROUND ELEV (ft):	TOC ELEV (ft):
DRILLING EQUIPMENT: **CME 85**		INITIAL DTW (ft): **NE**	BOREHOLE DEPTH (ft): **20.5**
DRILLING METHOD: **Hollow Stem Auger**		STATIC DTW (ft): **NE**	WELL DEPTH (ft): **---**
SAMPLING EQUIPMENT: **Split Spoon**		WELL CASING DIAMETER (in): **---**	BOREHOLE DIAMETER (in): **5**
		LOGGED BY: **J. Fischer**	CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)	Borehole Backfill
1045		SC	**CLAYEY SAND** ; SC; 2.5Y 6/5 light olive brown; 60% fine to coarse grained sand; 40% fines; medium dense; moist; no PHCO; no staining		1045 B-4-2		18 19 14	0.0		
1050 5		CL	**SANDY CLAY** ; CL; 2.5Y 3/3 dark olive brown; 75% fines; 25% fine to coarse grained sand; medium plasticity; hard; moist; no PHCO; no staining		1050 B-4-5	CNSL, MD	18 24 27	0.0	5	
1055			...same as above		1055 B-4-7		25 28 33	0.0		
1105 10			...same as above ; 60% fines; 20% fine to coarse grained sand; 20% fine grained gravel		1105 B-4-10	CNSL, MD	25 29 36	0.0	10	Backfilled With Native Soil
1110 15		GC	**CLAYEY GRAVEL WITH SAND** ; GC; 2.5Y 5/3 light olive brown; 50% fine to coarse grained gravel; 20% fines; 30% fine to coarse grained sand; very dense; dry; no PHCO; no staining		1110 B-4-15		50-4"	0.0	15	
1120 20		SC	**CLAYEY SAND WITH GRAVEL** ; SC; 2.5Y 5/2 light olive brown; 60% fine to coarse grained sand; 30% fines; 10% fine grained gravel; moist; very dense; no PHCO; no staining		1120 B-4-20		50-6"	0.0	20	

Groundwater not encountered.
Hole terminated at 20.5 feet.

GEO FORM 304 7-ELEVEN 32291.GPJ SECOR INTL.GDT 9/13/13

APPENDIX B
LABORATORY TEST RESULTS

SUMMARY OF MOISTURE DENSITY TEST RESULTS
ASTM D 2216

Boring Location	Sample Depth (ft)	Wet Density (lb/ft^3)	Dry Density (lb/ft^3)	Moisture Content (percent)
B2-2	2	114.7	106.2	8.0
B4-5	5	124.1	104.5	18.7
B4-10	10	130.4	116.4	12.0

Stantec

Gradation Analysis

ASTM D 422

Project Name 7-Eleven 32291
Source B1-2

Preparation Method ASTM D 1140 Method A
Particle Shape Angular
Particle Hardness Hard and Durable
Sample Dry Mass (g) 421.50
Moisture Content (%) 5.3

Project Number 185850175
Lab ID B1-2
Date Received 09-02-2013
Preparation Date 09-04-2013
Test Date 07-13-2012

Analysis based on total sample.

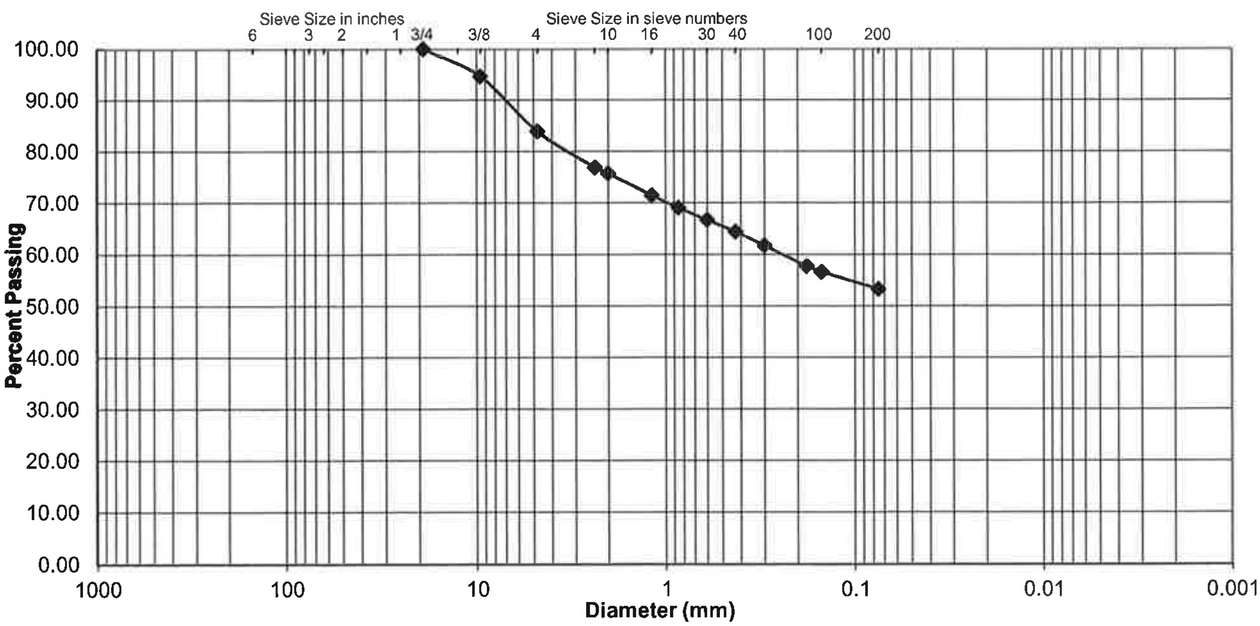
Sieve Size	Grams Retained	% Retained	% Passing
3/4"	0.00	0.0	100.0
3/8"	22.19	5.3	94.7
No. 4	45.01	10.7	84.1
No. 8	29.48	7.0	77.1
No. 10	4.94	1.2	75.9
No. 16	18.18	4.3	71.6
No. 20	10.22	2.4	69.2
No. 30	9.93	2.4	66.8
No. 40	9.55	2.3	64.5
No. 50	11.28	2.7	61.9
No. 80	16.72	4.0	57.9
No. 100	4.62	1.1	56.8
No. 200	14.43	3.4	53.4
Pan	224.95	53.4	---

% Gravel 15.9
% Sand 30.7
% Fines 53.4
Fines Classification CL

D_{10} (mm) N/A
D_{30} (mm) N/A
D_{60} (mm) N/A

Cu N/A
Cc N/A

Particle Size Distribution



Comments

Reviewed By

File: 7-eleven_b1-2_#200.xlsm Sheet: Report
Preparation Date: 1-2008
Revision Date: 4-2008

Stantec Consulting Services Inc.

Laboratory Document
Prepared By: JW
Approved By: TLK

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	7-Eleven 32291
Source	B1-7
Preparation Method	ASTM D 1140 Method A
Project Number	185850175
Lab ID	B1-7
Date Received	09-02-2013
Test Date	09-04-2013

Initial Sample Wet Mass (g)	145.49
Initial Oven Dry Sample Mass (g)	115.92
Final Oven Dry Sample Mass (g)	31.56
Materials Finer Than 75µm (No. 200) Sieve (g)	84.36
Percent Finer Than 75µm (No. 200) Sieve (%)	72.8
Moisture Content (%)	25.5

Comments

Reviewed By

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	7-Eleven 32291
Source	B2-5
Preparation Method	ASTM D 1140 Method A
Project Number	185850175
Lab ID	B2-5
Date Received	09-02-2013
Test Date	09-04-2013

Initial Sample Wet Mass (g)	184.64
Initial Oven Dry Sample Mass (g)	154.25
Final Oven Dry Sample Mass (g)	36.11
Materials Finer Than 75µm (No. 200) Sieve (g)	118.14
Percent Finer Than 75µm (No. 200) Sieve (%)	76.6
Moisture Content (%)	19.7

Comments

Reviewed By

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	7-Eleven 32291	Project Number	185850175
Source	B2-10	Lab ID	B2-10
		Date Received	09-02-2013
Preparation Method	ASTM D 1140 Method A	Test Date	09-04-2013

Initial Sample Wet Mass (g)	156.25	Moisture Content (%)	23.5
Initial Oven Dry Sample Mass (g)	126.52		
Final Oven Dry Sample Mass (g)	16.48		
Materials Finer Than 75µm (No. 200) Sieve (g)	110.04		
Percent Finer Than 75µm (No. 200) Sieve (%)	87.0		

Comments

Reviewed By

Stantec

Materials Finer Than 75μm (No. 200) Sieve
ASTM D 1140

Project Name	7-Eleven 32291
Source	B3-2
Preparation Method	ASTM D 1140 Method A
Project Number	185850175
Lab ID	B3-2
Date Received	09-02-2013
Test Date	09-04-2013

Initial Sample Wet Mass (g)	217.84
Initial Oven Dry Sample Mass (g)	197.67
Final Oven Dry Sample Mass (g)	33.19
Materials Finer Than 75μm (No. 200) Sieve (g)	164.48
Percent Finer Than 75μm (No. 200) Sieve (%)	83.2
Moisture Content (%)	10.2

Comments

Reviewed By

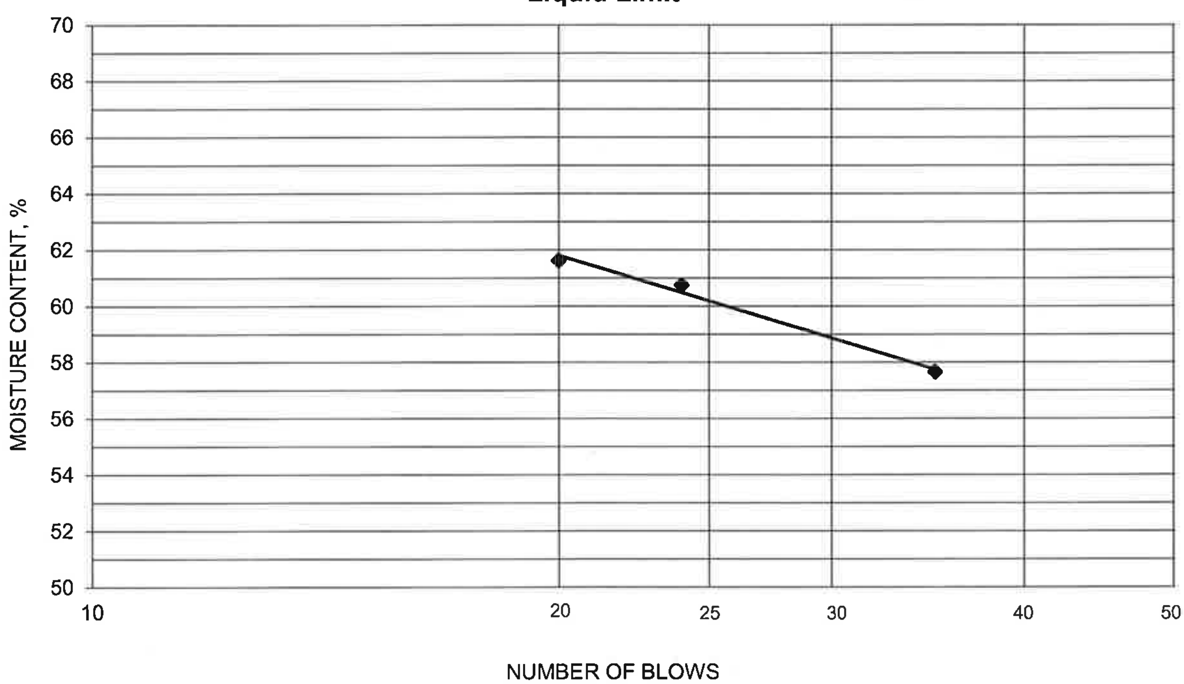
Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291			Project No.	185850175
Source	B1-7			Lab ID	B1-7
Tested By	MAC	Test Method	ASTM D 4318	% + No. 40	10
Test Date	09-05-2013	Prepared	Dry	Date Received	09-02-2013

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
52.95	41.41	21.40	35	57.7	60
55.44	42.67	21.65	24	60.8	
52.45	40.63	21.45	20	61.6	

Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.64	20.70	12.09	22.5	23	37

Remarks: ______________________

Reviewed By ______________

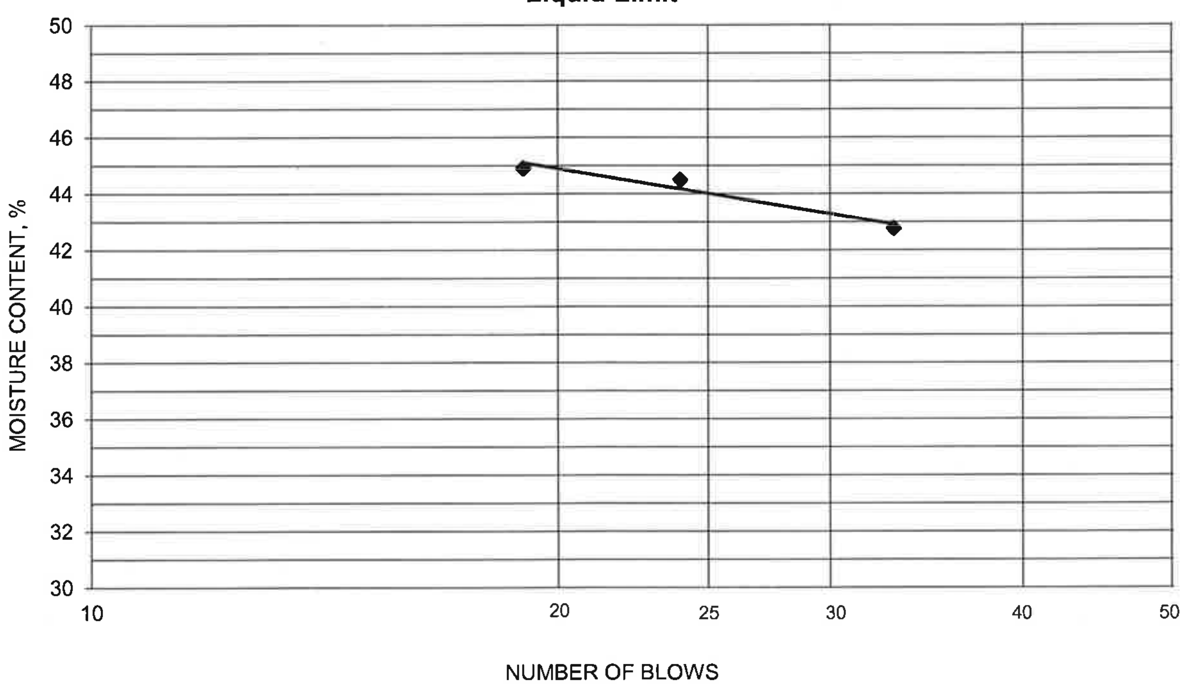
Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291	Project No.	185850175
Source	B2-5	Lab ID	B2-5
Tested By	MAC	Test Method	ASTM D 4318
% + No. 40	5		
Test Date	09-05-2013	Prepared	Dry
Date Received	09-02-2013		

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
51.73	42.67	21.49	33	42.8	44
52.56	42.64	20.35	24	44.5	
50.97	41.60	20.74	19	44.9	

Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.76	21.06	12.10	19.0	19	25

Remarks: ______________________

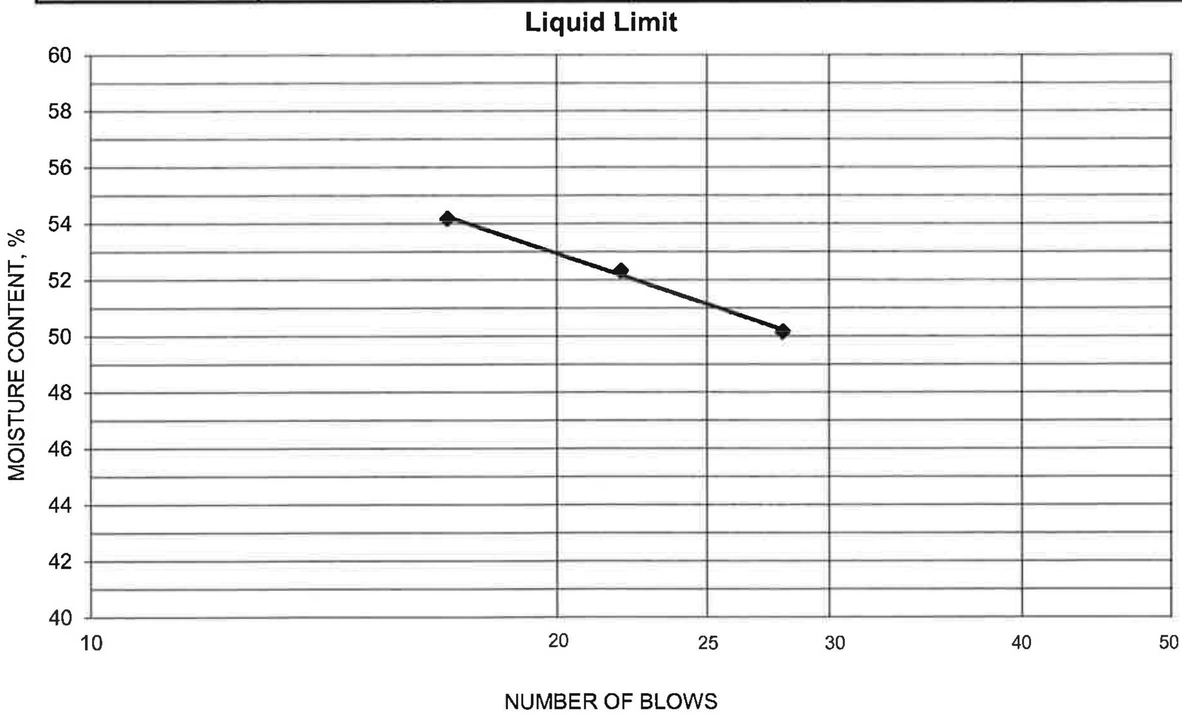
Reviewed By ______________

Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291			Project No.	185850175
Source	B2-10			Lab ID	B2-10
Tested By	MAC	Test Method	ASTM D 4318	% + No. 40	<5
Test Date	09-05-2013	Prepared	Dry	Date Received	09-02-2013

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
57.53	45.24	20.74	28	50.2	51
53.30	42.38	21.51	22	52.3	
53.83	42.31	21.05	17	54.2	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.32	20.67	12.10	19.3	19	32

Remarks: ______________________

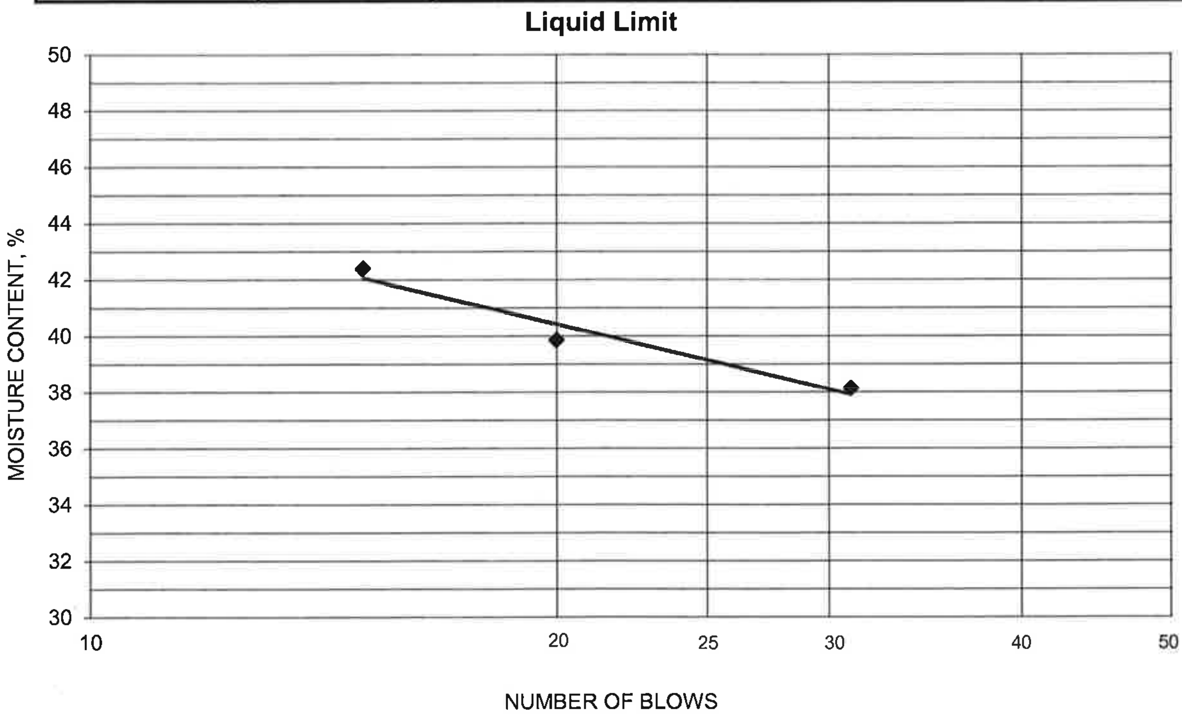
Reviewed By ______________

Stantec

ATTERBERG LIMITS

Project	7-Eleven 32291	Project No.	185850175
Source	B3-2	Lab ID	B3-2
Tested By	MAC Test Method ASTM D 4318	% + No. 40	10
Test Date	09-05-2013 Prepared Dry	Date Received	09-02-2013

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
55.56	45.95	20.76	31	38.2	39
58.22	47.74	21.45	20	39.9	
55.20	45.14	21.42	15	42.4	



PLASTIC LIMIT AND PLASTICITY INDEX

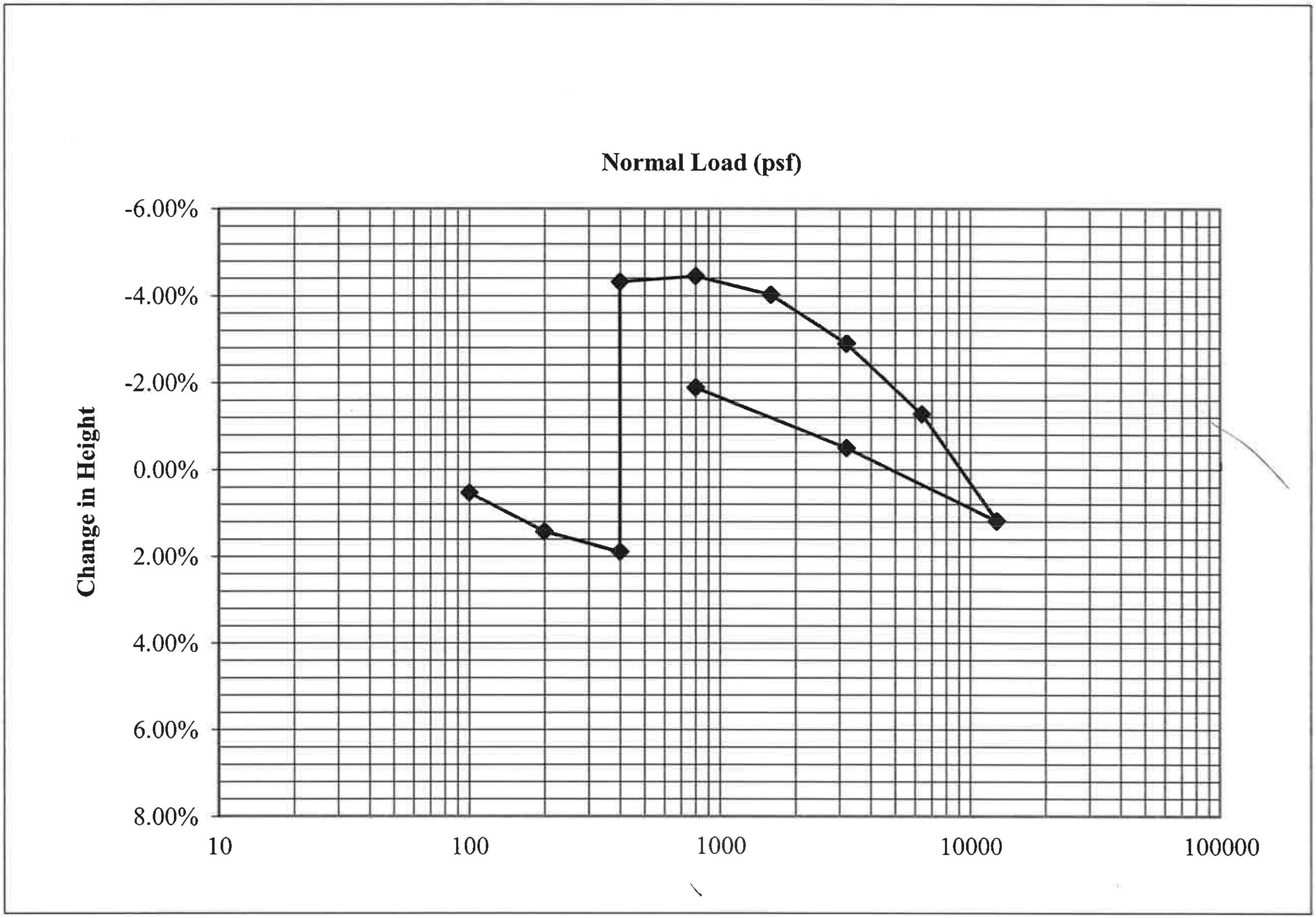
Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.49	20.93	12.09	17.6	18	21

Remarks: ______________________

Reviewed By ______________

CONSOLIDATION TEST

7-Eleven 32291
B4-5



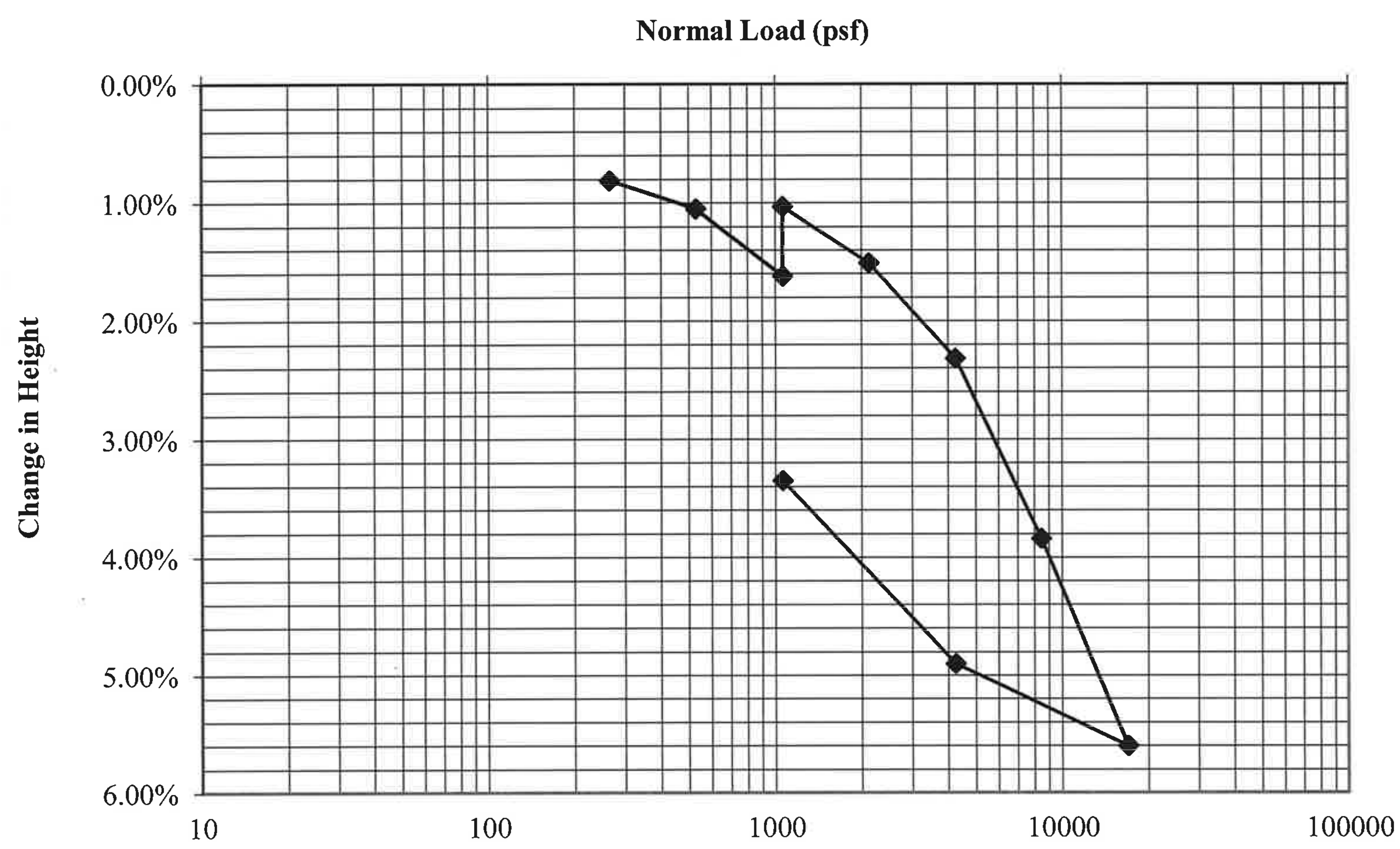
Note: Water was added at 400 psf normal load.

γw=126.7 pcf
m=19.0%

Figure B-1

CONSOLIDATION TEST

7-Eleven 32291
B4-10



γw=130.6pcf
m=13.8%

Note: Water was added at 1,060 psf normal load.

Figure B-1

September 11, 2013

Mr. Jaret Fischer
Stantec Consulting Inc.
25864-F Business Center Drive
Redlands, CA 92374

Subject: **LABORATORY TEST RESULTS**
185850175 – 7-Eleven 32291 Expansion
Converse Project No. 13-81-113-58

Dear Mr. Fischer:

Presented below are the results of the laboratory tests that you requested for the above-referenced project. We received the samples from your office on September 3, 2013. The following tests were performed in accordance with the relevant standard:

- One (1) Expansion Index Test (ASTM D4829)
- One (1) Soil Corrosivity Test (Caltrans 643, 422, 417, and 532) performed by Schiff Associates
- One (1) Maximum Dry Density and Optimum Moisture Content (ASTM D1557)
- One (1) Direct Shear Tests (ASTM D3080). No testing performed on samples No. B1-5 and B1-10 due to high gravel content. For reference, please see photos No. 1 and No. 2 below.

We appreciate the opportunity to be of continued service to Stantec Consulting Inc. If you should have any questions or need additional information, please feel free to contact us at (909) 796-0544.

CONVERSE CONSULTANTS

Harihar Shiwakoti, P. E.
Project Engineer

JR/kvg

Encl: Table No. 1, *Expansion Index Test Results*
Table No. 2, *Corrosivity Test Results*
Drawing No. 1, Moisture-Density Relationship Results
Drawing No. 2, *Direct Shear Test Results*

Table No. 1, Expansion Index Test Result

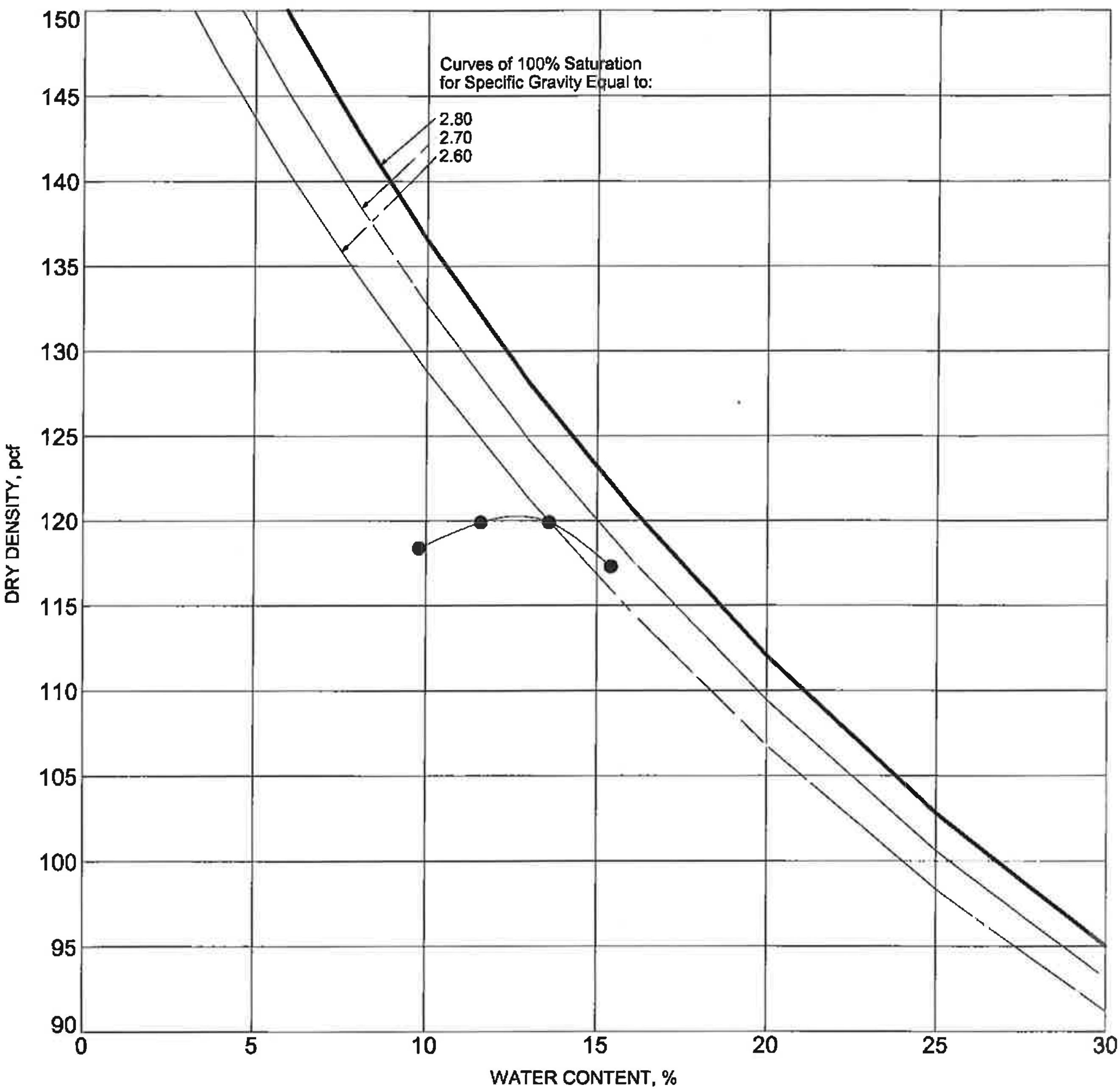
Sample ID	Sample Type	Soil Description	Expansion Index	Expansion Potential
B2	BULK	Fat Clay (CH)	92	High

Table No. 2, Corrosivity Test Results

Boring No./Sample	pH	Soluble Sulfate (CA 417) (ppm)	Soluble Chlorides (CA 422) (ppm)	Saturated Resistivity (CA 643) Ohm-cm
B4/BULK	7.4	250	878	348

Photo #1, Sample No. B1-5

Photo #2, Sample No. B1-10



SYMBOL	BORING NO.	SAMPLE TYPE	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	**B2**	**BULK**	**Sandy Fat Clay (CH)**	**D1557 - B**	**13**	**120**

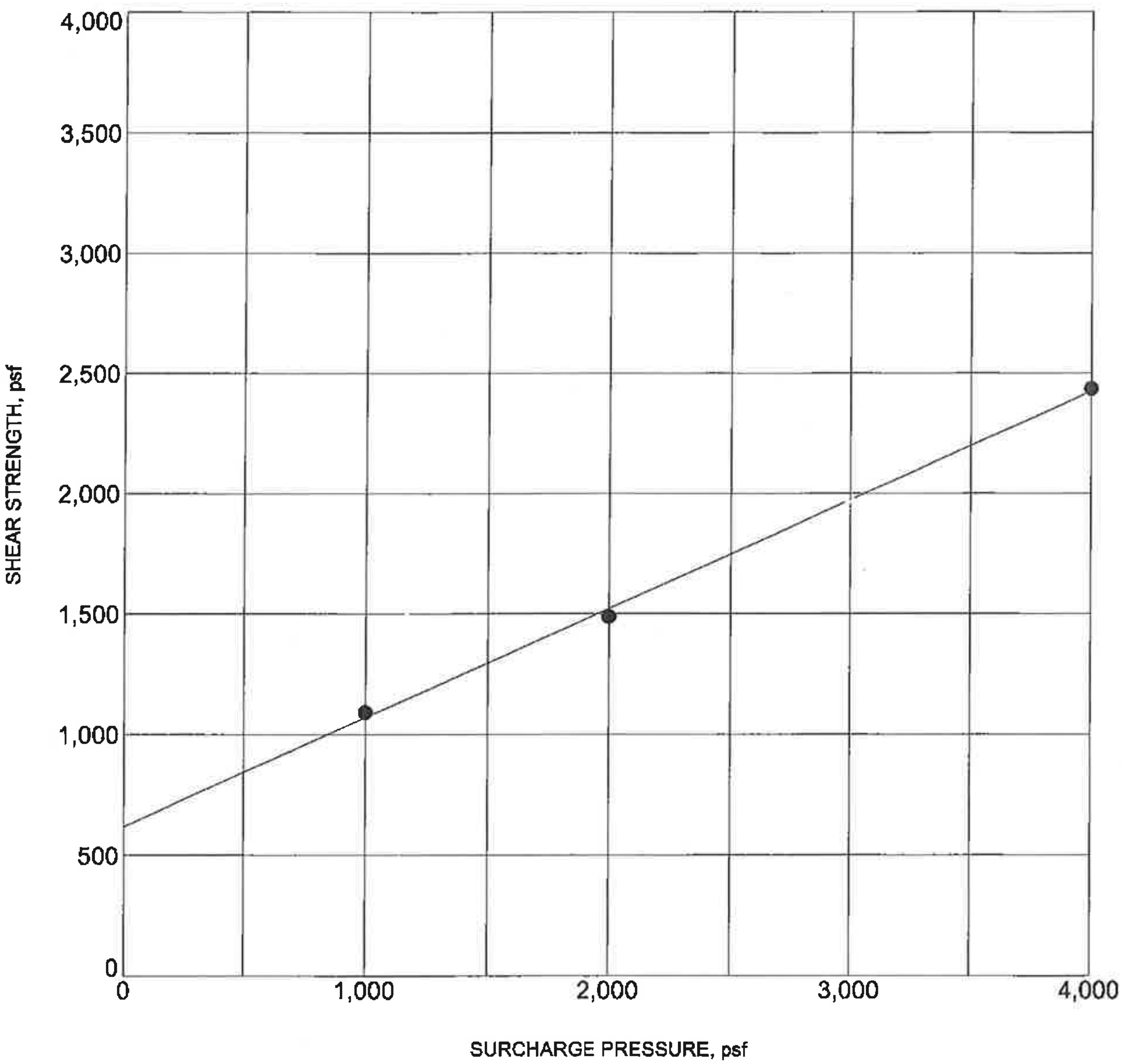
MOISTURE-DENSITY RELATIONSHIP RESULTS

Converse Consultants

7-Eleven 32291 Expansion
Job No 185850175
For: Stantec Consulting

Project No.
13-81-113-58

Drawing No.
1



BORING NO. :	B2	DEPTH (ft) :	7
DESCRIPTION :	Fat Clay (CH)		
COHESION (psf) :	600	FRICTION ANGLE (degrees):	24
MOISTURE CONTENT (%) :	24.4	DRY DENSITY (pcf) :	97.7

NOTE: Ultimate Strength.

DIRECT SHEAR TEST RESULTS

Converse Consultants

7-Eleven 32291 Expansion
Job No 185850175
For: Stantec Consulting

Project No. 13-81-113-58

Drawing No. 2

APPENDIX C
GENERAL EARTHWORK AND GRADING SPECIFICATIONS

APPENDIX C

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

These general earthwork and grading specifications are for the grading and earthwork shown on the approved grading plan(s) and/or as indicated in this geotechnical report(s). These specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these general specifications. However, observations of the earthwork by the Project Soils Engineer during the course of grading could result in new or revised recommendations that could supersede these specifications or the recommendations of the geotechnical report(s).

PROJECT SOILS ENGINEER

The owner shall contract with the Project Soils Engineer of Record. The Project Soils Engineer shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of grading. During the grading and earthwork operations, the Project Soils Engineer shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Project Soils Engineer shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include natural ground after it has been cleared for receiving fill but before fill is placed, bottoms of overexcavation areas, all key bottoms, and benches made on sloping ground to receive fill.

The Project Soils Engineer shall observe the moisture conditioning and processing of the areas to receive fill materials and the fill materials themselves, and perform compaction testing of fill to determine the level of compaction. The responsibility of achieving soil compaction is that of the Contractor. The Project Soils Engineer shall provide the test results to the owner and the Contractor on a routine and frequent basis to assist the Contractor in determining the best means to achieve the required soil compaction. The Project Soils Engineer shall schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing as informed by Contractor of the anticipated schedule. The purpose of these specifications, the term Project Soils Engineer includes workman working under the authority of the Project Soils Engineer.

EARTHWORK CONTRACTOR

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture conditioning, processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the plans and specifications.

If requested by the Owner, the Contractor shall prepare and submit to the owner and the Project Soils Engineer a work plan that indicates the sequence of earthwork grading and the estimated quantities of daily earthwork contemplated for the Site prior to commencement of grading. The Contractor shall inform the Owner and the Project Soils Engineer of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that the Project Soils Engineer is aware of all grading operations. The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Project Soils Engineer, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Contractor shall rectify the unsatisfactory conditions to the satisfaction of the Project Soils Engineer. If the unsatisfactory conditions cannot be rectified to the satisfaction of the Project Soils Engineer, the Owner should stop construction until an adequate plan to remedy the conditions can be established.

GUIDE SPECIFICATIONS

The following items of these guide specifications should be regarded as the minimum requirements for general earthwork and grading operations. On a Site specific basis, local governmental agencies may have more stringent requirements than specified herein.

1. All filling and backfilling operations should conform with applicable local building and safety codes and to the rules and regulations of those governmental agencies having jurisdiction over the subject construction. The earthworks contractor is responsible to notify governmental agencies, as required, and the Project Soils Engineer at the initiation of grading, and any time that grading operations are resumed after an interruption. Each step of the grading should be approved in a specific area by the Project Soils Engineer and, where required, by the applicable governmental agencies before proceeding with subsequent work.
2. Prior to the start of grading, the Site shall be cleared and grubbed of all debris, vegetation, deleterious materials, surface obstructions and loose unapproved fill shall be removed and disposed offsite. Any existing irrigation, drainage or utility lines, or other abandoned subsurface structures shall be removed, destroyed or abandoned in compliance with specifications and recommendations from the Project Soils Engineer, owner or local governing agencies. The Project Soils Engineer shall evaluate the extent of these removals depending on Site specific conditions. No fill material or soil supporting structural fill material shall contain more than five percent organic materials (by volume). As allowed by the Owner, unsuitable materials may potentially by utilized in non-structural fill areas.
3. Existing ground that has been declared satisfactory to support fill by the Project Soils Engineer shall be scarified a minimum depth of six inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.
4. In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, uncontrolled artificial fill, soft, loose, dry, saturated, spongy, organic-rich, highly fractured, porous, collapsible or otherwise unsuitable ground shall be overexcavated to competent ground, as evaluated by the Project Soils Engineer during grading. Competent ground may include dense, non-porous natural deposits of soil.

5. If potentially hazardous materials are encountered, the Contractor shall stop work in the area and the Project Environmental Engineer or Project Soils Engineer shall be informed immediately for proper evaluation and handling of these materials prior to continuing work in that area.
6. Where fill is placed on a sloping ground that is steeper than 20 percent, the ground to receive fill shall be prepared by proper keying and benching. The Project Soils Engineer shall determine the vertical and horizontal sizes of the keys and benches. In general, the lowest keyway shall be constructed under the toe of the fill at least 15 feet in width and at least two feet deep, into competent material, as evaluated by the Project Soils Engineer. Subsequent benches shall be excavated a minimum height of four feet into competent material or as otherwise recommended by the Project Soils Engineer. Fill placed on sloping ground that is flatter than 20 percent shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.
7. All areas to receive fill, including processed areas, overexcavation bottoms, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested to evaluate if geotechnically suitable materials have been exposed.
8. Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan or as recommended by the Project Soils Engineer. The Project Soils Engineer may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on the actual subsurface conditions encountered during grading. A registered land surveyor/civil engineer shall survey all subdrains after installation and prior to burial for line and grade.
9. Material to be used as fill shall be approved by the Project Soils Engineer and shall be essentially free of organic matter and other deleterious substances. Soils of poor quality, such as those with unacceptable gradation, expansive potential (import soils with an expansion index greater than 20), or low strength shall be placed in areas acceptable to the Project Soils Engineer and/or mixed with other soils to achieve satisfactory fill material.
10. Oversize material defined as rock, or other irreducible material with a maximum dimension greater than three inches, shall not be buried or incorporated in the fill unless the Project Soils Engineer specifically accepts the placement methods. If approved by the Project Soils Engineer, placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill.
11. If importing of fill material is required for grading, proposed import material shall meet the requirements specified herein. The potential import source shall be given to the Project Soils Engineer at least two working days before importing begins so that its suitability can be determined and appropriate tests can be performed.
12. Approved fill material shall be placed in areas prepared to receive fill in near-horizontal layers not exceeding eight inches in loose thickness. The Project Soils Engineer may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture content throughout. Thinner layers of soil may be necessary if the Contractor is unable to achieve the required compaction.
13. Fill soils shall be moisture conditioned (e.g. watered, dried back, blended, and/or mixed, as necessary) to attain a relatively uniform moisture content near the optimum. The maximum dry density and optimum soil moisture content of fill materials shall be performed in accordance with ASTM Test Method D 1557.
14. After each layer has been moisture-conditioned, mixed, and evenly placed, the soil shall be uniformly compacted to not less than 90 percent of maximum dry density, unless otherwise specified in the approved geotechnical report(s). The contractor shall utilize

equipment that is sized to efficiently achieve the specified level of compaction in a uniform manner. The contractor's earthwork operations should not result in movement or damage to completed work.

15. Field tests for moisture content and relative compaction of the fill soils shall be performed by the Project Soils Engineer in accordance with ASTM standards or as required by local governmental agencies. The location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Tests shall be taken at intervals not exceeding two feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. The Contractor shall allow the Project Soils Engineer a safe means to adequately test fill construction. If the Contractor achieves substandard compaction, the contractor shall adjust the earthwork operations (which may include additional compactive energy, adjustment of moisture content, thinner soil lifts, uniform soil placement, etc.) to meet the project specifications.
16. Wherever, in the opinion of the Project Soils Engineer or Owner, an unstable condition is being created by cutting or filling, the work shall not proceed in that area until an investigation has been made and the grading recommendations revised, if necessary.

APPENDIX C

BIOLOGY REPORT

Biological Survey Report

7-Eleven Store No. 32290 Expansion

City Project No. 553296

September 5, 2019

Prepared for:

7-Eleven, Inc.
330 East Lambert Road, Suite 150
Brea, California 92821

Prepared by:

Stantec Consulting Services Inc.
290 Conejo Ridge Avenue
Thousand Oaks, CAlifornai 91361

Sign-off Sheet

This document entitled Biological Survey Report was prepared by Stantec Consulting Services Inc. (“Stantec”) for the account of 7-Eleven, Inc. (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by ______________________________

(signature)

Rocky Brown, Associate Biologist

Reviewed by ______________________________

(signature)

Jared Varonin, Principal Biologist

Approved by ______________________________

(signature)

Robert Prohaska, Principal

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

7-Eleven engaged Stantec Consulting Services Inc. (Stantec) to conduct an investigation of potential biological resources related to the expansion of an existing facility, Store No. 32290 (Project). Stantec conducted an initial reconnaissance-level survey and prepared a Biological Resources Analysis report, dated November 21, 2017, which was submitted to the City of San Diego (City) for environmental review. The City subsequently requested additional information and the preparation of a report that satisfied their biological reporting guidelines.

The goals of this report are to document the current environmental conditions that occur within and adjacent to the Project. This report describes existing biological resources that occur within or adjacent to the Project Site (with an emphasis on special-status plant and wildlife species, wildlife corridors, and special-status/sensitive natural communities), and evaluates the potential for these species to occur within the Project Site.

1.2 PROJECT LOCATION

The Project Site is located at 8395 Otay Mesa Road, on the southwest corner of the intersection of Otay Mesa Road and La Media Road, in San Diego, California (APNs: 646-111-32-00 and 646-111-33-00). The property is situated on the Otay Mesa in southwestern San Diego County, approximately 1.2 miles north of the U.S/Mexico border (Appendix A, Figures 1 and 2). It is situated in Section 34, Township 18 South, Range 1 West in the central portion of the Otay Mesa, California, 7.5-minute USGS quadrangle.

1.3 PROJECT DESCRIPTION

The Project consists primarily of developing an approximately 1.1-acre vacant lot immediately south of an existing 7-Eleven fueling station/convenience store. Construction in the currently vacant area will include diesel fuel pumps with canopy and signage, new underground storage tanks to supply the new fueling facilities, and a bioretention basin in the southeast corner of the property. The Project also includes the construction of an 870 square-foot addition to the existing convenience store. The entire Project Site, consisting of the existing 7-Eleven facility and the vacant lot to the south, is approximately 3.07 acres in size.

2.0 METHODOLOGIES

2.1 LITERATURE REVIEW

As part of the biological investigation for the Project, Stantec performed a desktop analysis of available literature and database resources regarding historical and current conditions within the Project Site and vicinity to identify critical issues that could impact the Project. A search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2018a) was conducted for this Otay Mesa 7.5-minute USGS quadrangle to determine special-status plants, wildlife, and vegetation communities that have been documented within the vicinity of the Project Site. The following five adjacent quadrangles were also included in the database search due to their proximity to the Project Site (no USGS quadrangles occur to the south due to the Project's proximity to the U.S./Mexico border):

- Imperial Beach
- National City
- Jamul Mountains
- Dulzura
- Otay Mountain

Additional data regarding the potential occurrence of special-status species and policies relating to these special-status natural resources were gathered from the following sources:

- State and Federally Listed Endangered and Threatened Animals of California (CDFW, 2017a);
- Special Animals List (CDFW, 2017b);
- California Wildlife Habitat Relationships (CDFW, 2008);
- Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2018);
- State and Federally Listed Endangered and Threatened Plants of California (CDFW, 2018b);
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW, 2018c);
- Consortium of California Herbaria (CCH, 2018);
- National Wetlands Inventory (USFWS, 2006); and
- Aerial photographs of the Project Site and surrounding areas (Google Earth Pro, 2015)

2.2 BIOLOGICAL SURVEYS AND HABITAT ASSESSMENTS

2.2.1 Reconnaissance-Level Survey

In order to document the existing biological resources that are present in the Project Site, Stantec conducted a habitat assessment and reconnaissance-level biological survey on November 10, 2017. The primary goals of the survey were to identify and assess habitat capable of supporting special-status plants and/or wildlife species and to document species observed. The Project Site was surveyed on foot by an experienced field biologist and species observed were identified and recorded by sight, sound, or their sign. Species identifications conform to the most recent field guides and technical literature.

Surveys were conducted during daylight hours when animals would be active and detectable; however, it is possible that some wildlife may have been difficult to detect due to their elusive nature, cryptic morphology, or nocturnal behavior. The area surrounding the Project Site was experiencing a high level of activity during the November 10, 2017 survey, including heavy truck and passenger vehicle traffic on adjacent roadways and constant patronage of the existing 7-Eleven facility. As such, no wildlife was observed during the survey; however, one unoccupied passerine nest was detected in one of the street trees adjacent to La Media Road.

2.2.2 Rare Plant Survey

A focused survey for rare plants was conducted by a Stantec botanist on May 4, 2018. Because the site was surrounded by a fence at that time, the botanist conducted the survey by walking the periphery of the site and observing plants from a short distance. However, given the relatively small size of the site, the botanist was able to visually assess the entire site. Based on the full visual coverage and the disturbed nature of the site, this would represent and adequate survey methodology for the purpose of this assessment.

3.0 REGULATORY ENVIRONMENT

Special-status species are those taxa that are legally protected under the State or Federal Endangered Species Act (ESA) or other regulations and considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants and animals generally fall into one or more of the following categories:

- Plants or animals listed or proposed for listing as Threatened or Endangered under the
- Federal ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 1711 [listed animal] and various notices in the Federal Register [FR] [proposed species]);
- Plants or animals that are candidates for possible future listing as Threatened or
- Endangered under the Federal ESA (61 FR 40, February 28, 1996);
- Plants or animals listed or proposed for listing by the State of California as Threatened or Endangered under the California ESA (14 California Code of Regulations [CCR] 670.5);
- Animal Species of Special Concern to the CDFW (Remsen 1978 [birds], Williams 1986 [mammals], Jennings and Hayes 1994 [reptiles and amphibians], Moyle et al. 1989 [fish]);
- Animals Fully Protected in California (California Fish and Game Code, Sections 3511
- [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
- Bird species protected under the Migratory Bird Treaty Act (MBTA);
- Plants contained on the California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) (CNPS 2001, 2013 and Skinner and Pavlik 1994). Only Listed species and CRPR Lists 1 and 2 are considered “special-status” species. This includes plants on List 1A = Plants presumed extinct in California; List 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat); List 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened). The CRPR also includes Lists 3 and 4. Per the CDFW (2009), these plants typically do not warrant consideration under State California Environmental Quality Act (CEQA) Guidelines §15380 unless the specific circumstances relevant to local distributions make them of potential scientific interest.

A detailed discussion of the regulatory framework for this document is provided below.

3.1 FEDERAL REGULATIONS

3.1.1 Federal Endangered Species Act

Federal Endangered Species Act provisions protect federally listed threatened and endangered species and their habitats from unlawful take and ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Under the ESA, “take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct.” The U.S. Fish & Wildlife Service’s (USFWS) regulations define harm to mean “an act which actually kills or injures wild-life." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR § 17.3). Critical habitat is defined in Section 3(5)(A) of the ESA as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior (Secretary) that such areas are essential for the conservation of the species." The effects analyses for designated critical habitat must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question, consistent with the recent Ninth Circuit judicial opinion, Gifford Pinchot Task Force v. USFWS. Activities that may result in "take" of individuals are regulated by the USFWS. The USFWS produced an updated list of candidate species December 6, 2007 (72 FR 69034). Candidate species are not afforded any legal protection under ESA; however, candidate species typically receive special attention from Federal and State agencies during the environmental review process.

3.1.2 Migratory Bird Treaty Act

The MBTA of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.1.3 Bald and Golden Eagle Protection Act of 1940 (16 USC 668)

The Bald Eagle Protection Act of 1940 (16 U.S.C. 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 FR 31132; 50 CFR 22.3).

The USFWS is the primary federal authority charged with the management of golden eagles in the United States. Should pre-construction surveys demonstrate that golden eagles are utilizing the Project Site or vicinity for nesting and/or foraging, a permit for take of golden eagles, including take from disturbance such as loss of foraging habitat, may be required for this Project. USFWS guidance on the applicability of current Eagle Act statutes and mitigation is currently under review. On November 10, 2009, the USFWS implemented new rules (74 FR 46835) governing the "take" of golden and bald eagles. The new rules were released under the existing Bald and Golden Eagle Act which has been the primary regulation protection unlisted eagle populations since 1940. All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment. If a permit is required, due to the current uncertainty on the status of golden eagle populations in western United States, it is expected permits would only be issued for safety emergencies or if conservation measures implemented in accordance with a permit would result in a reduction of ongoing take or a net take of zero.

3.1.4 Federally Regulated Habitats

Areas meeting the regulatory definition of "Waters of the U.S." (Jurisdictional Waters) are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U.S.," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987). The Project Site falls within the South Pacific Division of the USACE and is under the jurisdiction of the Los Angeles District.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit would be effective in the absence of State water quality certification pursuant to Section 401 of the Clean Water Act. As a part of the permit process the USACE works directly with the USFWS to assess potential Project impacts on biological resources.

3.1.5 National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) requires all Federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and utilize public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision making. NEPA requires Federal agencies to review and comment on Federal agency environmental plans/documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 U.S.C. 4321- 4327) (40 CFR 1500-1508).

3.2 STATE REGULATIONS

3.2.1 California Environmental Quality Act

CEQA establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by State lead agencies. Regulations for implementation are found in the State CEQA Guidelines published by the Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects.

3.2.2 California Endangered Species Act

Provisions of California Endangered Species Act protect State-listed Threatened and Endangered species. The CDFW regulates activities that may result in "take" of individuals ("take" means "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. Additionally, the California Fish and Game Code contains lists of vertebrate species designated as "fully protected" (California Fish & Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

In addition to Federal and State-listed species, the CDFW also has produced a list of Species of Special Concern to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Species of Special Concern may receive special attention during environmental review, but they do not have statutory protection.

Birds of prey are protected in California under the State Fish and Game Code. Section 3503.5 states it is "unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Under Sections 3503 and 3503.5 of the State Fish and Game Code, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated in the Migratory Bird Treaty Act, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the Migratory Bird Treaty Act, or the taking of any non-game bird pursuant to Fish and Game Code Section 3800 are prohibited.

3.2.3 Native Plant Protection Act (Fish & Game Code 1900-1913)

California's Native Plant Protection Act (NPPA) requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of NPPA prohibit the taking of listed plants from the wild and require notification of the CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The Applicant is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

3.2.4 Section 1602 of the Fish and Game Code

Sections 1600-1603 of the California Fish and Game Code (CFGC) regulates all diversions, obstructions, or changes to the natural flow of bed, channel, or bank of any river, stream, or lake, which supports fish and wildlife. "Substantial" modifications to such water bodies that result in modifications to the bed, bank or associated riparian areas or flows within waters bodies require that a Notification for Lake or Streambed Alteration Agreement (LSAA) be provided to CDFW in procurement of a Section 1602 permit.

3.2.5 Section 3503 & 3503.5 of the Fish and Game Code

Under these sections of the Fish and Game Code, the Applicant is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory non-game bird as designated in the Migratory Bird Treaty Act, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the Migratory Bird Treaty Act, or the taking of any non-game bird pursuant to Fish and Game Code Section 3800.

3.2.6 Porter-Cologne Water Quality Control Act

Regional water quality control boards regulate the “discharge of waste” to “waters of the State.” All projects proposing to discharge waste that could affect waters of the State must file a waste discharge report with the appropriate regional board. The board responds to the report by issuing waste discharge requirements (WDR) or by waiving WDRs for that project discharge. Both of the terms “discharge of waste” and “waters of the State” are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other “discharge.” Isolated wetlands within California, which are no longer considered “waters of the United States” as defined by Section 404 of the CWA, are addressed under the Porter-Cologne Act.

3.2.7 State-Regulated Habitats

The State Water Resources Control Board is the State agency (together with the Regional Water Quality Control Boards [RWQCB]) charged with implementing water quality certification in California. The Project falls under the jurisdiction of the San Diego (Region 9) RWQCB.

The CDFW extends the definition of stream to include “intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS defined), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife” (CDFW, 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream; or which substantially change its bed, channel, or bank; or which utilize any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFW.

3.3 LOCAL REGULATIONS

3.3.1 Multiple Species Conservation Program

The City of San Diego adopted a Multiple Species Conservation Program (MSCP) Subarea plan in 1997. The goal of the City of San Diego’s MSCP was to create a habitat preserve system known as the Multi-Habitat Planning Area (MHPA) in order to coordinate conservation efforts on a regional scale while allowing development projects to occur.

The City of San Diego’s MSCP Subarea Plan (City of San Diego 1997a) was prepared pursuant to the general outline developed by USFWS and CDFW to meet the requirements of the California Natural Communities Conservation Planning Act of 1992. It serves as the Natural Communities Conservation Plan necessary under the Endangered Species Act for the issuance of an Incidental Take Permit for MSCP "covered" species. The MSCP identifies certain species as considered "covered," that is adequately conserved, within the MHPA. The Subarea plan specifies conditions of coverage for each covered species that must be applied when those species occur in a project area.

In addition, through the Biology guidelines in the Land Development Code (City of San Diego 2012), the City regulates development activities according to project location, within or outside of the MHPA. Upon project compliance with the MSCP Subarea plan and the Biology guidelines, the City is able to issue “take” authorization for covered species. Prior to the adoption of the MSCP, this "take" authorization would have required project-by-project review with the regulatory agencies.

Thus, the MSCP provides for the preservation of a network of habitat and open space, protecting biodiversity, and enhancing the region's quality of life. The plan is designed to preserve native vegetation and meet the habitat needs of multiple species, rather than focusing preservation efforts on one species at a time. By identifying priority areas for conservation and other areas for future development, the MSCP streamlines permit procedures for development projects that impact habitat. It also provides an economic benefit by reducing constraints on future development and decreasing the costs of compliance with federal and state laws that protect biological resources.

In addition to the City of San Diego's MSCP Subarea Plan, other local planning policy documents include the City of San Diego Guidelines for Conducting Biology Surveys (City of San Diego 2002) and the City's Biology Guidelines (City of San Diego 2012), referenced above. Within these guidelines, the City of San Diego established Environmentally Sensitive Land (ESL) regulations to ensure protection of resources consistent with CEQA and the City of San Diego's MSCP. ESLs include lands within the MHPA, wetlands, sensitive vegetation communities, habitat for listed species, lands supporting narrow endemics, and steep slopes. The regulations encourage avoidance and minimization of impacts to ESLs. The City's Biology Guidelines define the survey and impact assessment methodologies and mitigation requirements for unavoidable impacts (City of San Diego 2012).

Sensitive biological resources are defined by the San Diego Municipal Code (City of San Diego 2012) as:

- Lands that have been included in the MHPA as identified in the City of San Diego's MSCP Subarea Plan;
- Wetlands (as defined by the Municipal Code, Section 113.0103);
- Lands outside of the MHPA that contain Tier I habitats, Tier II habitats, Tier IIIA habitats, or Tier IIIB habitats as identified in the Biology Guidelines;
- Lands supporting species or subspecies listed as rare, endangered, or threatened;
- Lands containing habitats with narrow endemic species as listed in the Biology Guidelines; and
- Lands containing habitats of covered species as listed in the Biology Guidelines.

3.3.2 Otay Mesa Community Plan – Conservation Element

The Otay Mesa Community Plan Conservation Element builds on the General Plan Conservation Element with policies tailored to conditions in Otay Mesa. The Conservation Element addresses open space and habitat protection, and also contains policies on how to meet the City's sustainable development goals in areas that have been identified as suitable for development. [City of San Diego, 2014]

The goals of the Otay Mesa Community Plan – Conservation Element are as follows:

- Preservation of a natural open space canyon network and associated biological resources;
- Vernal pool preservation and management greenhouse gas reductions through implementation of village land use plans, support for transit, incentives for clean technology industries, alternative energy generation, and sustainable development;
- Assured water supply to meet future needs;

- Implementation of urban runoff management techniques;
- Development of a community-wide urban forest;
- Local food generation through community farms and gardens; and
- Safe and healthy air quality within Otay Mesa. [City of San Diego, 2014]

3.4 OTHER APPLICABLE REGULATIONS, PLANS, AND STANDARDS

3.4.1 California Native Plant Society Rare Plant Program

The mission of the CNPS Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants, and to use this information to promote science-based plant conservation in California. Once a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (listing status, habitat, distribution, threats, etc.) are entered into the online CNPS Inventory and given a CRPR. In 2011, the CNPS officially changed the name "CNPS List" to "CRPR." The Program currently recognizes more than 1,600 plant taxa (species, subspecies and varieties) as rare or endangered in California.

Vascular plants listed as rare or endangered by the CNPS, but which might not have designated status under State endangered species legislation, are defined by the following CRPR:

- CRPR 1A - Plants considered by the CNPS to be extinct in California
- CRPR 1B - Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2 - Plants rare, threatened, or endangered in California, but more numerous elsewhere
- CRPR 3 - Plants about which we need more information – a review list
- CRPR 4 - Plants of limited distribution – a watch list

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension added onto the CRPR and designates the level of endangerment by a 1 to 3 ranking, with 1 being the most endangered and 3 being the least endangered and are described as follows:

- 0.1 – Seriously threatened in California (high degree/immediacy of threat)
- 0.2 – Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known.

4.0 EXISITING CONDITIONS

4.1 REGIONAL SETTING

The Project Site is located on the Otay Mesa in the central portion of the Otay Mesa, California, 7.5-minute USGS quadrangle, approximately 1.2 miles north of the U.S/Mexico border. The mesa surrounding the Project Site consists of a patchwork of commercial and industrial land uses, including the Brown Field Municipal Airport to the northwest of the Project Site, and areas of open space. The Project Site does not occur within or adjacent to areas included in the MHPA.

4.2 LOCAL SETTING

The Project Site is bordered to the north by an existing 7-Eleven facility, to the west by commercial development, to the south by St. Andrews Avenue and commercial development, and to the east by La Media Road and open space. It is situated on a relatively flat area approximately 485 feet above mean sea level. The Project Site is surrounded by a chain link fence at the time of the surveys and is heavily disturbed, exhibiting signs of heavy equipment activity (tire ruts) and containing several trash items. Investigation of historical aerial photography (Google Earth®) indicates that the Project Site has been unfenced in the past and subject to substantial earthwork around the time the adjacent 7-Eleven facility was constructed, and it was subsequently used as a truck parking area or pass through to St. Andrews Avenue. Appendix B includes a photographic log of site conditions and notable biological resources.

4.3 GENERAL VEGETATION AND LAND COVERS

Vegetation on the Project Site consist of common plant species and a community characteristic of disturbed areas in the region. Generally, mapping and description of plant communities follows the Manual of California Vegetation II classification system described in the second edition of A Manual of California Vegetation (Sawyer et al. 2009). However, there are no native habitats present within the Project Site, and the land cover type listed below is descriptive in nature and not included in that reference. Species scientific and common names correspond to those described in the second edition of The Jepson Manual (Baldwin et al. 2012).

The Project Site supports two land cover types: Disturbed – Ruderal Herbaceous and Developed (refer to Appendix A, Figure 3).

4.3.1 Vegetation Communities and Land Cover Types

4.3.1.1 Disturbed – Ruderal Herbaceous

The undeveloped portion of the Project Site consists of primarily bare ground with sparse growth of non-native annual grasses (*Avena* spp., *Bromus* spp.) interspersed with other non-native herbaceous species including Russian thistle (*Salsola tragus*). A single immature ornamental tree, approximately 12 feet tall, occurs in the northwest portion of the property. Several ornamental “street” trees, ranging in height from approximately 10 to 15 feet, occur on the sidewalk along the east side of the Project Site, adjacent to La Media Road.

4.3.1.2 Developed

The remainder of the Project Site consists of existing developed land, which is primarily hardscape. Also present in these developed areas are small landscaped areas consisting of ornamental plant species. Appendix C lists all plant taxa observed on the Project Site during surveys.

4.3.2 Soils

A review of historic soil types mapped by the Natural Resources Conservation Service (NRCS) identified one soil type within the Project Site: Stockpen gravelly clay loam, 2 to 5 percent slopes (Appendix A, Figure 4). This soil series consists of deep, moderately well drained soils formed from alluvium derived from mixed sources. This soil is considered a hydric soil in ponded areas by the NRCS. Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part; under sufficiently wet conditions, they support the growth and regeneration of hydrophytic vegetation. Areas of soil surface were cracked, indicating an extended period of moisture retention, at least in portions of the site. The soil type occurring on site is generally not known to support edaphic special status plant species (i.e., the soils of the site are neither serpentine or alkaline).

4.3.3 Jurisdictional Waters/Wetlands

Jurisdictional waters typically include rivers, creeks, and drainages that have a defined bed and bank and that, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal CWA; the CDFW regulates activities under the Fish and Game Code Section 1600-1607; and the RWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

A review of the National Wetlands Inventory (NWI) does not indicate the presence of mapped riverine or wetland features on the site. A formal jurisdictional delineation was not conducted as part of the biological investigation of the Project Site; however, based on the conditions observed during the survey, it does not appear that jurisdictional waters occur on the Project Site. Within the Project Site, there is no evidence of a channel, swale, or other obvious depression.

4.4 COMMON WILDLIFE

4.4.1 Invertebrates and Gastropods

The Project Site contains suitable habitat for a wide variety of invertebrates, including Argentine ants (*Linepithema humile*), grasshoppers (*Orthoptera* spp.), flies (*Diptera* spp.), and butterflies (*Lepidoptera* spp.).

4.4.2 Amphibians

Most amphibians require moisture for at least a portion of their life cycle, with many requiring a permanent water source for habitat and reproduction. Some terrestrial amphibians have adapted to more arid conditions and are not completely dependent on a perennial or standing source of water. These species can avoid desiccation by burrowing underground to avoid the heat of the day and during the dry season (aestivation). No amphibians were observed within the Project Site during biological surveys conducted as part of this investigation. Though surveys were not conducted during the rainy season, it does not appear that surface water would persist on the Project Site long enough to allow amphibians to complete their life cycle. Additionally, barriers such as adjacent roads and businesses and limited foraging habitat present further reduce the likelihood that amphibians would inhabit the Project Site.

4.4.3 Reptiles

The number and type of reptile species that may occur at a given site is related to a number of biotic and abiotic features. These include the diversity of plant communities, substrate, soil type, and presence of refugia such as rock piles, boulders, and native debris. Most reptile species, even if present in an area, are difficult to detect because they are cryptic and their life history characteristics (i.e., foraging and thermoregulatory behavior) limit their ability to be observed during most surveys. Further, many species are only active within relatively narrow thermal limits, avoiding both cold and hot conditions, and most take refuge in microhabitats that are not directly visible to the casual observer, such as rodent burrows, in crevices, under rocks and boards, and in dense vegetation where they are protected from unsuitable environmental conditions and predators (USACE and CDFG, 2010). In some cases, they are only observed when flushed from their refugia.

As with other wildlife, the potential for reptiles to permanently inhabit the Project Site is minimal due to limited foraging habitat and movement barriers presented by surrounding development. However, due to their ubiquitous nature throughout southern California, a few common reptiles may occur on the Project Site. Though no reptiles were observed on the Project Site during the surveys, species that may occur include western fence lizard (*Sceloporus occidentalis*) and side-blotched lizard (*Uta stansburiana*).

4.4.4 Birds

The diversity of bird species occurring within a given area depends heavily on the character, quality, and diversity of vegetation communities within that area. Due to the factors identified above and substantial level of human activity in the area, no birds were observed on the Project Site during surveys. Common species that may occur include rock dove (common pigeon) (*Columbia livia*), Brewer's blackbird (*Euphagus cyanocephalus*), common grackle (*Quiscalus quiscula*), mourning dove (*Zenaida macroura*), and common raven (*Corvus corax*).

Trees present on and adjacent to the Project Site provide limited potential suitable nesting habitat for passerines (song birds). One unoccupied passerine nest was detected in the canopy of a street trees adjacent to La Media Road.

4.4.5 Mammals

The Project Site does not support suitable mammal habitat for the reasons identified above. No burrows or other refugia were observed on the Project Site and access to the site is further restricted by the surrounding fencing; however, common mammals known to occur in the region and habituated to disturbed areas with elevated levels of human activity may occur as transients. These include: California ground squirrel (*Otospermophilus beecheyi*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis viginiana*), though they would not be expected in disturbed areas such as that present on the Project Site as frequently as in native habitats.

5.0 SPECIAL-STATUS SPECIES

The information presented above, combined with field observations taken during surveys conducted by Stantec, was used to generate a list of special-status natural communities and special-status plant and animal taxa that either occur or may have the potential to occur on the Project Site and/or adjacent habitats. For the purposes of this report, special-status taxa are defined as plants or animals that:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either the California or Federal ESAs;
- Are candidate species being considered or proposed for listing under these same acts;
- Are recognized as Species of Special Concern by the CDFW;
- Are ranked as CRPR 1, 2, 3 or 4 plant species;
- Are fully protected by the California Fish and Game Code, Sections 3511, 4700, 5050, or 5515; or
- Are of expressed concern to resource/regulatory agencies, or local jurisdictions.

5.1 SPECIAL-STATUS NATURAL COMMUNITIES

Special-status natural communities are defined by CDFW (2009) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank, however only those that are of special concern (S1-S3 rank) are generally evaluated under the CEQA. The literature review did not identify special-status natural communities present on the Project Site (CDFW 2018a), nor were any observed during the surveys conducted in support of the biological investigation. The Project Site does not occur within or adjacent to lands included in the MHPA.

5.2 DESIGNATED CRITICAL HABITAT

Literature review conducted prior to performing field surveys determined that critical habitat does not occur on or immediately adjacent to the Project Site. The nearest USFWS-designated critical habitat, for San Diego fairy shrimp (*Branchinecta sandiegoensis*), is mapped approximately 0.5 mile north of the Project Site.

5.3 SPECIAL-STATUS PLANTS

Based on a review of the CNDDB and CNPS databases, no sensitive plant species have been documented on the Project Site, and none were observed during the focused plant survey conducted for the Project. Based on the site surveys, the Project Site does not contain suitable habitat to support special-status plant species. The land has experienced significant long-term disturbance, which has likely altered soil profiles, plant species composition, drainage patterns, and other ecological factors generally required by sensitive species to occur.

5.4 SPECIAL-STATUS WILDLIFE

"Listed" species are those species that are listed as "threatened" or "endangered" by either the State of California or under the Federal Endangered Species Act. Special-status wildlife species include federally or state-recognized listed species, candidates for potential listing, and species with a designation from CDFW of "Watch List", "Fully Protected", or "California Species of Concern."

No special-status wildlife species were observed on the Project Site during surveys conducted in conjunction with this biological investigation. The site has a low potential to support the majority of the special status plants and wildlife known to occur in the region based on the following:

- The Project Site has historically been heavily disturbed, having been used as a truck parking area and pass through from the 7-11 parking lot to St. Andrews Avenue;
- The Project Site is isolated from other nearby areas of open space, with the closest area of open space to the east being separated by ~130 feet of heavily trafficked La Media Road;
- Project Site suitability for sensitive species is greatly reduced due to the ongoing level of disturbance on the adjacent roadway and that associated with business operations in the area.

It is possible that there may be some species that are habituated to such disturbed conditions that could be present on the site, at least as transients. In particular, burrowing owl (*Athene cunicularia*) and San Diego and Riverside fairy shrimp (*Branchinecta sandiegoensis* and *Streptocephalus woottoni*, respectively) have been known to occur in disturbed areas and have the low potential to occur on the Project Site. Other special-status species that have been observed in the region are not expected to occur on the Project Site based on the factors identified above and are not discussed further in this report.

Burrowing Owl

Regulatory Status: California Species of Special Concern.

The burrowing owl is a small, ground-dwelling species. Burrowing owls have long legs, yellow eyes, and are mottled brown in color. Preferred habitat for the species includes open, generally flat areas that are dry and contain short-grass vegetation. The species also utilizes agricultural areas, vacant fields, and ruderal areas if the areas contain suitable burrows and habitat for foraging. Burrowing owls often use burrows created by other species, such as California ground squirrel. Diet typically consists of small rodents, arthropods, amphibians, reptiles, small birds, and carrion. Burrowing owls are comparatively easy to detect because they are frequently visible outside their burrows during the day, generally active at dusk and dawn, and occasionally active at night. The nesting season for these birds begins in late March or April.

No burrowing owls or their sign was observed on the Project Site during the Stantec biological surveys, nor were any suitable burrows observed. While focused burrowing owl surveys have not been conducted, it is unlikely that burrowing owls permanently inhabit the Project Site. Given the small size and isolated nature of the property, prey availability would likely be limited; therefore, an owl theoretically inhabiting the site would have to cross several lanes of the busy La Media Road to gain access to additional foraging grounds. An owl choosing to inhabit the area would be much more likely to take advantage of the availability of any of the large, contiguous expanses of superior quality habitat in the vicinity of the site, which would present far less obstacles to safe foraging, burrow establishment, clutch rearing, etc.

San Diego and Riverside Fairy Shrimp

Regulatory Status: Federal Endangered.

These branchiopods inhabit vernal pools and other unvegetated ephemeral basins in Orange, Riverside, and San Diego Counties and Baja California. Suitable pools are typically more than 30 centimeters deep, within 64 kilometers of the Pacific Ocean, and less than 701 meters above mean sea level.

Ideally suitable conditions are not present on the Project Site due to its relatively flat topography. In addition, the potential for this species to occur is further reduced by the long-term ground-disturbing activities on the Project Site, including being used as a big rig parking area over the years, apparent heavy equipment use, and isolation from other less-disturbed areas of suitable habitat.

5.5 WILDLIFE CORRIDORS AND SPECIAL LINKAGES

Linkages and corridors facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water is available. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

As the movements of wildlife species are more intensively studied using radio-tracking devices, there is mounting evidence that some wildlife species do not necessarily restrict their movements to some obvious landscape element, such as a riparian corridor. In general, the following corridor functions can be utilized when evaluating impacts to wildlife movement corridors:

- **Movement corridors** are physical connections that allow wildlife to move between patches of suitable habitat. Currently, there is no consensus what traits (length, width, adjacent land use, etc.) are required for a corridor to be useful. The critical features of a movement corridor may not be its physical traits but rather how well a particular piece of land fulfills several functions, including allowing dispersal, plant propagation, genetic interchange, and recolonization following local extirpation.

- **Dispersal corridors** are relatively narrow, linear landscape features embedded in a dissimilar matrix that links two or more areas of suitable habitat that would otherwise be fragmented and isolated from one another by rugged terrain, changes in vegetation, or human-altered environments. Corridors of habitat are essential to the local and regional population dynamics of a species because they provide physical links for genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities. Habitat linkages are broader connections between two or more habitat areas. This term is commonly used as a synonym for a wildlife corridor. Habitat linkages may themselves serve as source areas for food, water, and cover, particularly for small- and medium-size animals.

- **Travel routes** are usually landscape features, such as ridgelines, drainages, canyons, or riparian corridors within larger natural habitat areas that are used frequently by animals to facilitate movement and provide access to water, food, cover, den sites, or other necessary resources. A travel route is generally preferred by a species because it provides the least amount of topographic resistance in moving from one area to another yet still provides adequate food, water, or cover.

- **Wildlife crossings** are small, narrow areas of limited extent that allow wildlife to bypass an obstacle or barrier. Crossings typically are manmade and include culverts, underpasses, drainage pipes, bridges, and tunnels to provide access past roads, highways, pipelines, or other physical obstacles. Wildlife crossings often represent “choke points” along a movement corridor because useable habitat is physically constricted at the crossing by human-induced changes to the surrounding areas.

5.5.1 Wildlife Movement on the Project Site

Avian wildlife is physically able to move unimpeded throughout the Project Site and is not restricted to specific corridors or linkages, though movement for some terrestrial wildlife is limited due to the fencing surrounding the Project Site. Movement for both terrestrial and avian wildlife is also likely impeded by surrounding development and ongoing elevated levels of human presence and activity, including nearby vehicle traffic. As such, the Project Site does not function as a wildlife movement corridor and is not otherwise significant in facilitating wildlife passage in the area. The Project Site does not occur within a biological core or linkage area as defined in the MSCP Plan (City, 1998).

6.0 IMPACT ANALYSIS

6.1 DIRECT IMPACTS

"Direct" impacts are those that result in disturbance to habitat or adverse impacts to wildlife, generally occurring at the time of construction and from activities such as excavation, grading or grubbing. Direct impacts to wildlife could be injury or mortality of individuals from construction equipment or vehicles either by being struck or run over by vehicles. Grading can also crush or entrap animals occupying burrows. Direct impacts include both permanent and temporary impacts. Permanent impacts include activities such as grading and paving. Temporary impacts include activities such as vegetation trimming or best management practice (BMP) installation.

6.1.1 Current Project

The current Project will result in the permanent impact of approximately 1.1 acres of heavily disturbed land and the removal of largely non-native, ruderal vegetation, listed as a Tier IV habitat in the City's biology guidelines (City, 2018). City biology guidelines (City, 2018) states that "Impacts to non-native grasslands totaling less than 1.0 acres which are completely surrounded by existing urban developments are not considered significant and do not require mitigation. Examples may include urban infill lots." Therefore, the direct impacts to disturbed habitat resulting from the Project would be considered of minimal significance and will not require any mitigation.

6.1.2 Original Development

According to the Initial Study/Mitigated Negative Declaration (IS/MND) prepared and adopted for the original development of the 7-11 facility (City, 1996), the Project was expected to result in impacts to approximately 3.08 acres of non-native grassland habitat, a Tier IIIB habitat according to the City's Biology Guidelines (City, 2018). Pursuant to the IS/MND, the applicant agreed to compensate for this loss through the "allocation" of 1.54 acres of non-native grassland within a preserve area on Otay Mesa. Based on communication with the City (R. Benally, personal communication, July 9, 2019), neither the City nor the applicant possess a record of this condition of approval having been satisfied. Therefore, the measure outlined in Section 7.1 will ensure that this commitment is met.

6.2 INDIRECT IMPACTS

Indirect impacts from development projects often include those from dust, noise, night-time lighting, runoff/decreased water quality, and colonization/spread of invasive, non-native plant species. Due to the disturbed nature of the Project

Site and lack of suitable habitat for most plants and wildlife, potential indirect impacts to biological resources would likely be limited to potential nesting birds, which would be considered a significant impact. However, the Project would comply with federal, state, and local regulations, which would reduce potential indirect impacts to a less than significant level.

Dust

Activities such as grading and driving equipment on unpaved roadways have the potential to result in indirect impacts to surrounding vegetation communities from increased levels of dust that may settle on the plants. Increased levels of dust on plants can adversely affect plants' photosynthetic capabilities, adversely affect their productivity and nutritional qualities, and degrade the overall health of the vegetation communities, which may also adversely affect wildlife dependent on them.

Noise

Breeding birds and mammals may temporarily or permanently leave their territories to avoid noisy activities, including abandoning active nests, which could lead to reduced reproductive success and increased mortality. These impacts can be adverse but less than significant for animal species that are not special status.

6.3 IMPACTS TO SENSITIVE HABITATS

Per CDFW, alliances with state ranks of S1-S3 and all associations within them are considered to be highly imperiled (S1) to vulnerable (S3). Impacts to high-quality occurrences of S1, S2 and S3 communities may be considered significant under CEQA. No sensitive habitats currently occur on the Project Site and impacts from Project construction are expected to be confined to areas that are currently disturbed.

6.4 IMPACTS TO SPECIAL-STATUS PLANT SPECIES

No special-status plant species were detected during the focused rare plant survey; however, some plant species may bloom outside of the period during which the survey was conducted. Based on existing conditions on the Project Site and analysis of each species' potential for occurrence, special-status are not expected to occur on the Project Site. Therefore, impacts to special-status plant species are not anticipated as a result of construction-related activities.

6.5 IMPACTS TO SPECIAL-STATUS WILDLIFE SPECIES

Special-Status Wildlife

The Project Site is not expected to support special-status wildlife due to the factors discussed above. Impacts to special-status wildlife species are not anticipated as a result of construction-related activities.

Nesting Birds

Nesting birds can be adversely affected from noise or human activity generated during construction, resulting in decreased reproductive success or abandonment of a nest or an area defined as nesting habitat. No nesting activity was observed during the biological surveys conducted by Stantec on the Project site. The Project site does, however, support potential nesting habitat for passerines, signs of which were observed during the initial reconnaissance survey.

If implementation of the Project resulted in adverse effects to nesting birds, it may be considered a violation of the MBTA, which would be considered a significant impact. As noted above, the Project will be required to adhere to all federal, state, and local regulations, which will ensure that potential impacts to nesting birds are reduced to a less than significant level.

7.0 AVOIDANCE AND MINIMIZATION MEASURES

7.1 MITIGATION FOR LOSS OF NON-NATIVE GRASSLAND (TIER IIIB HABITAT)

To compensate for the loss of 3.08 acres of non-native grassland habitat resulting from the original development of the 7-11 facility and in keeping with the measure agreed upon in the approved IS/MND, the applicant shall purchase the credits necessary to preserve non-native grassland habitat within a preserve on Otay Mesa. Pursuant to the City's Biology Guidelines (City, 2018), the loss of Tier IIIB habitat (in this case, non-native grassland) that occurs outside of the MHPA shall be compensated at a 0.5:1 ratio and that mitigation lands should be preserved within the MHPA. Therefore, the applicant shall purchase credits for at least 1.54 acres of non-native grassland habitat and shall provide proof thereof to the City.

8.0 REFERENCES

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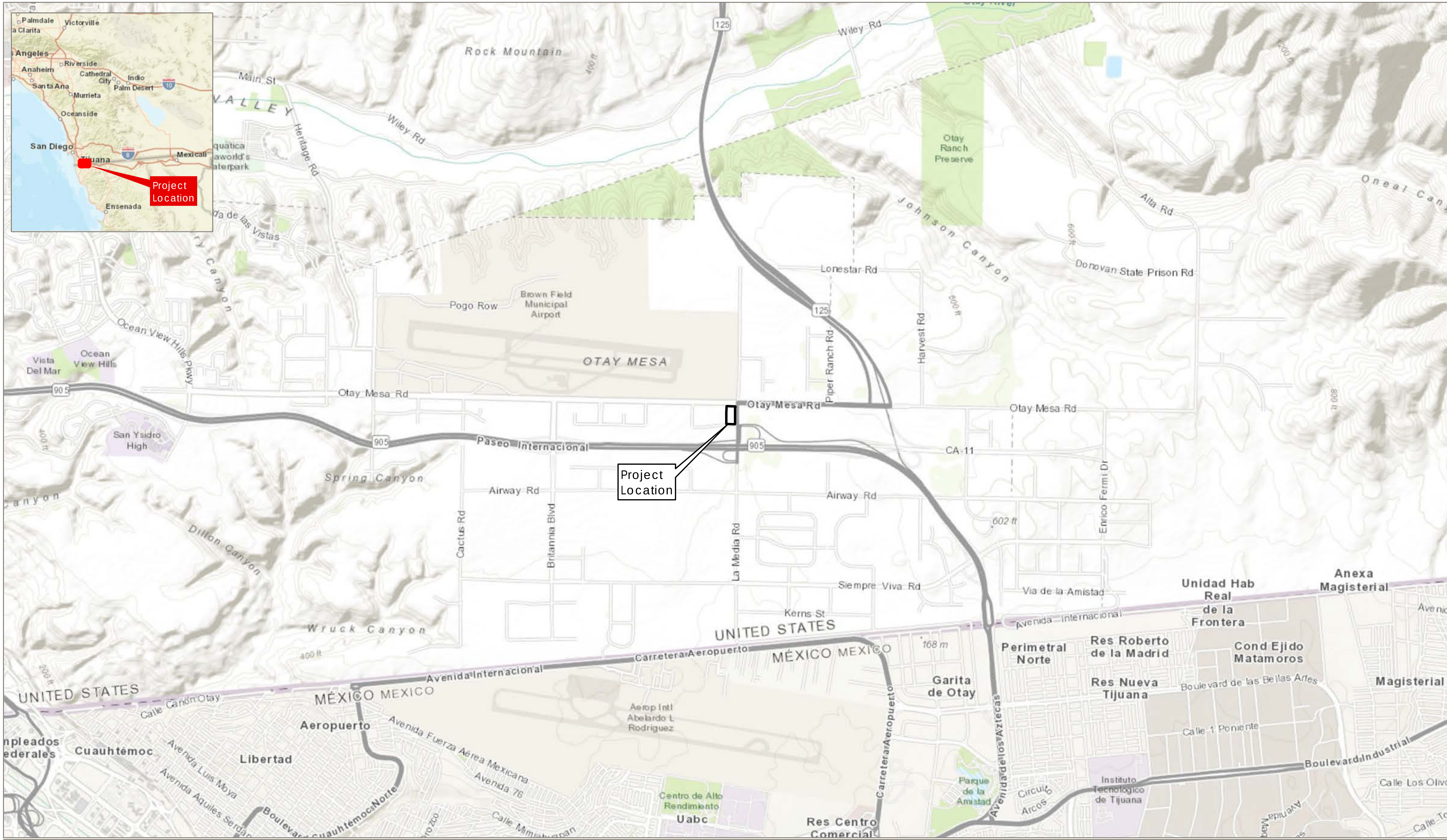
APPENDICES

Appendix A FIGURES



Legend

Project Area

0 0.5 1 Miles

N

Stantec
290 Conejo Ridge Ave
Thousand Oaks, CA 91361
Phone 805.405.0256
Fax 805.230.1277
www.stantec.com

For: 7-Eleven
Store No. 32290 Expansion
8395 Otay Mesa Road,
San Diego, CA 92154

Regional Location Map

Figure: 1

Job Number:	Drawn By:	Checked By:	Approved By:	Date:
185804156	Jason Trook	Tim Ward	Rocky Brown	4/20/2018

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

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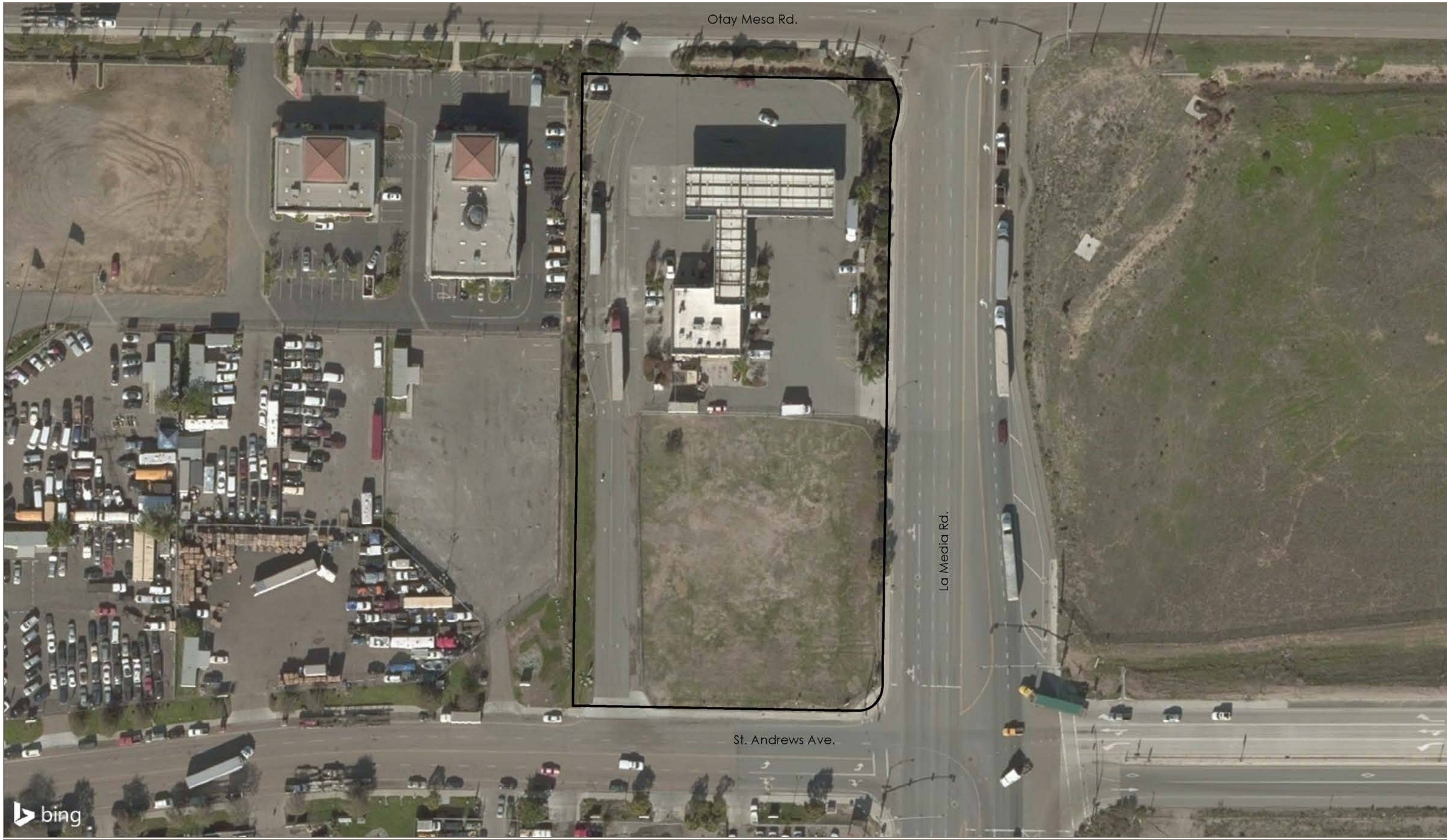

Legend

Project Area

0 75 150 Feet

N

Stantec

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Thousand Oaks, CA 91361
Phone 805.405.0256
Fax 805.230.1277
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For: 7-Eleven
Store No. 32290 Expansion
8395 Otay Mesa Road,
San Diego, CA 92154

Project Site Map

Figure: 2

Job Number:	Drawn By:	Checked By:	Approved By:	Date:
185804156	Jason Trook	Tim Ward	Rocky Brown	4/20/2018

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

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Legend

Project Area

Existing Fence

Project Plan

0 75 150
Feet

N

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290 Conejo Ridge Ave
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San Diego, CA 92154

Project Plan Map

Figure: 3

Job Number:	Drawn By:	Checked By:	Approved By:	Date:
185804156	Jason Trook	Tim Ward	Rocky Brown	4/20/2018

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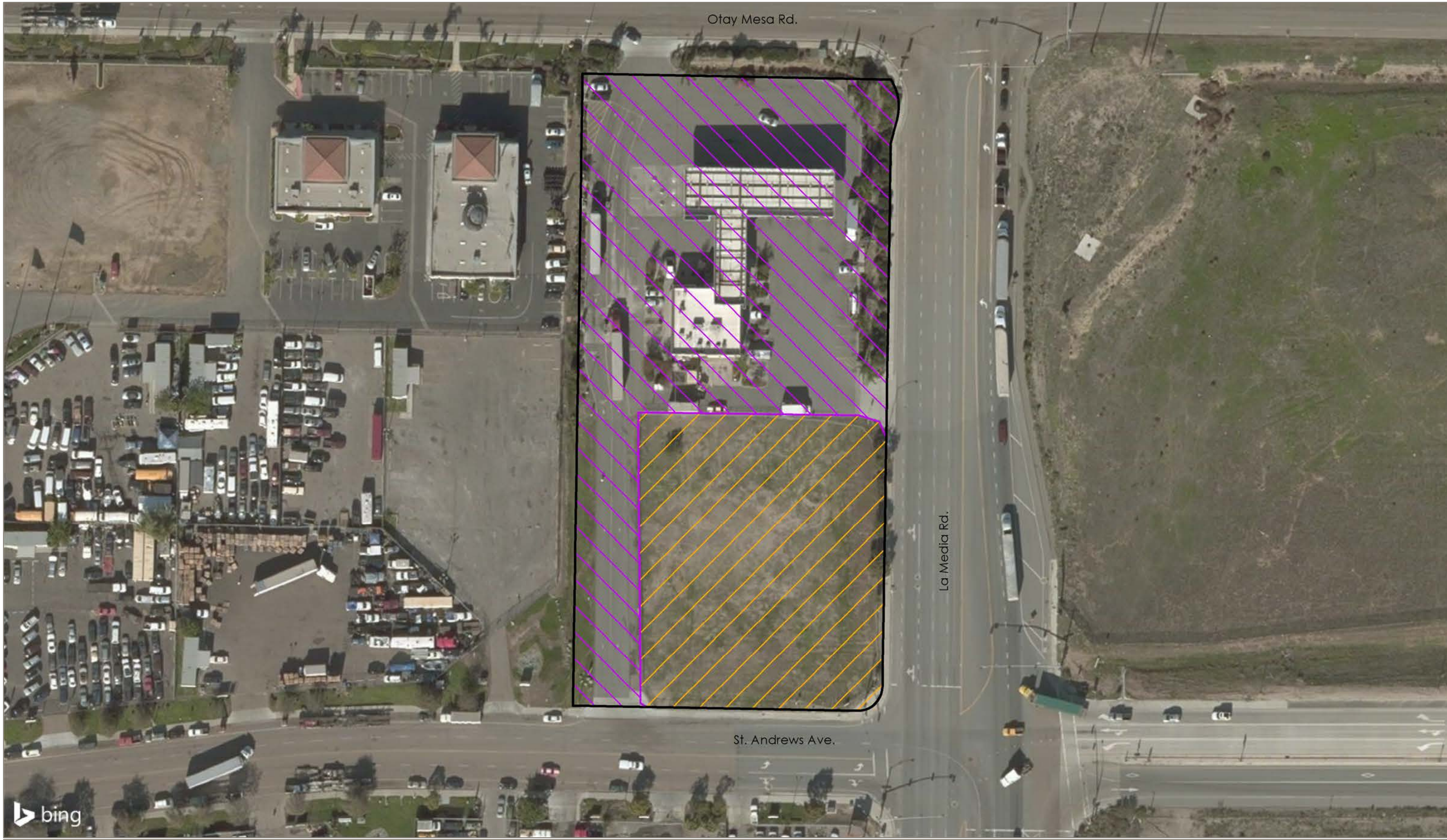


Legend

- Project Area
- Developed
- Disturbed – Ruderal Herbaceous

0 75 150 Feet

N

Stantec
290 Conejo Ridge Ave
Thousand Oaks, CA 91361
Phone 805.405.0256
Fax 805.230.1277
www.stantec.com

For: 7-Eleven
Store No. 32290 Expansion
8395 Otay Mesa Road,
San Diego, CA 92154

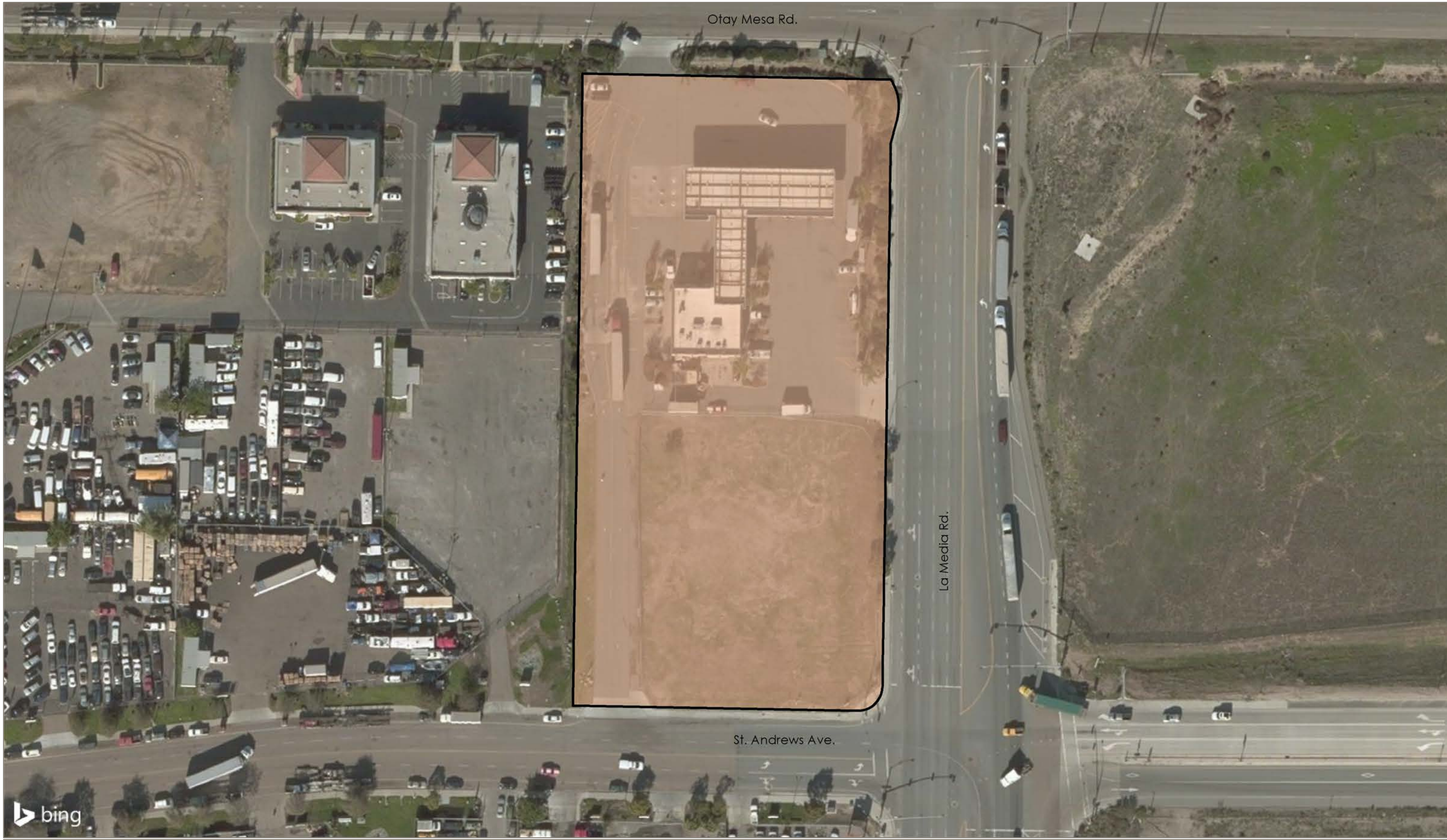
Vegetation Communities

Figure: 4

Job Number:	Drawn By:	Checked By:	Approved By:	Date:
185804156	Jason Trook	Tim Ward	Rocky Brown	4/20/2018

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Document Path: V:\1858\Active\185850576\03_data\gis_cad\mxd\Fig4_Vegetation_Communities_11x17L.mxd



Legend

Project Area

SuB: Stockpen gravelly clay loam, 2 to 5 percent slopes

0 75 150 Feet

N

Stantec
290 Conejo Ridge Ave
Thousand Oaks, CA 91361
Phone 805.405.0256
Fax 805.230.1277
www.stantec.com

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8395 Otay Mesa Road,
San Diego, CA 92154

Soils Map

Figure: 5

Job Number:	Drawn By:	Checked By:	Approved By:	Date:
185804156	Jason Trook	Tim Ward	Rocky Brown	4/20/2018

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

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Appendix B PHOTOGRAPHIC LOG

STANTEC CONSULTING SERVICES INC.
PHOTOGRAPHIC RECORD

Client: 7-Eleven	**Job Number:** 185850576
Site Name: Store No. 32290	**Photographer:** R. Brown

Photo 1: November 10, 2017

View from northeast corner of the Project site, looking southwest.

Photo 2: November 10, 2017

View from southwest corner of the Project site, looking northeast. Note heavy equipment tracks in foreground.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: 7-Eleven	**Job Number:** 185850576
Site Name: Store No. 32290	**Photographer:** R. Brown

Photo 3: November 10, 2017

View from northwest corner of the Project site, looking southeast. Note the sole tree occurring on the Project site in foreground.

Photo 4: November 10, 2017

View inactive nest among branches of "street" tree adjacent to La Media Road.

Appendix C PLANT SPECIES OBSERVED

Plant Species Observed During Spring Special-Status Plant Survey within the 7-11 Otay Mesa Project Site	
Scientific Name	**Common Name**
Achyrachaena mollis	Blow wives
Acmispon maritimus var. *maritimus*	Coastal lotus
Amsinckia intermedia	Common fiddleneck
Atriplex pacifica	South coast saltscale
Avena fatua	Wild oats*
Baccharis pilularis	Coyote brush
Brodiaea terrestris	Kern brodiaea
Bromus hordeaceus	Soft chess*
Bromus madritensis ssp. rubens	Foxtail brome*
Descurainia pinnata	Western tansy mustard
Elatine brachysperma	Short-seed waterwort
Festuca perennis	Italian rye grass*
Glebionis coronaria	Crown daisy*
Heliotropium curassavicum	Wild heliotrope
Helminthotheca echioides	Bristly ox-tongue*
Hirschfeldia incana	Summer mustard*
Hordeum murinum	Foxtail barley*
Layia platyglossa	Tidy tips
Lasthenia californica	California goldfields
Melilotus sp.	Sweet clover*
Malvella leprosa	Alkali mallow
Navarretia sp.	Navarretia
Oligomeris linifolia	Leaved cambess
Pennisetum setaceum	Fountaingrass*
Phalaris minor	Little seed canarygrass*
Polypogon monspeliensis	Annual beard grass*
Rumex crispus	*Curly dock**
Schismus barbatus	Mediterranean grass*
Solanum umbelliferum	Blue witch
Nerium oleander	Ornamental Oleander*
Salsola kali	Russian thistle*
Sonchus asper ssp. asper	Sow thistle*
*=non-native species	

APPENDIX D

ARCHEOLOGY RESOURCE REPORT

CULTURAL RESOURCE STUDY FOR THE 7-ELEVEN OTAY MESA EXPANSION CUP-SDP, CITY OF SAN DIEGO SAN DIEGO COUNTY, CALIFORNIA.
PTS No. 553296

August 29, 2018

Prepared for:

7-Eleven, Incorporated

Prepared by:

Victoria Harvey, Hubert Switalski, and Sandra Speas
Stantec Consulting Services, Inc
5500 Ming Avenue
Bakersfield, California 93309

Photo: Project site, view north from the near St. Andrews Avenue, taken Nov. 6, 2017

City of San Diego
ARCHAEOLOGICAL RESOURCE REPORT FORM

This report form shall be used when a site-specific survey for historical resources was completed and no archaeological resources were identified within the project area (APE). This form may be used, rather than completion of an Archaeological Resource Management report, when archaeological resources were identified and, based on an evaluation, were determined to be non-significant or are potentially significant but will not be directly impacted by the proposed development project. Completion of the required site-specific survey and this report form must conform to the Historical Resources Guidelines of the Land Development Manual.

I. PROJECT DESCRIPTION AND LOCATION

The proposed project is located in the community of Otay Mesa in the southern portion of the City of San Diego, in San Diego County, California. Specifically, the project area is located at 8395 Otay Mesa Road, 350 feet south of the southwest corner of Otay Mesa Road and La Media Road, bordered on the east by La Media Road, by St. Andrews Avenue to the south, a paved access road to the west, and the existing parking lot of 7-Eleven Store #32290 (7-Eleven) to the north. The project is located in the northeast quarter of the northeast quarter of section 34, Township 18 South, Range 1 West, as depicted on the Otay Mesa, CA (1991), USGS 7.5" Quadrangle. It lies south of the Brown Field Municipal Airport and north of State Route (SR) 905 Freeway. The U.S./Mexico Border is 1.25 miles south of the project site.

The project proposes an amendment to Conditional Use Permit (CUP) No. 96-7731 and Site Development Permit (SDP) to allow the construction of an 870 square-foot addition to the existing 7-Eleven convenience store and accompanying service station. The addition will include additional diesel fuel pumps with canopy and signage, underground storage tanks (UST), and freeway sign on the partially vacant 1.2-acre site.

II. SETTING

Natural Environment (Past and Present)
The Community of Otay Mesa is located in a relatively flat valley west of the Otay River Valley and less than 10 miles east of the Pacific Ocean, in the southern portion of the City of San Diego. Early use of the area included agriculture and aviation.

The project location is in a heavily developed industrial area that is disturbed by past grading and development and is determined to be "heavily commercial" use in the Otay Mesa Community Plan Update March 11, 2014 (OMCPU). Heavily commercial implies that the project location is designated at a location for, "…retail sales, commercial services, office uses, and heavier commercial uses…" (OMCPU:LU-5).

History
Although other areas in San Diego County were impacted first by the Spanish (1769-1821) then Mexican influences (1821-1846), the Otay Mesa area remained mostly untouched (Otay Mesa Community Plan Update 2008). When Mexican rule took the place of Spanish rule and land grants were being given out, a grant of 6,657-acres was given to Dona Magalena Estudillo in 1829 (Painter 1985:46; City of San Diego's Otay Mesa Community Plan Update 2008). This Rancho, named Rancho Otay, included the northern tip of Otay Mesa at the southern boundary (Painter 1985:46; City of San Diego's Otay Mesa Community Plan Update 2008).

The Homestead Act in 1862 brought an influx of American Settlers into the west, with the first recorded homesteaders in Otay Mesa to arrive in 1870 (Painter 1985:46; City of San Diego's Otay Mesa Community Plan Update 2008). In the 1880s, a "land boom" brought a great influx of settlers into Otay Mesa and between 1885 and 1887 the town was promoted as an agricultural resource (City of San Diego's Otay Mesa Community Plan Update 2008). By 1887 there were 40 households that included 140 people (Van Wormer 1987:4; City of San Diego's Otay Mesa Community Plan Update 2008), so farmers continued to stake their claim and agriculture continued to be the economic backbone of the city.

Aviation began in Otay Mesa in the 1880s when John Joseph Montgomery made the world's first controlled flight with a fixed wing glider 20 years before the Wright Brothers were credited with their first flight (City of San Diego's Otay Mesa Community Plan Update 2008:14). Aviation continued in Otay Mesa with the Army Air Corps air field, known as East Field, along Otay Mesa Road in 1918 (City of San Diego's Otay Mesa Community Plan Update 2008:14). Although only planned as temporary, the United States Navy began using the air strip in the 1920s as a practice landing field and in 1935 the Army transferred the air strip to the Navy who called it the Navy Auxiliary Air Station, Otay Mesa (City of San Diego's Otay Mesa Community Plan Update 2008:14). The Navy expanded the base and made many improvements in the early 1940s and in 1943 the air field was renamed Brown Field in honor of Commander Melville Stuart Brown (City of San Diego's Otay Mesa Community Plan Update 2008:15). Not long after the City of Otay Mesa was annexed to San Diego, San Diego voted to acquire Brown Field as a general aviation facility and in 1962 San Diego took possession of the historic air base (City of San Diego's Otay Mesa Community Plan Update 2008:16).

Recent history has seen the development of the city with the rezoning from an agricultural area to an industrial and commercial center when the border entry opened in 1985.

Although the city has a rich history with its agricultural beginnings to the aviation highlights, many of the historic properties have given way to commercial and industrial landscapes, along with the residential areas that are supported by industry. A 2008 survey conducted by HRB to the Otay Mesa Community Plan Update revealed that few of the previously identified built historic resources still exist and none reflect the themes significant to Otay Mesa history (Otay Mesa Community Plan Update 2008). Although some older buildings still exist (pre-1960) throughout the city, they are not considered significant as they do not reflect a theme in Otay Mesa history (City of San Diego's Otay Mesa Community Plan Update 2008:20).

Ethnography

The project area lies within the core territory belonging to the Kumeyaay. The Kumeyaay, alternatively known as the Tipai (southern territory) and Ipai (northern territory) or the Diegueño prior to the 1950s, inhabited the region of southern California from northern San Diego County south beyond the U.S./Mexico border, from the Pacific coast almost to the California-Arizona border for 600 generations (12,000 years) (http://www.kumeyaay.info /kumeyaay/). Their language, still known as Diegueño, is from the Yuman language family, Hokan stock, and has at least two principal dialects with many sub-dialects. Linguistically, Ipai is the northern dialect that covers the Pacific coast through the northern and central San Diego County. Tipai is spoken from San Diego to just south of Ensenada in Baja California and east into the Imperial Valley and Sand Hills. The Tipai-Ipai now prefer the Tribal name *Kumeyaay.* Provided below is a brief summary based on Loumala's (1978) synthesis of the Kumeyaay culture and websites devoted to preserving the Kumeyaay culture (http://www.campo-nsn.gov/precontact.html, http://www.kumeyaay.info/kumeyaay/). Additional ethnographic information can be found in Kroeber (1925), Wallace (1955), Loumala (1963), and Moratto (1984).

The *Kumeyaay* territory ranged from the Pacific coast into the desert, mountains, and mountain valleys with a vast range in elevation from the sea to the Cuyamaca and Laguna Mountains at an elevation of over 6,500 feet above sea level (Luomala 1978). The eastern boundary ends at the Salton Sink in the Colorado Desert where rises and falls of Lake Cahuilla at times provided fresh-water resources. The *Kumeyaay* territory provided a wide availability of seasonal resources.

Topographically, Kumeyaay territory traverses west to east: including coastal zones, mountains and deserts. From the coastal belt a granitic uplifted fault blocks rises through a transition zone of plateaus, each higher than the preceding.

The diversity of the terrain and the varied vegetation contributed to the semi-nomadic lifestyles of the Kumeyaay. Because of their seasonal rounds for food resources, many villages were only campsites that a band occupied in its territory during a year (Loumala 1978:597). In some cases, several *Kumeyaay* clans would winter together but would disperse in the spring into the Mesa Grande region (Gifford 1918:172). A campsite was selected for access to water, drainage, boulder outcrops or other natural protection from weather and ambush, and abundant flora and fauna of that ecological niche (Loumala 1978:597).

Structures varied according to locality, need, choice, and raw material. A summer dwelling would only include a windbreak, trees, or a cave fronted with rocks. Winter dwellings included more elaborate domed, partially subterranean houses constructed of brush thatch covered with grass and earth (Loumala 1978:597).

The *Kumeyaay* were divided into autonomous tribelets, with a clan chief and at least one assistant chief, whose positions were always inherited by the eldest son, brothers, and sometimes widows. The chief had several duties, and because of his knowledge of customs and people, would direct the clan and would lead interclan ceremonies, lectured on their significance, advised about marriages, resolved family disputes and appointed a leader for an agave expedition or a fight (Loumala 1978:597). Organized along clan lines called *Sh'muiq* that maintained alliances with each other. When threatened by outside adversaries the clans would form under a *Kwachut G'tag* (http://www.kumeyaay.info/kumeyaay/).

Kumeyaay subsistence activities included acorn harvesting, hunting, and to some extent horticulture. Seasonal rounds followed the ripening of major plants from canyon floors to higher mountain slopes. Two or three families would arrive at a campsite, to be later joined by others to gather, process and cache seasonal vegetal food. At least six species of oaks provided acorns, the staple for all except Valley *Kumeyaay* who dried mesquite pods or pounded the beans into flour (Loumala 1978:600). Fresh foods included watercress, miner's lettuce, roots of yucca, berries and many grasses and shrubs. Fresh or dried blossoms and buds of clover, rose, cacti, and agave flavored food and water.

Hunting of large game was uncommon as the main source of protein came from rodents which were trapped or shot with bow and arrow by men and young boys. Lizards, snakes, insects and larvae were also eaten. Large game hunting was less common and was headed by the hunt master and involved many rituals. Coastal and slough bands ate much fish, which was taken with bows, nets, and fish weirs (Loumala 1978:601).

The *Kumeyaay* were not as easily influenced as other Tribes by the intrusion of Spanish mission although Father Junipero Serra established the first mission in California near the Kumeyaay village of Kosa'aay (Old Town San Diego) (Miskwish 2013). In 1821 when the Mexican government took control from the Spanish and divided up *Kumeyeaay* territory into Ranchos and land grants, the *Kumeyaay* fought back and by 1842 ranchos had been abandoned. When the Americans took control of California and broke treaties with the *Kumeyaay* the once large territory began to break apart into fragmented parcels with the loss of half of their lands to the Mexico-American border (Miskwish 2013). The Campo Indian Reservation was the result of land taken into Trust in 1893. In the 1950s the United States government began a wide-spread attempt to terminate the Indian Tribes with Public law 280 passed allowing Tribal families to be separated with the removal of the children to state run schools where they could be re-educated and adopted to non-Indian families. In 1975 under the Indian Self Determination Act, Tribes finally began to win back their rights to manage their own affairs.

Today, the K*umeyaay* are divided into five Tribes south of the U.S./Mexico border and 12 Tribes on the American side of the border (http://www.kumeyaay.info/kumeyaay_maps/kumeyaay_reservations.html).

III. AREA OF POTENTIAL AFFECT (APE)

This proposed project is subject to compliance with the CEQA requirements regarding cultural resources on lands proposed for development. CEQA (Public Resources Code Sections 21000 etc.) requires that before approving most discretionary projects, the Lead Agency must identify and examine any significant adverse environmental effects that may result from activities associated with such projects (Public Resources Code Sections 21083.2 and 21084.1). CEQA explicitly requires that the initial study examine whether the project may have a significant effect on "historical resources" and "unique archaeological resources." Under these requirements, a cultural resources inventory was conducted in order to determine impacts of the proposed project on cultural resources potentially eligible for nomination to the CRHR and/or the NHRP.

The project area of Potential Effects (APE) addressed in this report includes the entire 1.2-acre parcel located immediately south and adjacent to the 7-Eleven convenience store located at 8395 Otay Mesa Road (see Attachment C-3). The APE is a vacant dirt lot void of vegetation that is located in a highly developed industrial area located between Otay Mesa Road and SR 905, approximately 1.25 miles north of the U.S./Mexico border. The lot measures approximately 250-feet north-south and 200-feet east-west. The lot will be graded and leveled for an expansion of the 7-Eleven store and associated service station located north of the APE. This will include USTs and other underground conduit as needed.

IV. STUDY METHODS

Prior to conducting the field visit, a record search was conducted at the South Coastal Information Center (SCIC) located at San Diego State University on November 6, 2017 by Hubert Switalski, Senior Archaeologist, Stantec Consulting Services. The SCIC is a California Historical Resources Information System (CHRIS) center managed by the California Office of Historic Preservation. The SCIC stores information on existing and known cultural resources and cultural studies for San Diego and Imperial Counties. A one-mile radius search of the project area was done and numerous recorded sites, both historic and prehistoric, were recorded and approximately 100 previous studies were conducted. Due to the high quantity of resources and studies, Tables 1 and 2 show previously conducted studies and cultural resources that were conducted and recorded only within a one-half mile search radius (see Appendix I). The tables note 87 previous studies have been conducted within one-half mile of the project area and 10 of these are within portions of the project area (SD- 414, -1364, -6369, -7659, -9402, -10594, -12567, -13965, -14368, and -14714). These ten studies include survey, excavation, site evaluation, site monitoring, and environmental impact reports (EIR), which produced positive and negative results. Of the studies with positive results, five were conducted in conjunction with SR 905 (SD-1364, -6369, - 7659, -9402, -13965).

Within a one-half mile radius of the project area nine cultural resources have been recorded (see Appendix I). All sites are pre-historic with the exception of P-37-010628/H, which includes both pre-historic and historic components. All pre-historic sites contain lithic scatters that include debitage, tools, flakes, ground stone, or retouched flakes. The boundary of P-37-010628/H was extended in 1996 to include P-37-010608 as additional studies enlarged the boundaries of the sites to such an extent that they overlapped. These resources are located in areas of extensive historic agricultural use, which with decades of plowing has likely altered the provenience and condition of artifacts at the following sites: P-37-007208, P-37-010245, P-37-010734, P-37-011065, P-37-012337, and P-37-031952. Previously conducted test excavations at P-37-007208, P-37-010245, P-37-010628/H, and P-37-012337 resulted in collection and recovery of artifacts (See site records).

Although none of these cultural resources were found directly within the project area, two sites appear to be adjacent to the project area: P-37-012337 runs adjacent to the eastern boundary and P-37-007208 abuts the project area on the south, along La Media Road and St. Andrews Avenue., respectively. Site P-37-012337 is a prehistoric site composed primarily of flaked and ground stone artifacts, marine shell, and fire affected rock. This site was recorded in 2002 as a re-evaluation of four previously recorded sites (CA-SDI-5352, -9974, 10072, and -10735) whose boundaries overlapped during reexamination. Although primarily prehistoric, historic debris was noted at a depth of 40 centimeters below surface during sub-surface testing in 1995 (Reference). The very large site encompasses parts of Sections 35, 25, and 26. The site, though expansive, has been determined to not be eligible for listing in either the NRHP or the CRHP as the research potential has been previously fulfilled through testing (Blotner 2010, site record for P-37-0012337, on file at the SCIC).

Site P-37-007208 was initially recorded in 1979 as a light lithic scatter consisting of 912 artifacts over 80 acres and noted the area was planted with tomatoes, peppers, and zucchini. The site has been re-surveyed and updated seven times and the site boundaries expanded each time to the current size of 725 acres. In 1979 artifacts collected during survey included cores, scrappers, and lithic debitage. In 2002, surface and subsurface artifact recovery was conducted and indicated the majority of artifacts were located on the surface. However, a history of agricultural activities at this site has altered artifact provenience. In 2010, 287 artifacts, including ground stone, flaked stone, and hammerstones, were recovered for the Britannia 40 project. Construction conducted at the northeast intersection of Britannia Court and Martinez Ranch Road in 2014 revealed three isolated pre-historic artifacts: a tested cobble, interior flake, and quartzite core fragment. However, all evaluation efforts have determined that P-37-007208 is not eligible for listing in either the NRHP or CRHR, and it is not considered a unique resource under City of San Diego guidelines.

V. RESULTS OF STUDY

Background Research

Background research indicates numerous historic and prehistoric cultural resources within a one-mile radius of the project area and nine previously recorded prehistoric sites within a one-half mile radius of the project area. Although none of the previously recorded sites are located within the project area, two large prehistoric sites are located adjacent to the project area on the south (P-37-007208) and east (P-37-012337).

Field Reconnaissance

An intensive pedestrian survey of the entire project area was conducted on November 6, 2016 by Hubert Switalski. Survey transects were spaced approximately 10-15 meters apart and transects were walked in the N-S direction. The overall project area is approximately 1.2 acres in size and is surrounded by commercial businesses and services. The project area is relatively flat with less than 2-degree slope. The property is bound by La Media Road to the east, St. Andrews Avenue to the south, and 7-Eleven to the north. A paved access road marks the west boundary. The entire 1.2 -acre property is fenced off with a chain link fence, and appeared relatively free of disturbance; however, it appears that the surface may have been mechanically leveled /scraped as suggested (see photos in attachment D) by wide linear surface scars. The entire parcel is devoid of vegetation. An ATT fiber optic cable and an existing water main were observed (based on surface markings of 811 Dig Alert) in the southern portion of the project Area, approximately 8-10 feet north of St. Andrews Avenue, that suggested previous disturbance at least within a portion of the project area. Ground visibility was excellent within the entire project area. No surface deposits were identified, however, given the proximity of several previously documented resources (P-37-012337 to the east with site boundary terminating at La Media Road, and P-37-007208 immediately to the south, terminating at St. Andrews Avenue), there is very high potential for subsurface deposits. It is likewise unlikely that any surface deposits of these resources still exist given the development of this area. During the intensive pedestrian survey, no cultural resources (isolates, features, sites) were identified.

Native American Outreach
On February 14, 2018, Stantec contacted the Native American Heritage Commission (NAHC) by email to request a Sacred Lands File Search and list of Appropriate Native American contacts for the 7-Eleven project (see Appendix F). The NAHC responded on February 15, 2018 stating that a record search of the Sacred Land File had been completed and had negative results. A list of Native American contacts was provided and letters were sent to the 20 listed Tribes/Tribal representatives identified by the NAHC on February 21, 2018.

On March 5, 2018, a response was received from the Viejas Band of Kumeyaay Indians Resource Management Department requesting a Kumeyaay Cultural Monitor be present for all ground disturbing activities (see Appendix F). Contact information to arrange Tribal representation during ground disturbing activities is provided in Appendix F. On May 24, 2018, Lisa Cumper, responded on behalf of Chairperson Erica Pinto, expressing concerns and requestnig a Tribal monitor.
As of May 24, 2018, no further responses were received from the other Tribal contacts listed by the NAHC (Appendix F).

Evaluation
A history of agricultural use of the Otay Mesa area followed by aviation, and the current designation as heavy commercial use in the area including the project area.

VI. RECOMMENDATIONS

Based on the results of the record search and pedestrian survey conducted on November 6, 2017, and a review of previous cultural studies conducted within the area, it is recommended that implementation of the project would not result in the direct or indirect impacts to significant cultural resources, and mitigation measures are not regarded as necessary. These recommendations are driven primarily by the absence of documented cultural resources within the project area, even with the current inventory as well as ten previous surveys that included all or portions of the project area (see Section IV Study Methods).

However, it should be noted that on February 28, 2018, Ray Teran, Resource Management for the Viejas Band of Kumeyaay Indians, responded to a consultation letter sent to Chairperson Robert Welch on February 20, 2018, that the Tribe considers the project site to have, "… cultural significance or ties to the Viejas", and that a cultural monitor representing the Tribe be on site for ground disturbing activities (see Attachment F). On May 24, 2018, Lisa Cumper, on behalf of Chairperson Erica Pinto, responded via phone call and letter to Victoria Harvey (Stantec) that as the project is within the Jamul Indian Village Traditional Use Area they request continued consultation on this project and the presence of an approved Native American monitor during ground disturbing activities. The Tribe also requests project updates including reports, site documentation, and project modifications.

VII. SOURCES CONSULTED	DATE
National Register of Historic Places	Month and Year: November 2017
California Register of Historical	Month and Year: November 2017
City of San Diego Historical Resources	Month and Year: November 2017

Other Sources Consulted: None

VIII. CERTIFICATION

Prepared by: Victoria Harvey, M.A., R.P.A., Senior Archaeologist, Stantec Consulting Services

Signature: Victoria Harvey Date: April 3, 2018

Prepared by: Hubert Switalski, B.A., Senior Archaeologist, Stantec Consulting Services

Signature: Date: April 3, 2018

Prepared by: Sandra Speas, B.A., Archaeologist, Stantec Consulting Services

Signature: Sandra Speas Date: April 3, 2018

IX: ATTACHMENTS

A. Bibliography

B. Abbreviations Used

C. Maps
- C- 1 Location Map
- C- 2 Survey Coverage (U.S.G.S. Quadrangle)
- C- 3 Project Area (Aerial)

D. Photographs (Include site and artifact photographs, as appropriate.)

E. Personnel Qualifications (Include resumes if not already on file with the City.)

F. Native American Consultation Results

X: CONFIDENTIAL APPENDICES (Bound separately)

Appendix I: Records search results

ATTACHMENT A: BIBLIOGRAPHY

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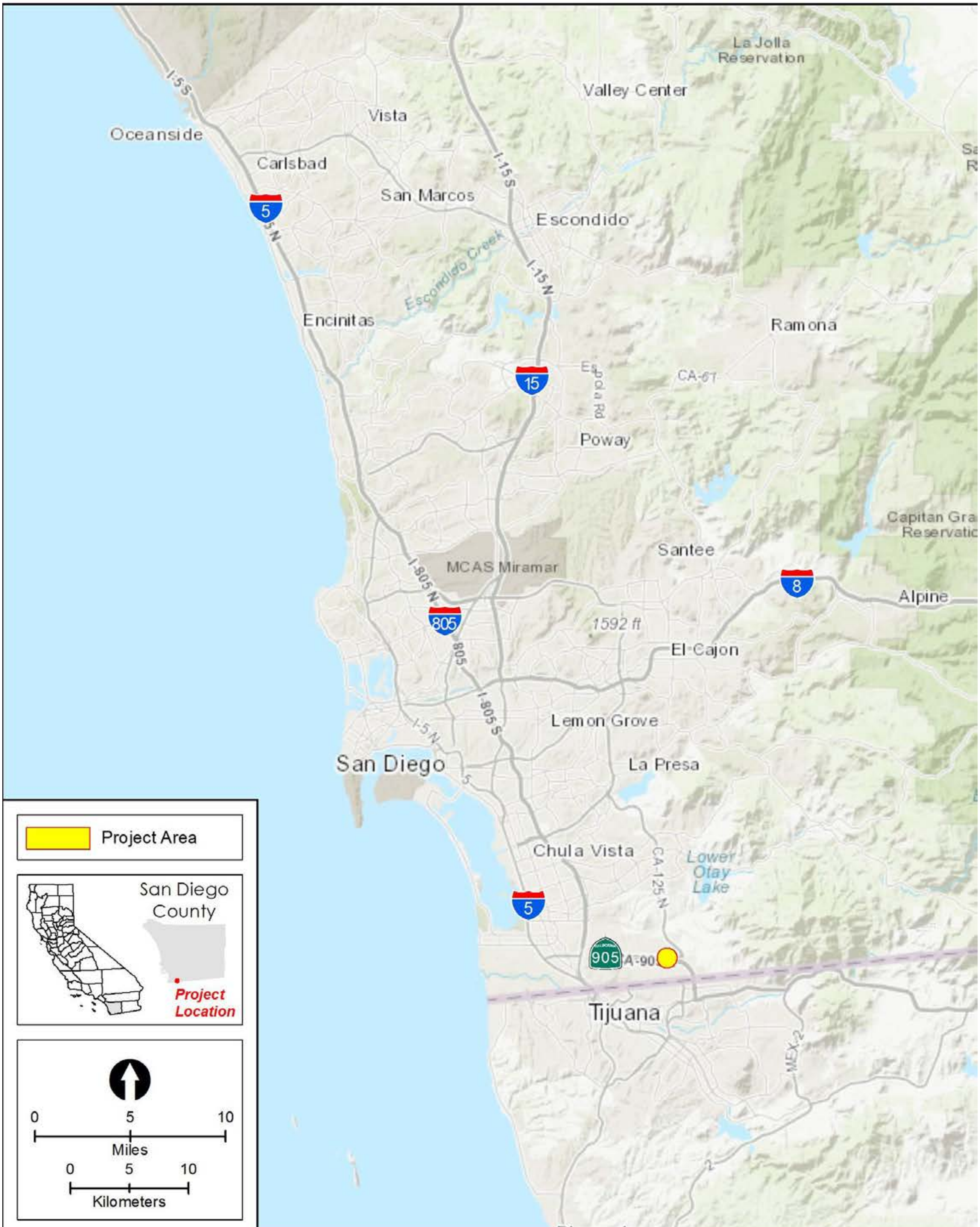
ATTACHMENT B: ABBREVIATIONS

Abbreviations Used

DSD	Development Services Department
HRG	San Diego's Historical Resource Guidelines
CEQA	California Environmental Quality Act
CUP	Conditional Use Permit
SDP	Site Development Permit
UST	Underground Storage Tanks
LDR	Land Development Review Division of the Development Services Department
CPIOZ	Community Plan Implementation Overlay Zone
MND	Mitigated Negative Declaration
EIR	Environmental Impact Report
DPR	Department of Parks and Recreation
CRHR	California Register of Historical Resources
SR	State Route
OMCPU	Otay Mesa Community Plan Update March 11, 2014
SCIC	South Coastal Information Center
NRHP	National Register of Historic Places

ATTACHMENT C: MAPS



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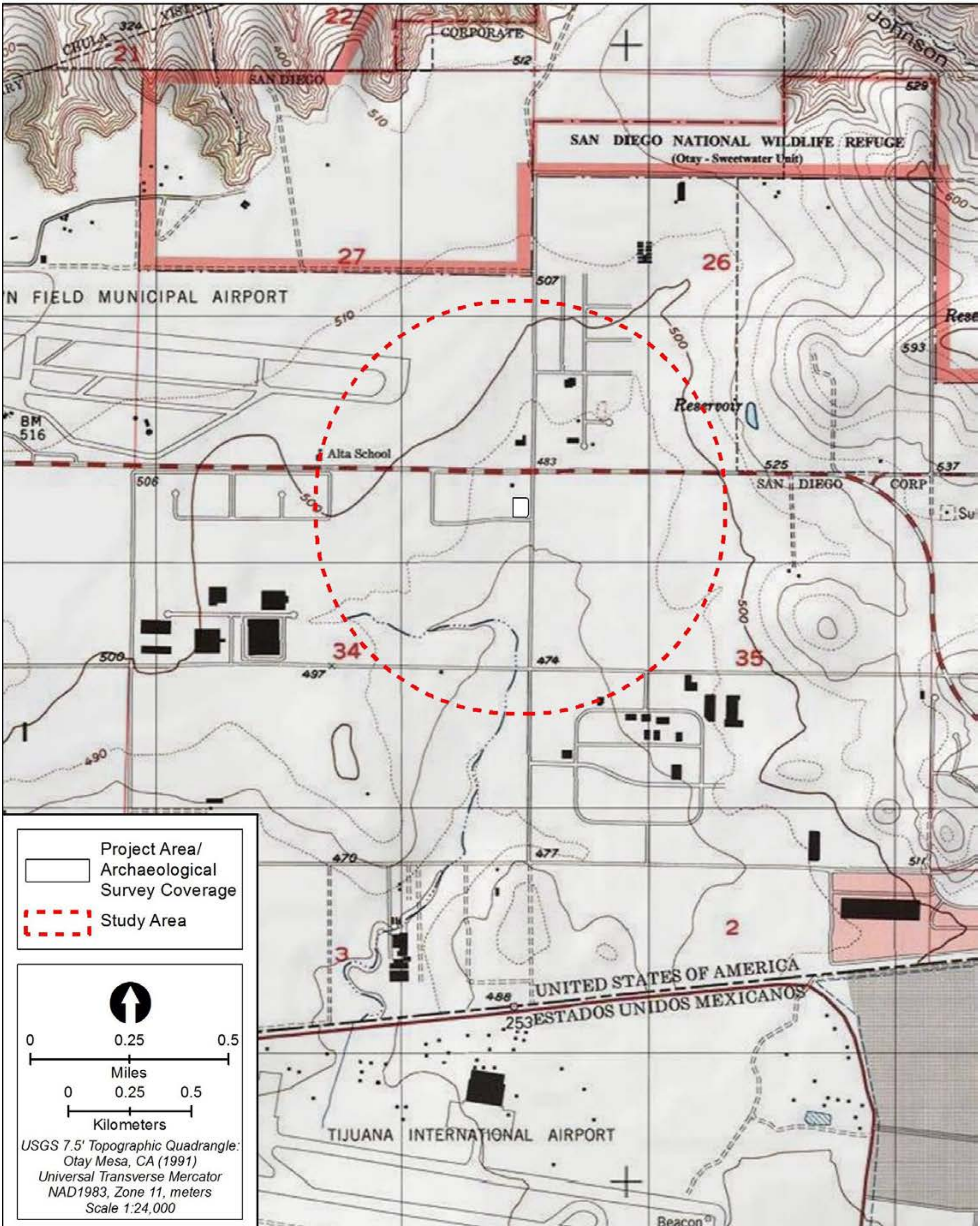
7-ELEVEN
8395 OTAY MESA RD., SAN DIEGO, CA
PROPOSED EXPANSION
LOCATION MAP

Date: 11/9/2017
Author: HS

Reference Scale:
1:500,000

Attachment C-1



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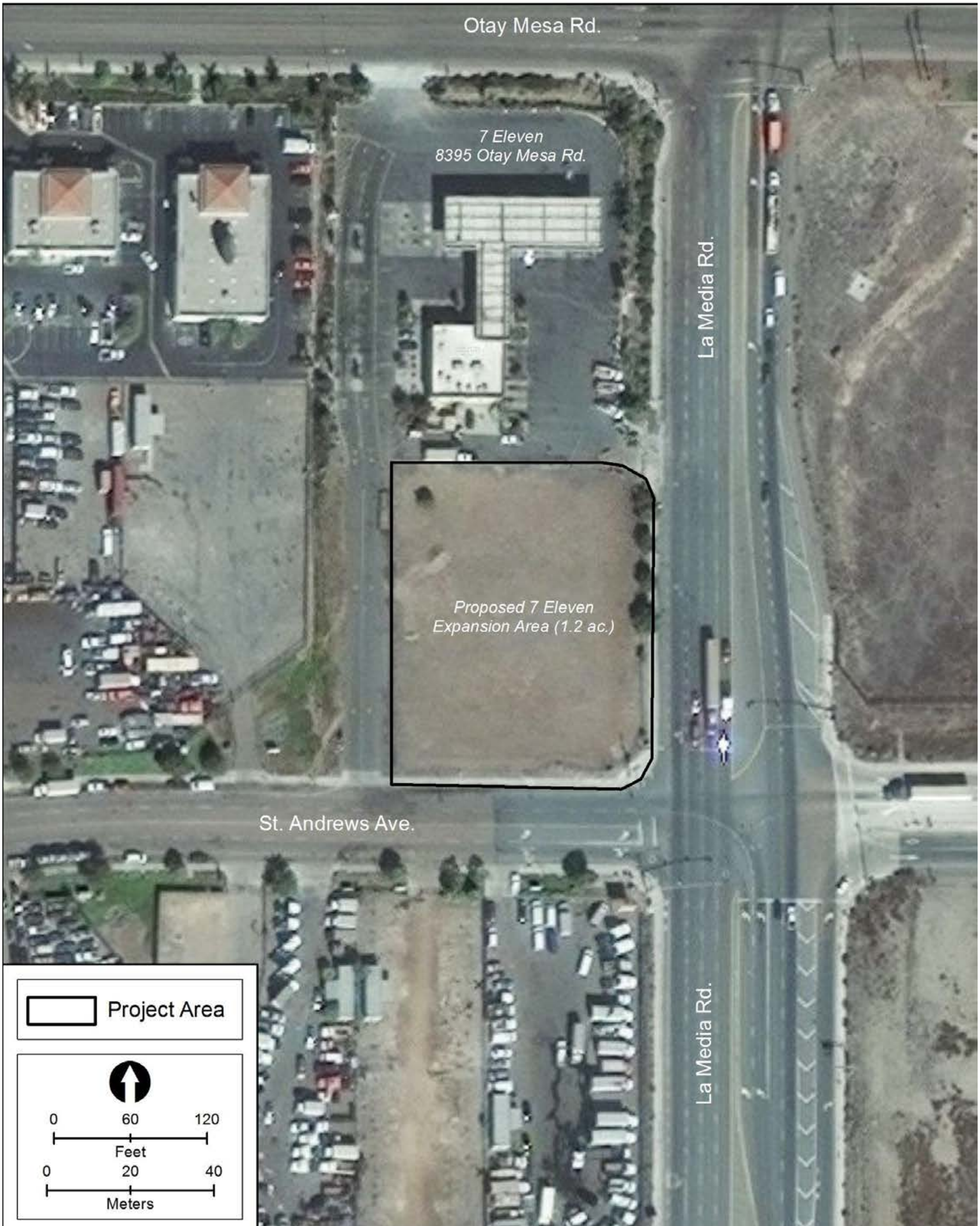
PROPOSED EXPANSION
ARCHAEOLOGICAL SURVEY MAP

Date: 11/9/2017
Author: HS

Reference Scale:
1:24,000

Attachment C-2



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7-ELEVEN
8395 OTAY MESA RD., SAN DIEGO, CA
PROPOSED EXPANSION
SITE PLAN

Date: 11/9/2017
Author: HS

Reference Scale:
1:24,000

Attachment C-3

ATTACHMENT D: PHOTOS

Overview of project area taken from 7-Eleven, view south towards St. Andrew St. (Stantec IMG_20171106_2) Photo taken November 6, 2017.

Overview of project area. Note ground visibility. View east toward La Media Road. (Stantec IMG_20171106_3) Photo taken November 6, 2017.

Overview of project area, view north with 7-Eleven in the background. (Stantec IMG_20171106_5) Photo taken November 6, 2017.

Eastern portion of project area, view south. (Stantec IMG_20171106_7) Photo taken November 6, 2017.

Overview of project area, view south. (Stantec IMG_20171106_8) Photo taken November 6, 2017.

South portion of project area, view south. (Stantec IMG_20171106_10) Photo taken November 6, 2017.

ATTACHMENT E: QUALIFICATIONS

Qualifications

The survey efforts were supervised by archaeologists who meet the professional qualification standards in Archaeology, Historic Preservation, and Architectural History, as set forth by the Secretary of the Interior (Standards and Guidelines, *Federal Register* Vol. 48, No. 190, September 28, 1983).

The following individuals performed fieldwork or contributed to this report.

- Victoria Harvey holds a Master's Degree in anthropology from California State University, Bakersfield, and is a Registered Professional Archaeologist. Ms. Harvey is a cultural resources principal investigator in Stantec's Bakersfield office with 19 years of archaeological experience, including Phase 1, 2, and 3 investigations within California, Nevada, and Idaho. She has served as supervising archaeologist on large scale energy projects in compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) for public and has worked closely with Tribes. Ms. Harvey was recently employed with the Tribal Historic Preservation Office for the Agua Caliente Band of Cahuilla Indians as the Archaeological Monitoring Coordinator where she was involved in Tribal consultation with Local, State and Federal Agencies and Cultural Resource Management firms. Ms. Harvey meets the Secretary of the Interior's professional qualification standards in archaeology. Ms. Harvey is the principal archaeologist for the project and she reviewed the report.

- Hubert Switalski earned a Bachelor's Degree in Anthropology from California State University, Bakersfield, and has 23 years of experience in conducting archaeological investigations and project management in California, Nevada, Idaho, Oklahoma, and New York. Mr. Switalski has diversified experience in areas of project management and project support as an archaeologist, and GIS analyst since 1994. Mr. Switalski also has an extensive experience in providing support on environmental and engineering projects for State, Federal, and private agencies. Over the last 20 years he has been involved in over 500 archaeological surveys and participated in 20 test excavation for private and commercial firms, as well as State and Federal agencies and has participated and managed over 15 GIS-based projects. Since 2005, Mr. Switalski has been supporting Southern California Edison Company (SCE) by managing the On-Call Archaeological and Paleontological Services contract for various Operations and Maintenance Programs in southern and eastern California. He has directed archaeological projects on lands managed by the Bureau of Land Management (various field offices), Angeles, Inyo, San Bernardino, Los Padres, Sequoia, Sierra, and Humboldt-Toiyabe National Forests, and the Department of Veterans Affairs.

- Sandra Speas earned her Bachelor's Degree in Anthropology from California State University, Bakersfield, in 2013 and has previously worked in the Bureau of Land Management, Bakersfield office, as an archaeological intern. As an intern for the BLM Ms. Speas participated in field surveys, monitoring, excavations, and sire recordation for various projects on Federal lands. Ms. Speas has also worked for ASM, Affiliates as a field Tech on assorted projects and has experience with GIS software ArcGIS and ArcPad. She has completed additional training related the NAGPRA, Tribal Relations, Managing Historic Mining Sites, Defining an APE, and Archaeological Damage Assessment. Ms. Speas joined Stantec as an archaeologist in September of 2017.

ATTACHMENT F: NATIVE AMERICAN CONSULTATION

From:	Harvey, Victoria
To:	"nahc@nahc.ca.gov"
Cc:	Switalski, Hubert
Subject:	Sacred Lands File Search for the 7-Eleven Store No. 32290 Expansion, San Diego, CA
Date:	Wednesday, February 14, 2018 11:31:00 AM
Attachments:	NAHC letter.docx

Dear Sir or Madam,

One behalf of 7-Eleven, Incorporate, Stantec would like to request a Sacred Lands File Search and a list of appropriate Native American Contacts for the above referenced project located in the community of Otay Mesa in the southern portion of the City of San Diego, in San Diego County, California. The project proposes an amendment to Conditional Use Permit (CUP) No. 96-7731 and Site Development Permit (SDP) to allow the construction of an 870 square-foot addition to the existing 7-Eleven convenience store and accompanying service station. The project area is a 1.2-acre parcel located immediately south and adjacent to the 7-Eleven convenience store located at 8395 Otay Mesa Road. The parcel measures approximately 250-feet north-south and 200-feet east-west. The parcel will be graded and leveled for an expansion of the 7-Eleven store and associated service station located north of the project area.

Attached is a letter request, the project location information, and a map of the project and associated work area.

Thank you for your assistance,

Victoria Harvey, M.A., R.P.A.
Senior Archaeologist
Stantec Consulting Services
5500 Ming Ave., Ste. 300
Bakersfield, CA 93309-4627
Victoria.Harvey@stantec.com
(661) 549-8702 (Cell)
(661) 885-3016 (Desk)

Stantec Consulting Services Inc.
5500 Ming Avenue, Suite 300
Bakersfield, CA 93309-4627
Tel: (661) 617-5873
Fax: (661) 396-3771

Stantec

February 14, 2018

Native American Heritage Commission
915 Capitol Mall, RM 364
Sacramento, CA 95814
Office: 916.653.4082
Fax: 916.657.5390

Subject: *Sacred Lands File and Native American Contacts List Request on Behalf of* 7-Eleven, Incorporated for the 7-Eleven Store No. 32290 Expansion located at *8395 Otay Mesa Road, Otay Mesa, San Diego County, California (City of San Diego Project No. 553296).*

Dear Sir or Madam,

One behalf Cores States Group, Stantec would like to request a Sacred Lands File Search and a list of appropriate Native American Contacts for the above referenced project located in the community of Otay Mesa in the southern portion of the City of San Diego, in San Diego County, California. Specifically, the project area is located at 8395 Otay Mesa Road, 350 feet south of the southwest corner of Otay Mesa Road and La Media Road, bordered on the east by La Media Road, by St. Andrews Avenue to the south, a paved access road to the west, and the existing parking lot of 7-Eleven Store #32290 (7-Eleven) to the north. The project is located in the northeast quarter of the northeast quarter of section 34, Township 18 South, Range 1 West, as depicted on the Otay Mesa, CA (1991), USGS 7.5'' Quadrangle. It lies south of the Brown Field Municipal Airport and north of State Route (SR) 905 Freeway. The U.S./Mexico Border is 1.25 miles south of the project site.

The project proposes an amendment to Conditional Use Permit (CUP) No. 96-7731 and Site Development Permit (SDP) to allow the construction of an 870 square-foot addition to the existing 7-Eleven convenience store and accompanying service station. The project area includes the entire 1.2-acre parcel located immediately south and adjacent to the 7-Eleven convenience store located at 8395 Otay Mesa Road. The project area is a vacant dirt lot void of vegetation that is located in a highly developed industrial area located between Otay Mesa Road and SR 905. The lot measures approximately 250-feet north-south and 200-feet east-west. The lot will be graded and leveled for an expansion of the 7-Eleven store and associated service station located north of the project area. The addition will include additional diesel fuel pumps with canopy and signage, underground storage tanks (UST), and freeway sign on the 1.2-acre lot.

Enclosed for ease of reference are the completed Native American Heritage Commission Request Form containing additional project locational information, and a map of the proposed project area depicted on the Otay Mesa USGS 7.5-minute series topographic quadrangles. Please contact me if you have any questions or concerns regarding this proposed project. Thank you for your time and assistance.

Sincerely,

Victoria Harvey

Victoria Harvey, M.A., R.P.A.
Stantec Consulting Services, Inc.
5500 Ming Avenue, Suite 300
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NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 653-4082
(916) 657-5390 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: 7-Eleven Store No. 32290 Expansion

County: San Diego County

USGS Quadrangle Name: Otay Mesa, CA (1991), USGS 7.5" Quadrangle, Township 18

South, Range 1 West

Sections: NE ¼ of the NE ¼ quarter of section 34

Company/Firm/Agency: Stantec Consulting Services, Inc.

Contact Person: Victoria Harvey

Street Address: 5500 Ming Avenue, Suite 300

City: Bakersfield Zip: 933309-4627

Phone: 661.885.3016

Fax: 661.396.3771

Email: Victoria.Harvey@stantec.com

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5500 Ming Avenue, Suite 300
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Tel: (661) 617-5873
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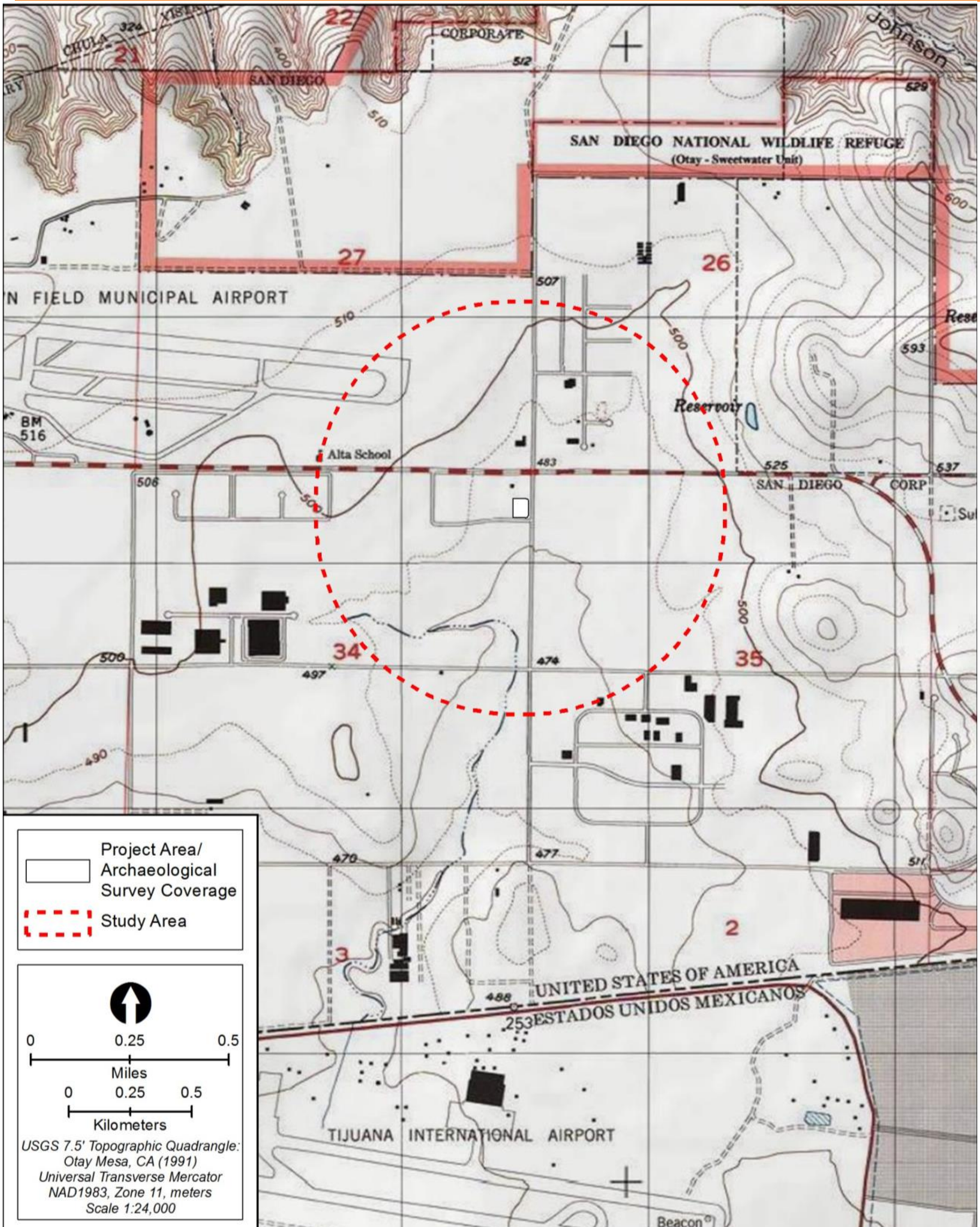

STANTEC CONSULTING SERVICES Inc. 5500 Ming Avenue, Suite 300 Bakersfield, CA 93309-4627	7-ELEVEN 8395 OTAY MESA RD., SAN DIEGO, CA PROPOSED EXPANSION ARCHAEOLOGICAL SURVEY MAP	Date: 11/9/2017 Author: HS Reference Scale: 1:24,000	Attachment C-2

Figure 1. Project Area depicted on the Otay Mesa, CA (1991), USGS 7.5" Topographic Quadrangle.

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

February 15, 2018

Victoria Harvey
Stantec Consulting Services, Inc.

Sent by E-mail: Victoria.harvey@stantec.com

RE: Proposed 7-Eleven Store No. 32290 Expansion Project, Community of Otay Mesa; Otay Mesa USGS Quadrangle, San Diego County, California

Dear Ms. Harvey:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714

Native American Heritage Commission
Native American Contact List
San Diego County
2/15/2018

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road — Kumeyaay
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Kumeyaay
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126

Ewiiaapaayp Tribal Office
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Fax: (619) 445-9126
michaelg@leaningrock.net

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
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Santa Ysabel, CA, 92070
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Fax: (760) 765-0320

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
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Santa Ysabel, CA, 92070
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cjlinton73@aol.com

Inaja Band of Mission Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Kumeyaay
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Kumeyaay
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kumeyaay
Pine Valley, CA, 91962
Phone: (619) 709 - 4207

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

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 7-Eleven Store No. 32290 Expansion Project, San Diego County.

Native American Heritage Commission
Native American Contact List
San Diego County
2/15/2018

Mesa Grande Band of Mission Indians
Mario Morales, Cultural Resources Representative
PMB 366 35008 Pala Temecula Rd.
Pala, CA, 92059
Phone: (760) 622 - 1336
Kumeyaay

Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O Box 270
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com
Kumeyaay

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org
Kumeyaay

San Pasqual Band of Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org
Kumeyaay

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov
Kumeyaay

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
1 Kwaaypaay Court
El Cajon, CA, 92019
Phone: (619) 312 - 1935
lhaws@sycuan-nsn.gov
Kumeyaay

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
1 Viejas Grade Road
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov
Kumeyaay

Viejas Band of Kumeyaay Indians
Julie Hagen,
1 Viejas Grade Road
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov
Kumeyaay

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 7-Eleven Store No. 32290 Expansion Project, San Diego County.

To: (Principal Individual Receiving Communication)						
Recipient	**Position**	**Recipient Affiliation**	**Tribe**	**contact info. Used**	**Letters mailed**	**Responses/Date**
Ralph Goff	Chairperson	Campo Band of Mission Indians	Kumeyaay	36190 Church Road, Suite 1, Campo, California 91906 (619) 478-9046; rgoff@campo-nsn.gov	2/21/2018	No response as of 3/26/2018
Robert Pinto	Chairperson	Ewiiaapaayp Tribal Office	Kumeyaay	4054 Willows Road, Alpine, California 91901 (619) 445-6315	2/21/2018	No response as of 3/26/2018
Michael Garcia	Vice Chairperson	Ewiiaapaayp Tribal Office	Kumeyaay	4054 Willows Road, Alpine, California 91901 (619) 445-6315 michaelg@leaningroack.net	2/21/2018	No response as of 3/26/2018
Erica Pinto	Chairperson	Jamul Indian Village	Kumeyaay	P.O. Box 612. Jumul, California 91935 (619) 669-4785	2/21/2018	On May 24, 2018, Ms. Lisa Cumper, on behalf of Chairperson Erica Pinto, responded via pone call to Victoria Harvey (Stantec) that as the project is within the Jamul Indian Village Traditional Use Area they request **continued consultation** on this project and the presence of an approved **Native American monitor** during ground disturbing activities. The Tribe also requests project updates including reports, site documentation, and project modifications.
Gwendolyn Parada	Chairperson	La Posta Band of Mission Indians	Kumeyaay	8 Crestwood Road, Boulevard, California 91905 (619) 478-2113; LP13boots@aol.com	2/21/2018	No response as of 3/26/2018
Javaughn Miller	Tribal Administrator	La Posta Band of Mission Indians	Kumeyaay	8 Crestwood Road, Boulevard, California 91905 (619) 478-2113; jmiller@Lptribe.net	2/21/2018	No response as of 3/26/2018
Allen E. Lawson	Chairperson	San Pasqual Band of Mission Indians	Kumeyaay	P.O. Box 365, Valley Center, California 92082 (760) 749-3200; allenl@sanpasqualtribe.org	2/21/2018	No response as of 3/26/2018
Angela Elliott Santos	Chairperson	Manzanita Band of Kumeyaay Nation	Kumeyaay	P.O. Box 1302, Boulevard, California 91905 (619) 766-4930	2/21/2018	No response as of 3/26/2018
Lisa Haws	Cultural Resources Manager	Sycuan Band of the Kumeyaay Nation	Kumeyaay	1 Kwaaypaay Court, El Cajon, California 92019 (619) 312-1935; lhaws@sycuan-nsn.gov	2/21/2018	No response as of 3/26/2018
Cody J. Martinez	Chairperson	Sycuan Band of the Kumeyaay Nation	Kumeyaay	1 Kwaaypaay Court, El Cajon, California 92019 (619) 445-2613; ssilva@sycuan-nsn.gov	2/21/2018	No response as of 3/26/2018

Recipient	Position	Recipient Affiliation	Tribe	contact info. Used	Letters mailed	Responses/Date
Julie Hagen	Not stated	Viejas Band of Kumeyaay Indians	Kumeyaay	1 Viejas Grade Road, Alpine, California 91901 (619) 445-3810; jhagen@viejas-nsn.gov	2/21/2018	Response received via USPS on March 5, 2018 from Ray Teran, Resource Management. The Viejas Band of Kumeyaay Indians requests **Native American monitoring** during ground disturbing activities. Contact rteran@viejas-nsn.gov (Ray Teran) or epingleton@viejas-nsn.gov (Ernest Pingleton)
Robert Welch	Chairperson	Viejas Band of Kumeyaay Indians	Kumeyaay	1 Viejas Grade Road, Alpine, California 91901 (619) 445-3810; jhagen@viejas-nsn.gov	2/21/2018	See response above
Edwin Romero	Chairperson	Barona Group of the Captain Grande	Kumeyaay	1095 Barona Road Lakeside, California 92040 (619) 443-6612 cloyd@barona-nsn.gov	2/21/2018	No response as of 3/26/2018
Rebecca Osuna	Chairperson	Inaja Band of Mission Indians	Kumeyaay	2005 S. Escondido Blvd., Escondido, California 92025 (760) 737-7628	2/21/2018	No response as of 3/26/2018
Carmen Lucas	Not stated	Kwaaymii Laguna Band of Mission Indians	Kumeyaay	P.O. Box 775, Pine Valley, California 91962 (619) 709-4207	2/21/2018	No response as of 3/26/2018
Virgil Perez	Chairperson	Iipay Nation of Santa Ysabel	Kumeyaay	P.O. Box 130, Santa Ysabel, California 92070 (760) 765-0845	2/21/2018	No response as of 3/26/2018
Clint Linton	Director of Cultural Resources	Iipay Nation of Santa Ysabel	Kumeyaay	P.O. Box 507, Santa Ysabel, California 92070 (760) 803-5694 cjlinton73@aol.com	2/21/2018	No response as of 3/26/2018
Mario Morales	Cultural Resources Representatives	Mesa Grande Band of Mission Indians	Kumeyaay	PMB 366 35008 Pala Temecula Road, Pala, California 92059 (760) 622) 1336	2/21/2018	No response as of 3/26/2018
Virgil Oyos	Chairperson	Mesa Grande Band of Mission Indians	Kumeyaay	P.O. Box 270, Santa Ysabel, California 92070 (760) 782-3818 mesagrandeband@msn.com	2/21/2018	No response as of 3/26/2018
John Flores	Environmental Coordinator	San Pasqual Band of Mission Indians	Kumeyaay	P.O. Box 365, Valley Center, California 92082 (760) 749-3200 johnf@sanpasqualtribe.org	2/21/2018	No response as of 3/26/2018

VIEJAS
TRIBAL GOVERNMENT

P.O. Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 6194453810
Fax: 6194455337
viejas.com

February 28, 2018

Victoria Harvey
Senior Archaeologist
Stantec Consulting Services, Inc.
5500 Ming Avenue, Suite 300
Bakersfield, CA 93309

RE: 7-Eleven

Dear Ms. Harvey,

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site has cultural significance or ties to Viejas.

Viejas Band request that a Kumeyaay Cultural Monitor be on site for ground disturbing activities to inform us of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains.

Please call me at 619-659-2312 or Ernest Pingleton at 619-659-2314 or email, rteran@viejas-nsn.gov or epingleton@viejas-nsn.gov , for scheduling. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

May 24, 2018

Victoria Harvey, M.A., R.P.A
Santac Consulting Services, Inc.
5500 Ming Avenue, Suite 300
Bakersfield, CA 93309-4627

Re: 7-Eleven Otay Mesa Road

Dear Ms. Victoria Harvey:

The Jamul Indian Village of California Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Erica Pinto, Tribal Chairwoman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized Jamul Indian Village Reservation. It is, however, within the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we request to be kept in the information loop as the project progresses and would appreciate being maintained on the receiving list for project updates, reports of investigations, and/or any documentation that might be generated regarding previously reported or newly discovered sites. Further, recommend a Native American Monitor given the proximity of known cultural and historic resources. If the project boundaries are modified to extend beyond the currently proposed limits, we request updated information and the opportunity to respond to your changes.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 619-928-8689 or by e-mail at lcumper@jiv-nsn.gov.

Sincerely,

Lisa K. Cumper

Lisa K. Cumper
Tribal Historic Preservation Officer
Jamul Indian Village of California

ATTENTION: THE JIV HISTORIC PRESERVATION OFFICE IS RESPONSIBLE FOR ALL REQUESTS FOR CONSULTATION. PLEASE ADDRESS CORRESPONDENCE TO **LISA K. CUMPER** AT THE ABOVE ADDRESS. IT IS NOT NECESSARY TO ALSO SEND NOTICES TO PALA TRIBAL CHAIRWOMAN ERICA PINTO.

JAMUL INDIAN VILLAGE
A KUMEYAAY NATION

EMAIL: info@jamulindianvillage.com

TEL: 619.669.4785
FAX: 619.669.4817
ADDR: P. O. Box 612
Jamul, CA 91935

jamulindianvillage.com

CONFIDENTIAL

APPENDIX I: RECORD SEARCH RESULTS

TABLE 1: SUMMARY OF CULTURAL RESOURCE STUDIES PREVIOUSLY CONDUCTED WITHIN .5-MILE OF THE STUDY AREA

Author	Year	Level of Investigation	Results	Report Reference No.
Adams, Kathleen and Christopher A. Turnbow	1994	Survey & Excavation	Positive	SD-02955
ASM Affiliates	1989	Survey and Evaluation	Negative	SD-04225
Baksh, Michael	1996	Survey	Negative	SD-04393
Becker, Mark S.	2011	Evaluation	Positive	SD-13340
Beddow, Donna	2003	Survey	Negative	SD-09022
Berryman, Judy A. and Seth Rosenberg	2010	Survey	Positive	SD-12853
Bingham, Jeffery C.	1978	Excavation	Positive	SD-00374
Bray, Madeleine	2012	Survey	Positive	SD-13966
Bray, Madeleine and Brad Brewster	2011	Survey & Evaluation	Positive	SD-13276
Brewster, Brad	2011	Evaluation	Positive	SD-13277
CalTrans	1990	Survey	Positive	SD-07659*
Carrico, Richard	1974	Survey	Negative	SD-00414*
Carrico, Richard	1976	Survey	Negative	SD-01225
Carrico, Richard	1982	Survey	Negative	SD-04768
Carrico, Richard L. and John Dietler	1998	Evaluation	Negative	SD-03469
Caterino, David	2005	Survey	Negative	SD-09516
Cheever, Dayle and Dennis Gallegos	1986	Survey	Negative	SD-01842
Cheever, Dayle and Dennis Gallegos	1987	Survey	Positive	SD-00790
City of San Diego	1981	EIR	Negative	SD-02067
City of San Diego	1994	Management/ Planning	Negative	SD-04608
City of San Diego	1999	Management/ Planning	Negative	SD-04706
City of San Diego	2013	EIR	Negative	SD-14368*
City of San Diego	2013	EIR	Negative	SD-14714*
Dudek	2007	Survey	Negative	SD-11503
ESA Associates	2012	Survey	Positive	SD-13907
Gallegos, Dennis	1986	Survey & Test	Positive	SD-05935
Gallegos, Dennis	1999	Survey	Positive	SD-06369*
Gallegos, Dennis and Monica Guerrero	2001	Survey	Positive	SD-07187
Gallegos, Dennis, Carolyn Kyle, and Roxana L. Phillips	1997	Survey	Negative	SD-10594*
Gilbert, Shannon and Brian F. Smith	2004	Survey	Negative	SD-09224
Hector, Susan M.	1987	Survey	Positive	SD-01867

Hector, Susan M.	2006	Survey	Negative	SD-10423
Hector, Susan M. and Stephen R. Van Wormer	1987	Evaluation	Negative	SD-09256
Higgins, Howard C.	1994	Survey	Positive	SD-02885
Higgins, Howard C.	1994	Monitor	Negative	SD-02886
Higgins, Howard C., Richard W. Colman, et al.	1994	Survey	Positive	SD-03646
Higgins, Howard C., Christopher A. Turnbow, et al.	1993	Monitor	Negative	SD-03709
International Boundary and Water Commission	1987	EIR	Negative	SD-02107
Kyle, Carolyn	2005	Survey	Positive	SD-09523
Kyle, Carolyn and Dennis Gallegos	1995	Survey & Test	Positive	SD-02899
Kyle, Carolyn, Roxana L. Phillips, et al.	1996	Survey & Test	Positive	SD-09402*
Latas, Timothy W. and Linda Roth	1991	Survey	Positive	SD-07462
Manley, William	1993	Evaluation	Negative	SD-03282
Mariah Associates	1994	Survey	Positive	SD-04718
Mellon, Knox	2001	Survey	Negative	SD-07138
Mooney-Levine and Associates	1986	Survey and Evaluation	Negative	SD-04407
Pierson, Larry J.	2003	Monitor	Negative	SD-08421
Pigniolo, Andrew	2001	Monitor	Negative	SD-05027
Pigniolo, Andrew	2001	Monitor	Negative	SD-14561
Pigniolo, Andrew	2002	Survey	Positive	SD-09316
Pigniolo, Andrew R. and Michael Baksh	1998	Survey	Positive	SD-03704
Pigniolo, Andrew R. and Michael Baksh	1999	Survey	Negative	SD-03607
Polan, Keith H.	1981	Survey	Positive	SD-01342
Polan, Keith H.	1981	Survey	Positive	SD-05934
RBR & Associates, Inc.	1985	Survey	Positive	SD-01725
RECON	1985	Excavation	Positive	SD-01499
Robbins-Wade, Mary	2000	Survey	Positive	SD-05093
Robbins-Wade, Mary	2000	Survey	Positive	SD-05106
Robbins-Wade, Mary	2000	Survey	Positive	SD-14355
Robbins-Wade, Mary	2002	Survey	Positive	SD-13965*
Robbins-Wade, Mary	2007	Survey	Positive	SD-11097
Robbins-Wade, Mary	2008	Survey	Positive	SD-11759
Robbins-Wade, Mary	2008	Evaluation	Negative	SD-11826
Robbins-Wade, Mary	2011	Evaluation	Negative	SD-13006
Robbins-Wade, Mary	2013	Survey	Negative	SD-14731
Robbins-Wade, Mary and Timothy G. Gross	1990	Survey	Positive	SD-08599
Robbins-Wade, Mary and Matt Sivba	2007	Monitor	Negative	SD-10882
Rosen, Martin D.	1990	Survey	Positive	SD-01364*

Rosen, Martin D.	1996	Survey	Negative	SD-06635
Rosen, Martin D.	2006	Survey	Negative	SD-10070
Rosen, Martin D.	2010	Survey	Negative	SD-12567*
Schwaderer, Rae	1986	Excavation	Positive	SD-02415
Serr, Carl and Dan Saunders	1994	Evaluation	Positive	SD-03772
Smith, Brian F. and Seth A. Rosenberg	2008	Survey & Evaluation	Positive	SD-11688
SWCA Environmental Consultants	2004	Survey	Negative	SD-07136
Turnbow, Christopher A., Kathleen A. Adams, et al.	1995	Excavation	Positive	SD-03713
Underwood, Jackson and Carrie Gregory	2004	Survey	Positive	SD-09177
Underwood, Jackson and et al.	2009	Evaluation	Negative	SD-12360
US Army Corp of Engineers	1992	Evaluation	Positive	SD-05933
US Dept. of Interior		Evaluation	Negative	SD-07075
Van Wormer, Stephen R. and Andrew R. Pigniolo	1999	Evaluation	Positive	SD-03584
Various		Evaluation	Negative	SD-10836
Wade, Sue	1990	Survey	Negative	SD-05507
Wade, Sue	1994	Monitor	Negative	SD-07172
Wade, Sue	1998	Survey	Positive	SD-06731
Wade, Sue	1999	Survey	Positive	SD-04927
White, Chris	1995	Evaluation	Positive	SD-04530

*Study conducted within project area

The record search yielded a total of 87 cultural studies that were conducted within .5-mile of the study area. Ten of the 87 studies that were conducted within the project area are SD-00414, -01364, -06369, -07659, -09402, -10594, -12567, -13965, -14368, and -14714. Previous studies include survey, excavation, site evaluation, site monitoring, and environmental impact reports (EIR), which produced positive and negative results.

Nine cultural studies have been conducted for the International Boundary and Water Commission. These studies include five positive surveys (SD-2885, -02955, -03646, -04718, and -05935), one positive geotechnical test monitoring (SD-05935), two positive excavations (SD-02955 and -03713), two negative archaeological monitoring projects (SD-02886 and -03709), and one negative EIR (SD-2107).

Seven cultural studies have been conducted for the Brown field Municipal Airport. These studies include two positive and one negative survey (SD-01390, -013966, and -04768) and one negative EIR (SD-02061). Additionally, one site evaluation produced negative results for historic WWII District buildings (SD-07075).

Six cultural studies were conducted at the Border Field State Park. These studies include two positive excavations (SD-00374 and -02415) and one positive survey (SD-03704). Three studies conducted site evaluations and produced positive results for sites CA-SDI-15039 and CA-SDI-14831 (SD-13340 and -03584) and one negative result for sites CA-SDI-222 and CA-SDI-4281 (SD-12360).

Five surveys previously conducted for the proposed State Route (SR) 125 from SR905 to SR54 produced three positive (SD-06369, -07659, and -01364) and one negative (SD-10070) report.

TABLE 2: KNOWN CULTURAL RESOURCES PREVIOUSLY DOCUMENTED WITHIN .5-MILE OF THE CURRENT STUDY AREA

Quad	Primary No.	Trinomial	Component	Description	County
Otay Mesa	37-007208	CA-SDI-7208	Pre-Historic	Sparse lithic scatter consisting of debitage and tools	San Diego
Otay Mesa	37-010245	CA-SDI-10245	Pre-Historic	Lithic scatter consisting of felsite and andesite tools	San Diego
Otay Mesa	37-010608*	CA-SDI-10608	Pre-Historic	Lithic scatter consisting of cores, flakes, and retouched tools	San Diego
Otay Mesa	37-010628/H*	CA-SDI-10628H	Pre-Historic & Historic	Historic concrete foundation, cistern, and refuse scatter. Prehistoric component consists of a lithic scatter of debitage and tools	San Diego
Otay Mesa	37-010734	CA-SDI-10734	Pre-Historic	Light lithic scatter of flaked tools, felsites, and andesites	San Diego
Otay Mesa	37-011065	CA-SDI-11065	Pre-Historic	Quarry site with limited use	San Diego
Otay Mesa	37-012337	CA-SDI-12337	Pre-Historic	Large lithic scatter consisting of debitage, cores, ground stone, and flaked stone tools	San Diego
Otay Mesa	37-014298		Pre-Historic	Isolated gray metavolcanics flake with possible retouching	San Diego
Otay Mesa	37-031952	CA-SDI-20230	Pre-Historic	Sparse shell scatter containing mostly red abalone	San Diego

*Primary No. 37-010608 has been subsumed under primary no. 37-010628/H

The record search also indicated that nine previously recorded archaeological sites are present within .5-mile of the project area. All sites are pre-historic with the exception of P-37-010628/H, which includes both pre-historic and historic components. All pre-historic sites contain lithic scatters that include debitage, tools, flakes, ground stone, or retouched flakes.

The boundary of P-37-010628/H was extended in 1996 to include P-37-010608 because the two sites are adjacent to one another. Historic aspects of this site consist of concrete foundations, a cistern, and refuse scatter that includes lumber, metal, plaster, tar, ceramic, and blue, green, aqua, white, colorless, amber, and amethyst glass. A pre-historic lithic scatter contains cores, flakes, and retouched tools. Surface and test unit excavations collected historic and pre-historic artifacts from 0-50cm and 0-20cm depths, respectively, for the Otay Mesa Road widening project.

Site P-37-007208, a sparse lithic scatter, has been resurveyed and updated seven times since its original recordation by Ferguson in 1979. Each update has altered the site's boundary. Originally, the size of this site was 80 acres and has been expanded to its current size of 725 acres. Multiple recovery efforts have been made at this site since 1979. A surface collection was taken by Ferguson in 1979 that included cores, scrapers, and debitage. In 2002, surface and subsurface artifact recovery was conducted and indicated most of the artifacts were located on the surface. However, a history of agricultural activities at this site has altered artifact provenience. In 2010, 287 artifacts, including ground stone, flaked stone, and hammerstones, were recovered for the Britannia 40 project. Construction conducted at the northeast intersection of Britannia Court and Martinez Ranch Road in 2014 revealed three isolated pre-historic artifacts: a tested cobble, interior flake, and quartzite core fragment.

Numerous archaeological sites are located in areas of extensive agricultural use. Decades of plowing have altered the provenience and condition of artifacts at the following sites: P-37-007208, P-37-010245, P-37-010734, P-37-011065, P-37-012337, and P-37-031952. Additionally, artifacts from sites P-37-007208, P-37-010245, P-37-010628/H, and P-37-012337 have been collected from surface or subsurface testing.

APPENDIX E

DRAINAGE STUDY

The City of San Diego

DRAINAGE STUDY REPORT

7-ELEVEN OTAY MESA
Site Development Permit No.: 96-7731
Project No.: 553296 ; Internal Order No.: 24007314

ENGINEER OF WORK:

Travis Vincent
Provide Wet Signature and Stamp Above Line

PREPARED FOR:
7-ELEVEN Inc.
3200 Hackberry Rd.
Irving, TX 75063
(714) 970-2095

PREPARED BY:

CORE STATES GROUP

Core States Group
4240 East Jurupa Street, Suite 402
Ontario, CA 91761
(909) 467-8940

DATE:
August 20, 2019

Approved by: City of San Diego Date

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Existing Site Drainage

The existing condition of the project site is undeveloped and covered by natural soil (Type D, Barren). The runoff sheet flows toward the southeast, flows over the sidewalk onto the adjacent public streets where it is collected by existing catch basins on St. Andrews Ave. and La Media Rd. The storm water system conveys and discharges to Otay Mesa Creek and Tijuana River.

Proposed Site Drainage

The proposed project will generally retain the existing drainage pattern and will not cause negative impact to the adjacent properties, as shown on the attached Hydrology exhibits. The runoff sheet flow toward the southeast corner of the lot into a new biofiltration basin with partial retention for treatment. Treatment will be achieved by the runoff travelling vertically through a soil layer and a underlying stone layer. A perforated underdrain will collect filtered storm water. A circular orifice is proposed at the outlet of the underdrain to control the outflow rate for smaller storm events. A riser and overflow are also proposed to handle bigger storm events. The underdrain will connect to the existing catch basin on St. Andrews Ave and the underground storm system will convey the runoff to Otay Mesa Creek and Tijuana River.

The intensity data from the San Diego County Hydrology Manual Isopluvial Maps (attached) were utilized to generate hydrographs for the designed 5-year, 10-year, 25-year, 50-year, 100-year storm events.

Hydrology Summary Table					
Pre-Development Conditions, CN=93					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	5.318 cfs	6.643 cfs	7.962 cfs	9.274 cfs	10.58 cfs
Peak Runoff	11,257 cf	14,260 cf	17,302 cf	20,370 cf	23,457 cf
Post-Construction Conditions, CN=90					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	4.695 cfs	6.018 cfs	7.345 cfs	8.671 cfs	9.995 cfs
Peak Runoff	9,686 cf	12,552 cf	15,487 cf	18,468 cf	21,483 cf
Post-Construction Orifice Design					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	0.628 cfs	0.754 cfs	0.879 cfs	1.001	1.121
Peak Runoff	8,863 cf	11,664 cf	14,550	17,495	20,475

Pre-development Vs Post-development Runoff Values

Based on the NRCS hydrologic soil group web survey, the project site has a soil group type D. The existing surface is undeveloped barren and according to the Drainage Design Manual it has a curve number (CN) of 93.

For the proposed development condition, the curve number was calculated with a weighted combination of commercial area and landscape area.

$$CN_{post} = (0.47 \text{ x } 84 + 1.13 \text{ x } 93) / 1.6 = 90$$

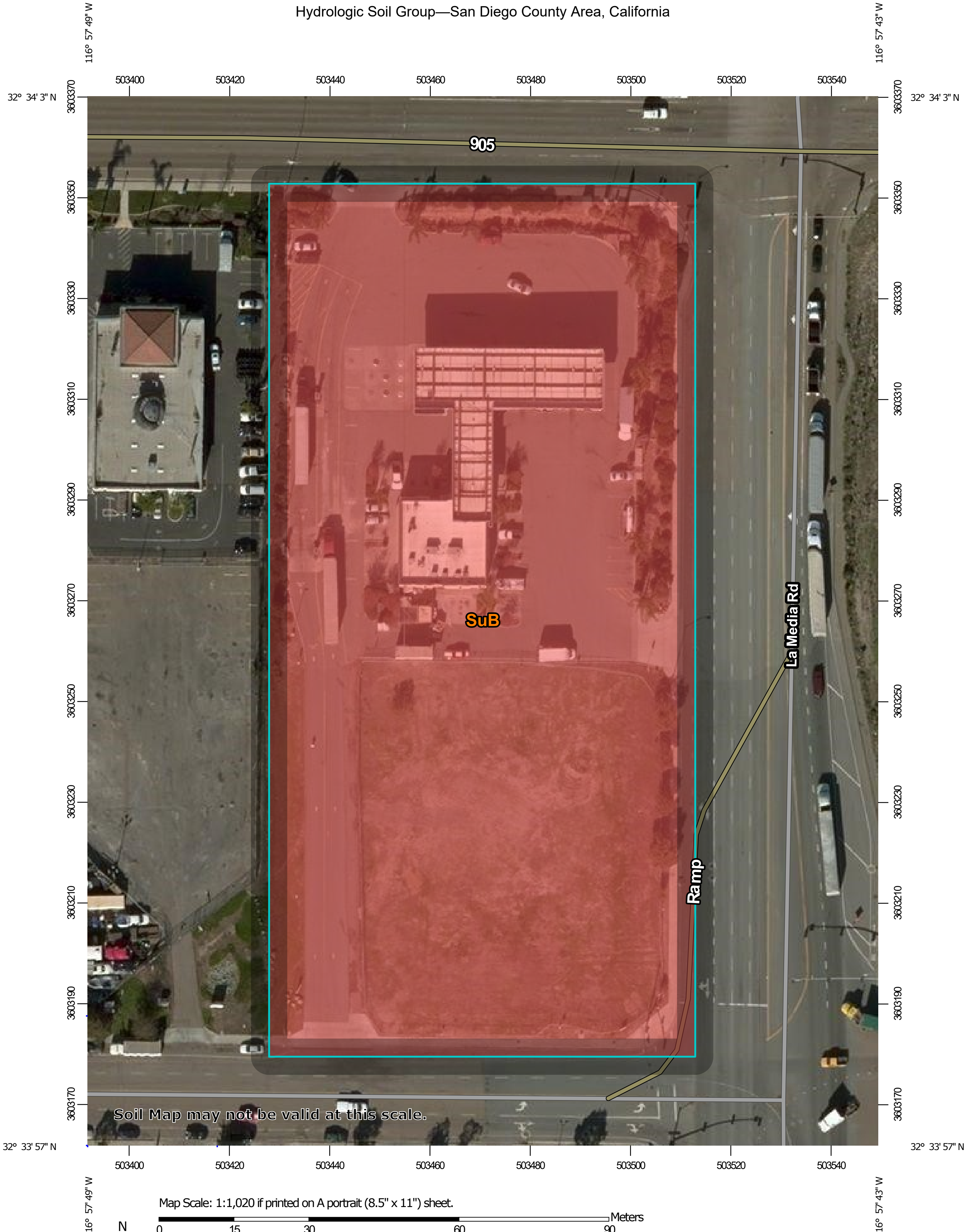
Based on the attached hydrographs, the peak flow from the pre-development is higher than post-development, and therefore the proposed development meets the requirements from the Drainage Design Manual that limit the post development discharge from exceeding the pre-development discharge.

Orifice Design

The proposed construction improvements for this project will include an onsite biofiltration basin to help mitigate storm runoff as shown in the post-development hydrology exhibit. A detail of the proposed basin is also shown which contains a perforated underdrain and orifice before exiting the site through an overflow pipe. A copy of the complete orifice calculations is contained within this report. The results show that the orifice helps reduce the flowrate significantly.

Clean Water Act 401/404

The project site does not discharge any runoff into the US waterways and therefore the requirements of compliance with the Federal Clean Water Act (CWA) as required by the Regional Water Quality Control Board to provide permits under either a 4-1 or 404 permit is not applicable.



Map Scale: 1:1,020 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 15, 30, 60, 90

Feet: 0, 45, 90, 180, 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 12, Sep 13, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 7, 2014—Jan 4, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
SuB	Stockpen gravelly clay loam, 2 to 5 percent slopes	D	3.7	100.0%
Totals for Area of Interest			**3.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

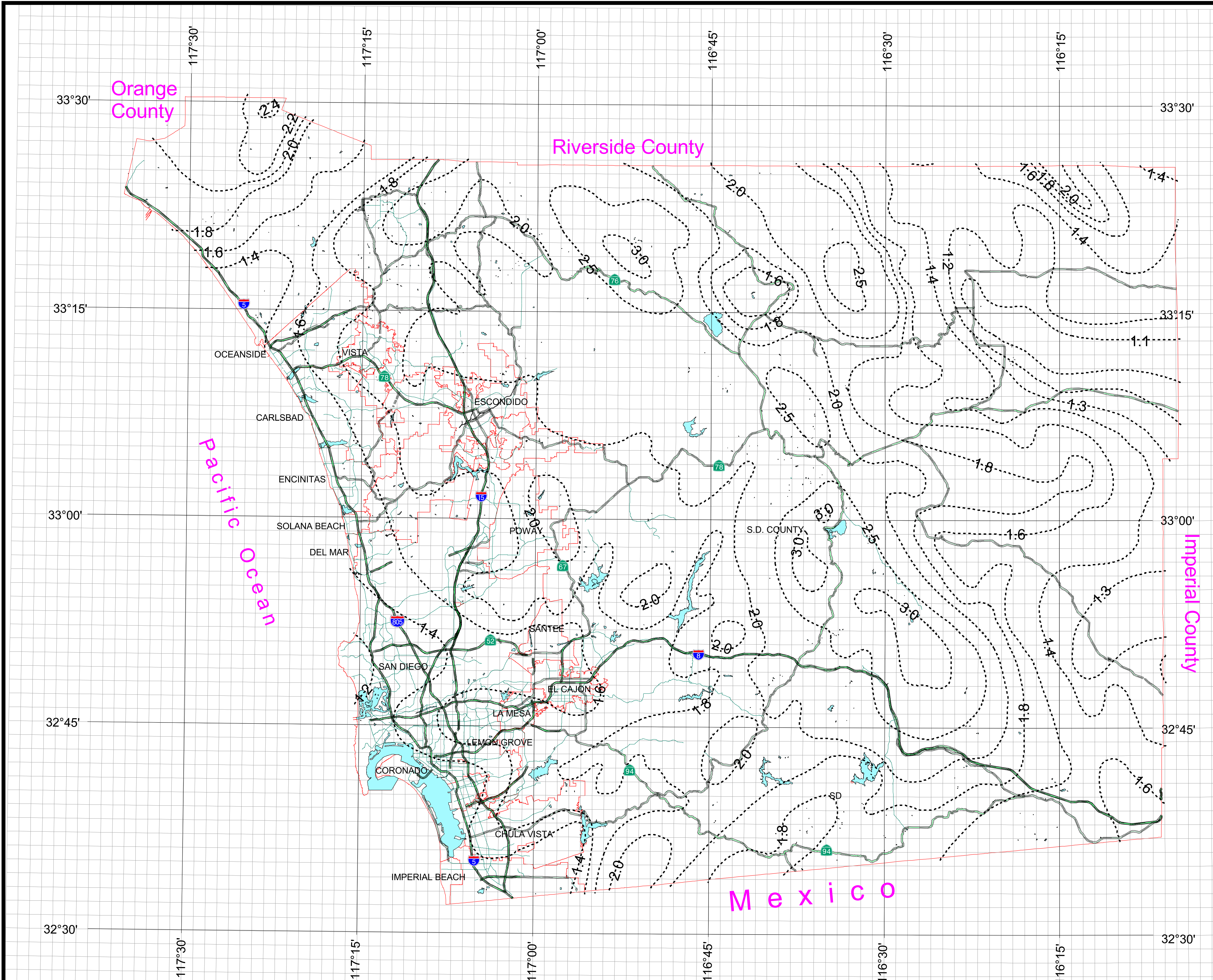
Aggregation Method: Dominant Condition

County of San Diego Hydrology Manual

Rainfall Isopluvials

5 Year Rainfall Event - 6 Hours

Isopluvial (inches)



DPW GIS
Department of Public Works
Geographic Information Services

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W
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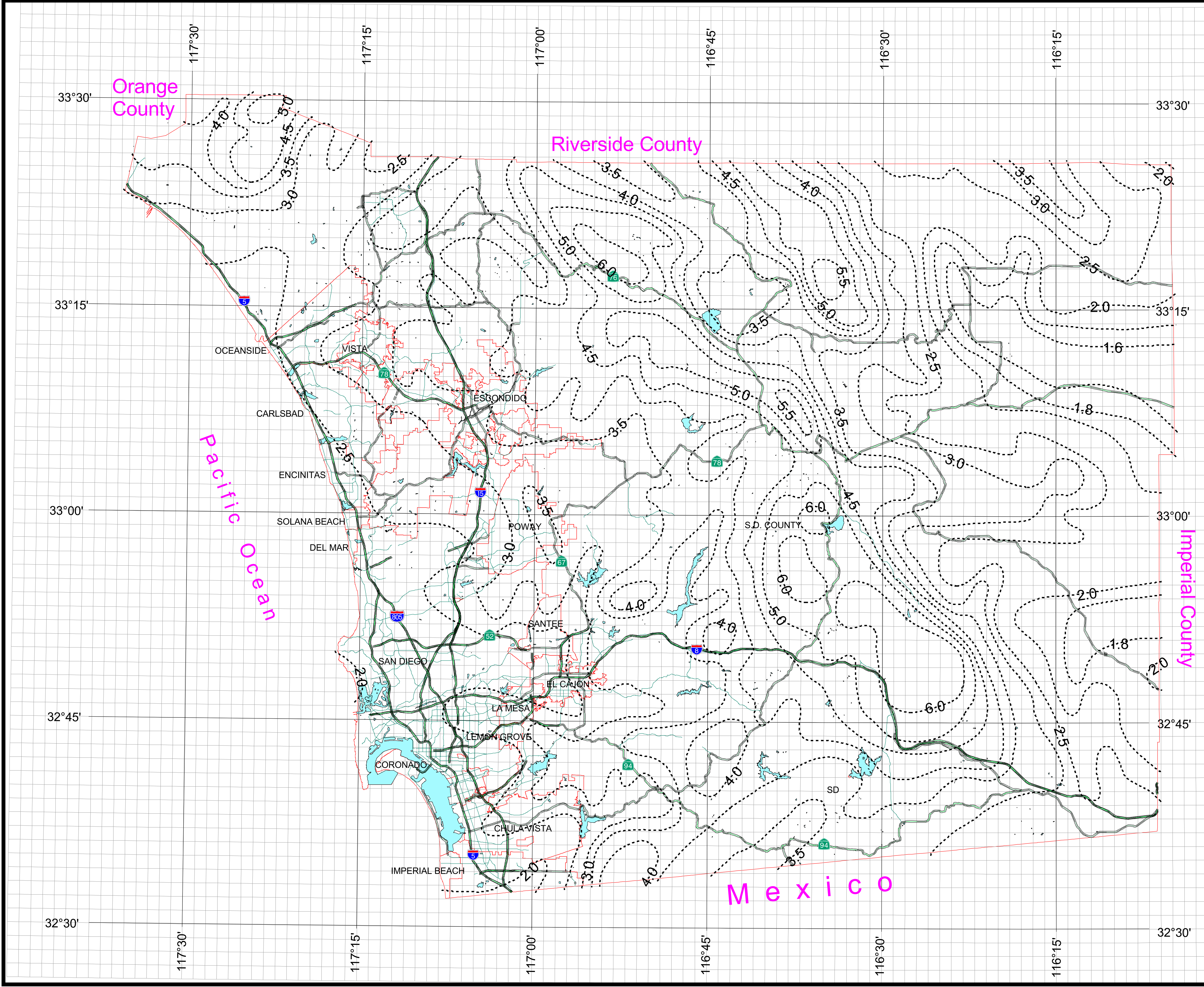
S

3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

5 Year Rainfall Event - 24 Hours



Isopluvial (inches)

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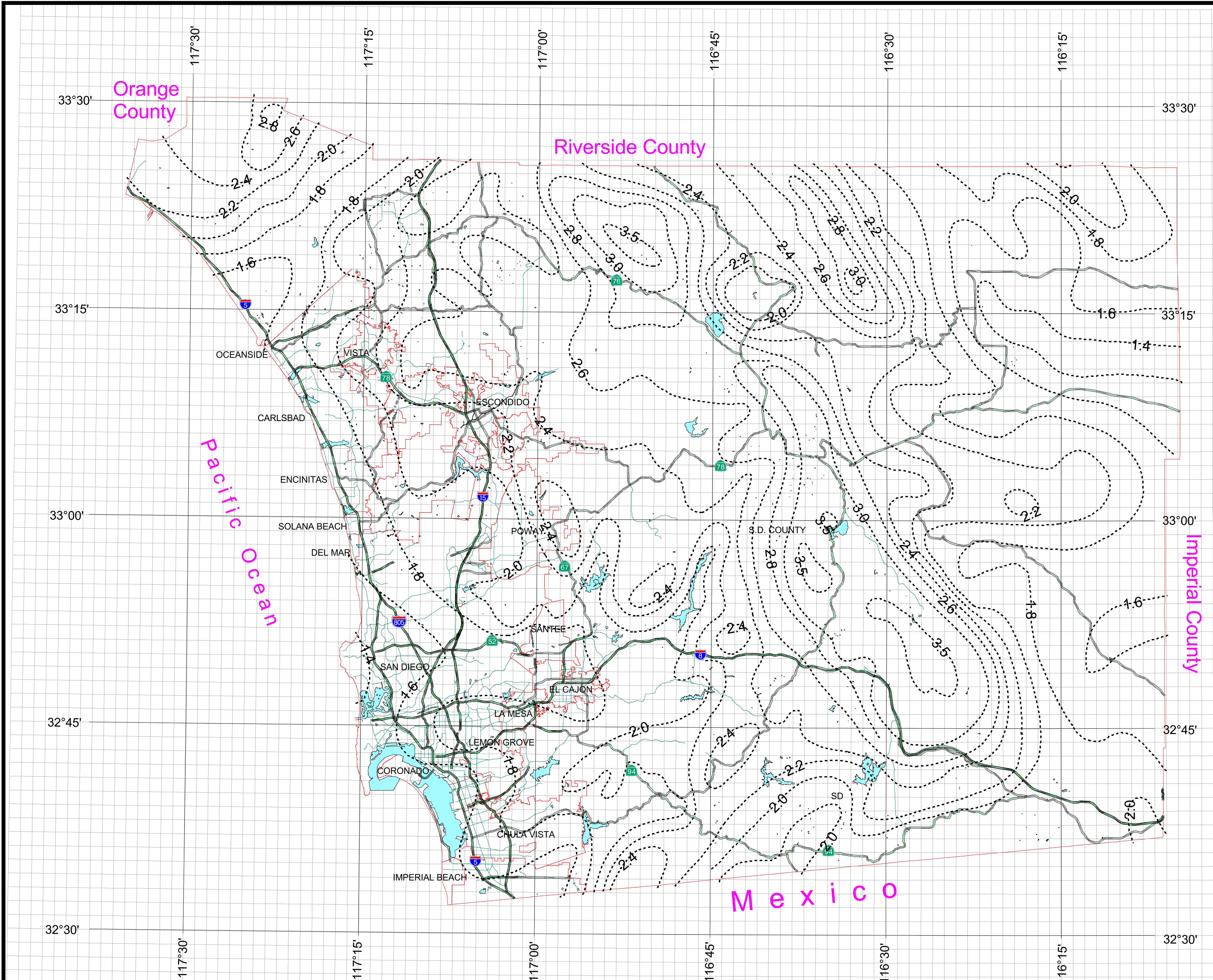
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 6 Hours

Isopluvial (inches)



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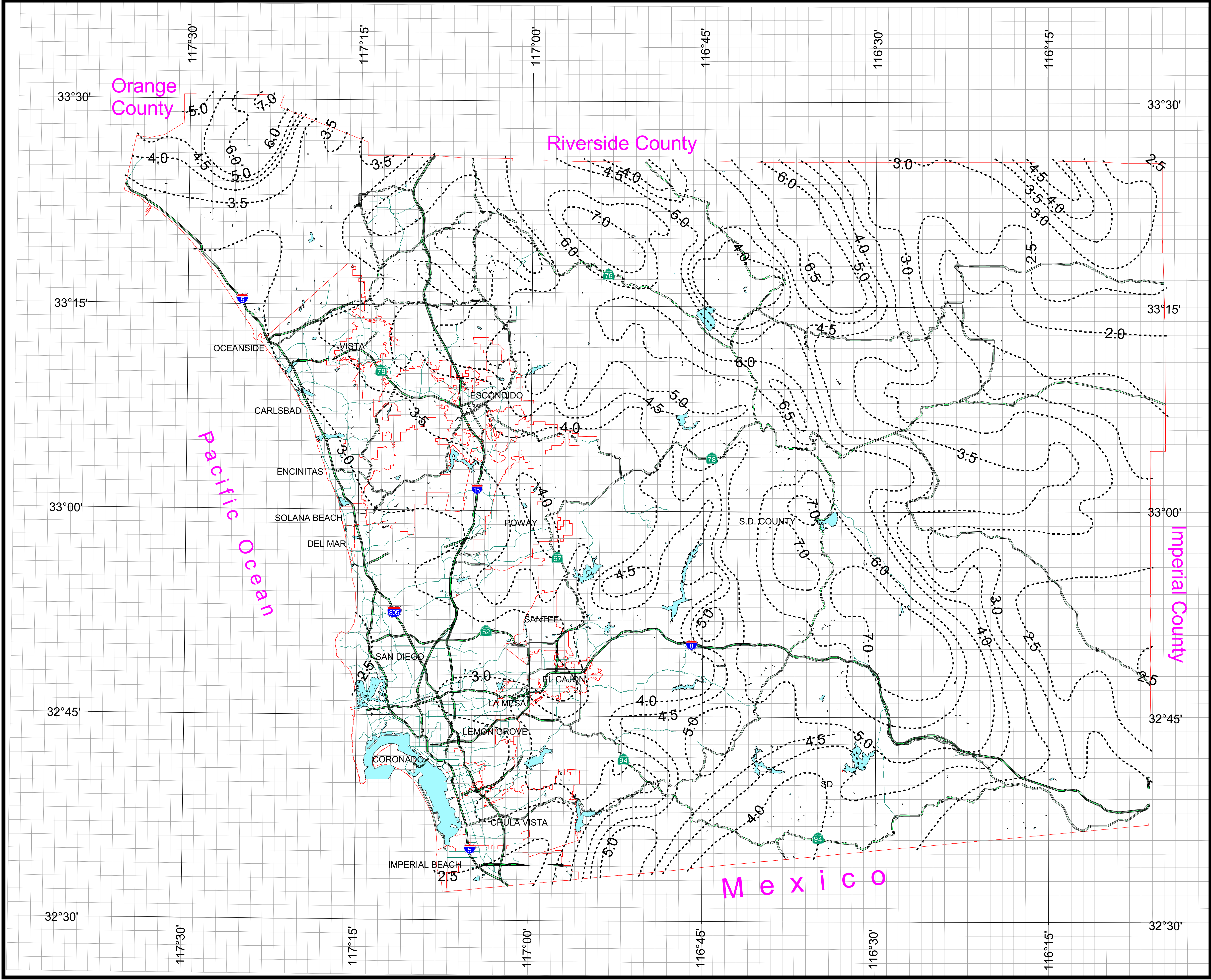

County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 24 Hours

Isopluvial (inches)

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N
W E
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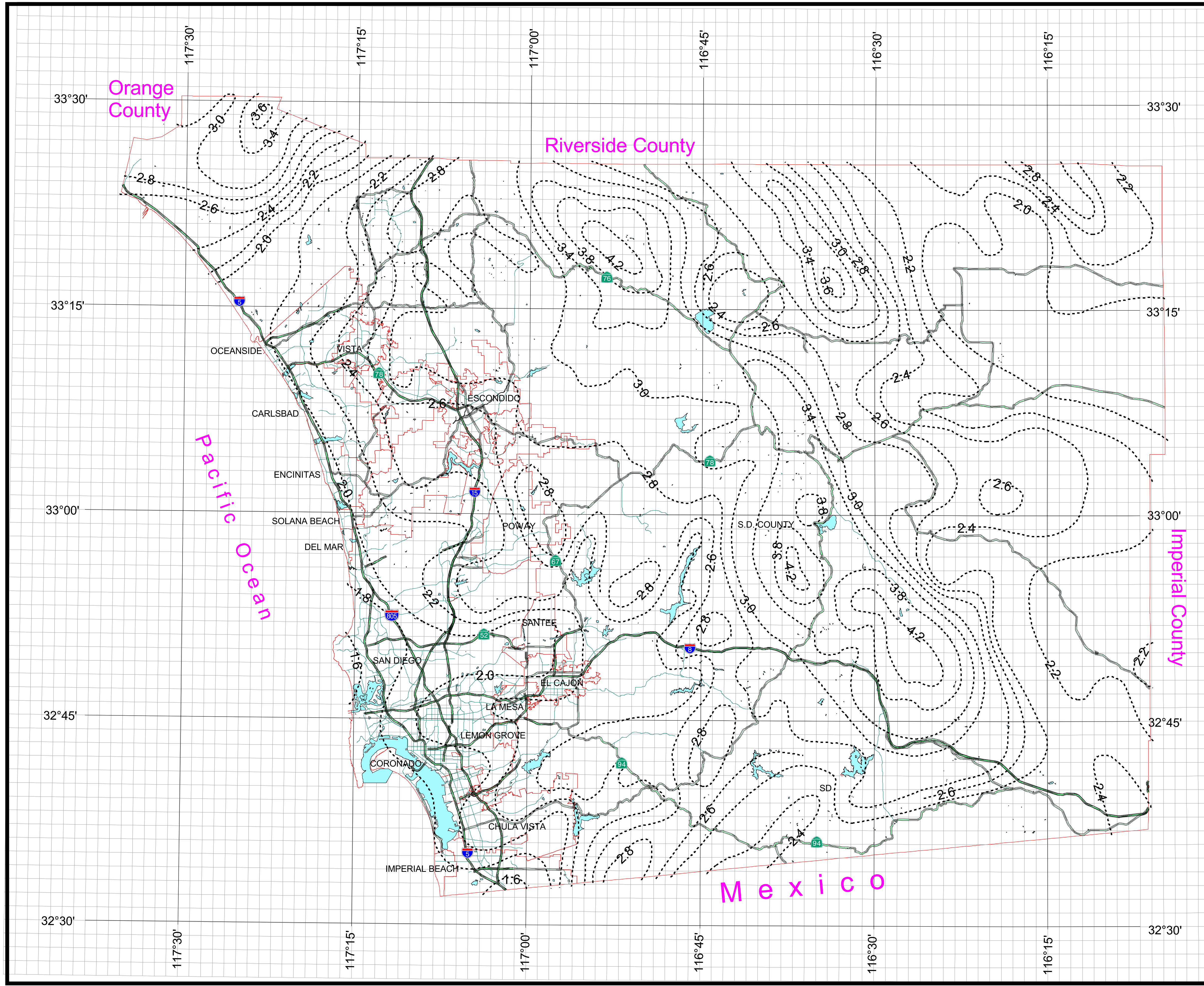
3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 6 Hours

Isopluvial (inches)

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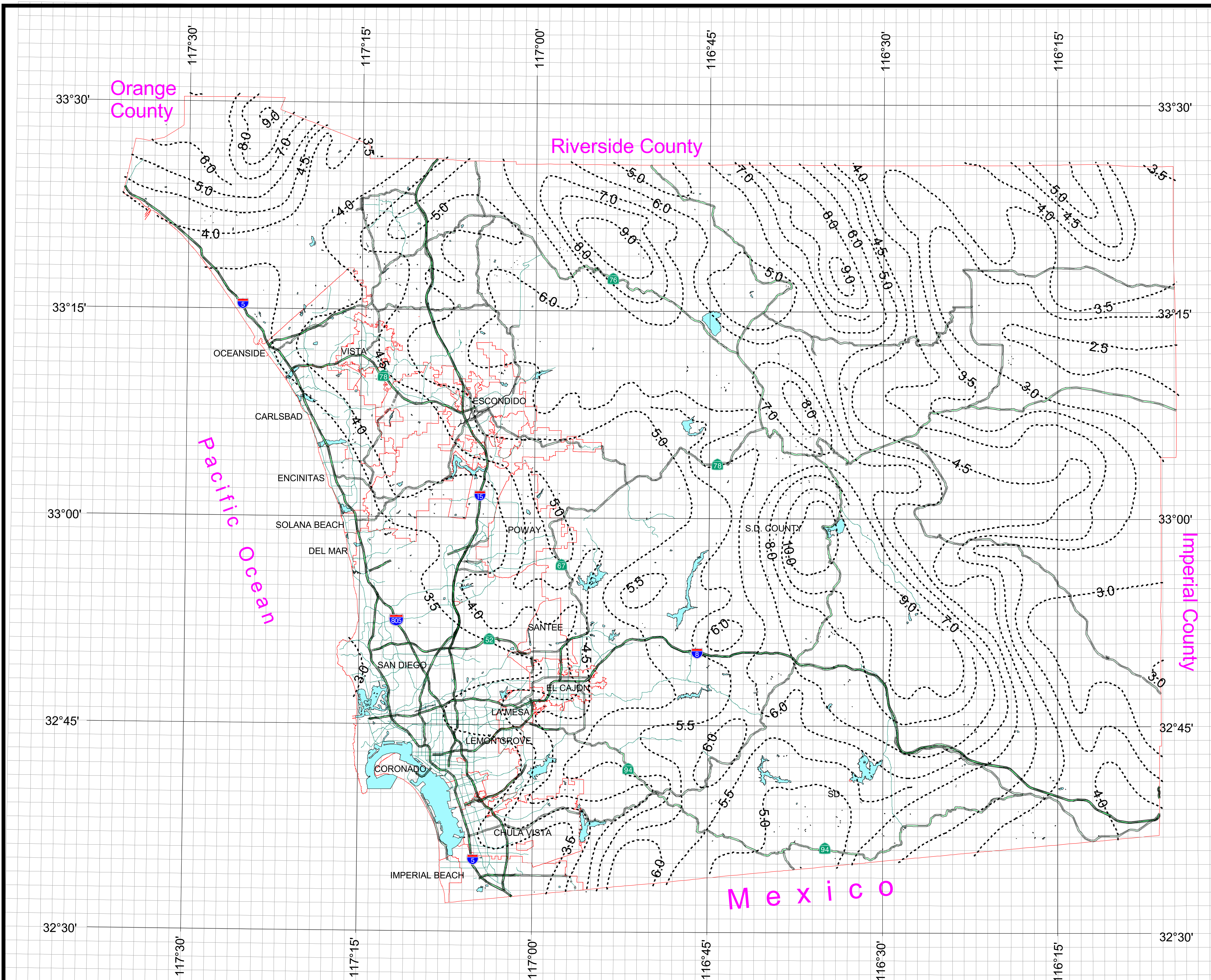
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 24 Hours

Isopluvial (inches)



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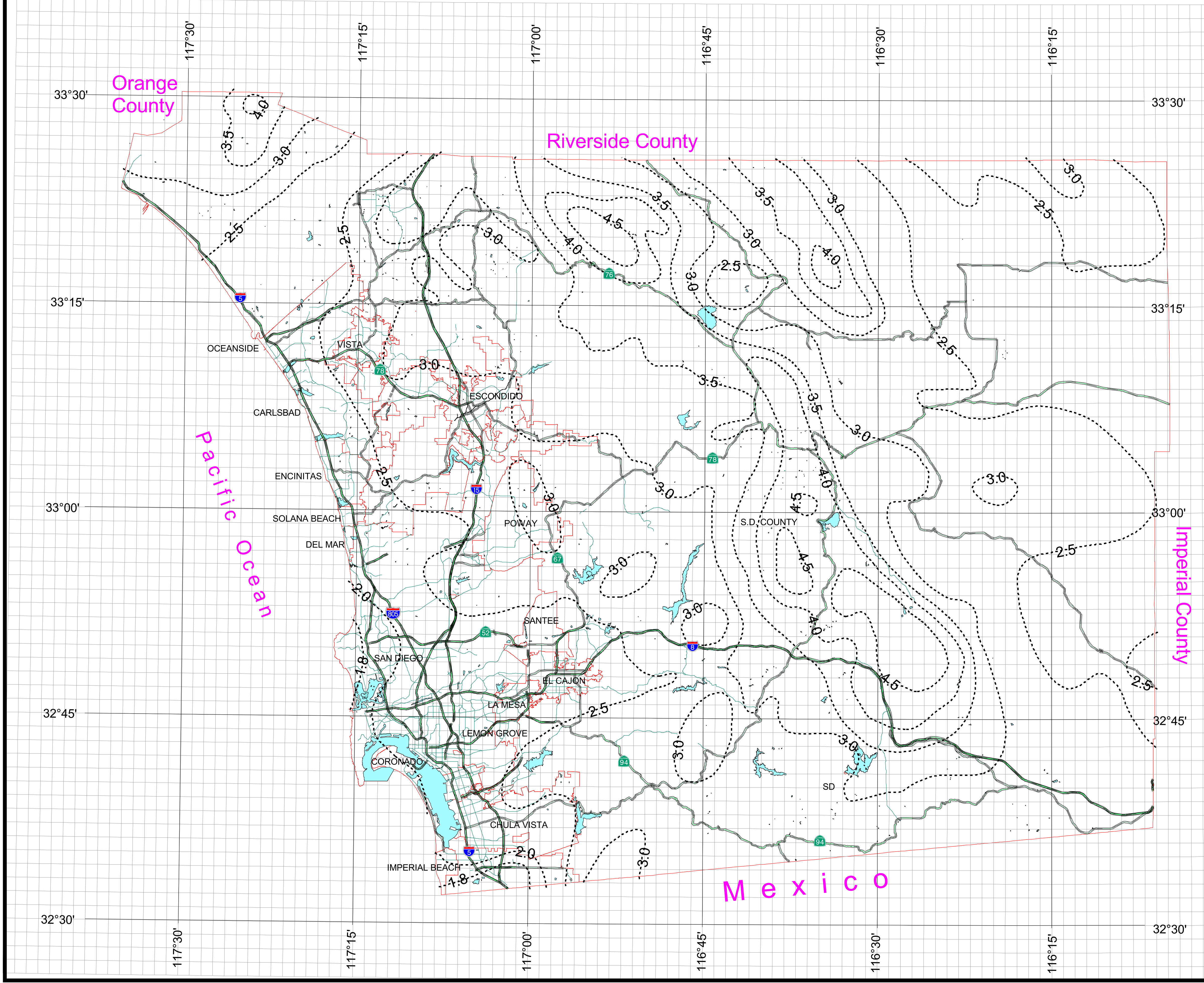
3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Department of Public Works
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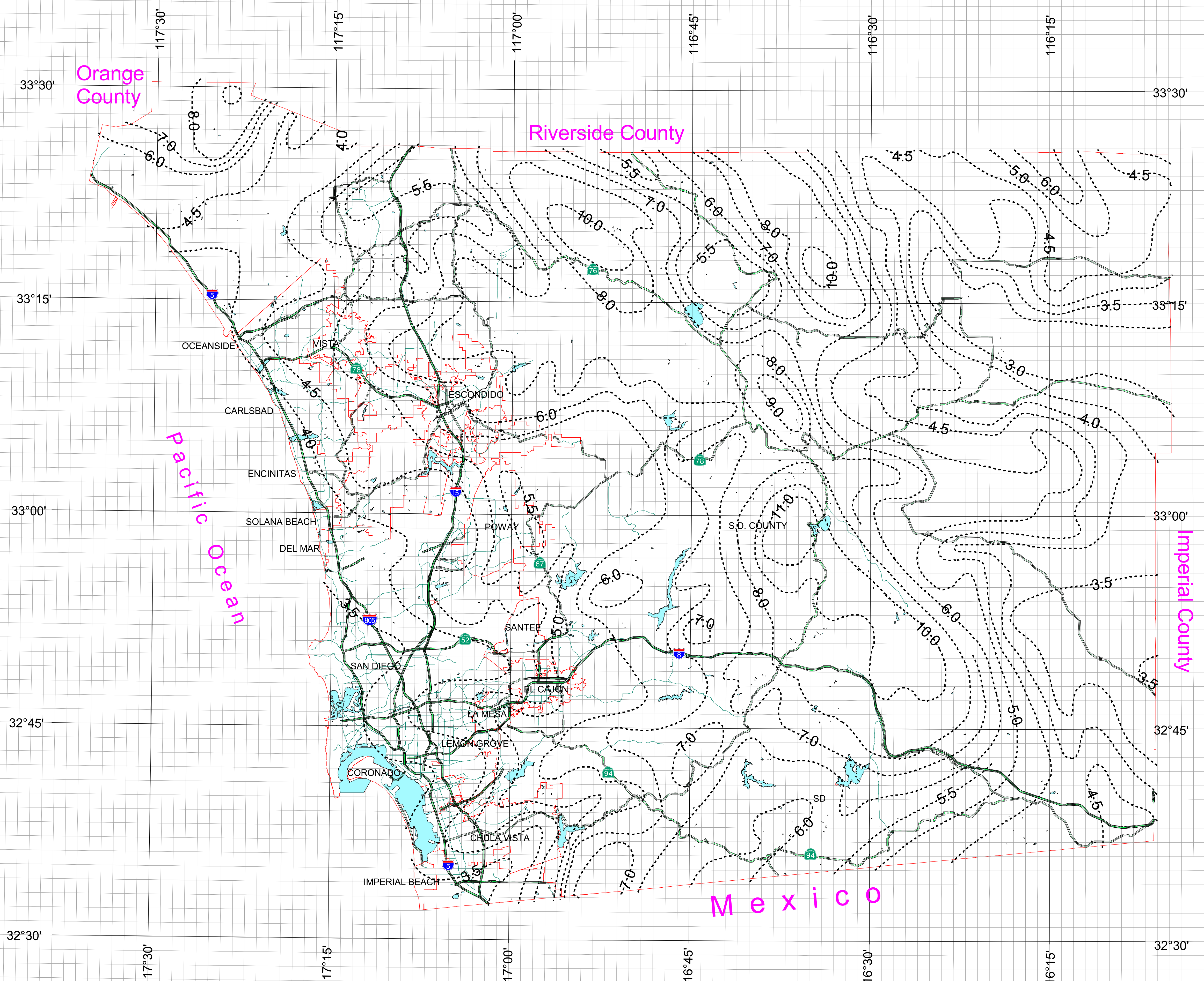
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 24 Hours

Isopluvial (inches)



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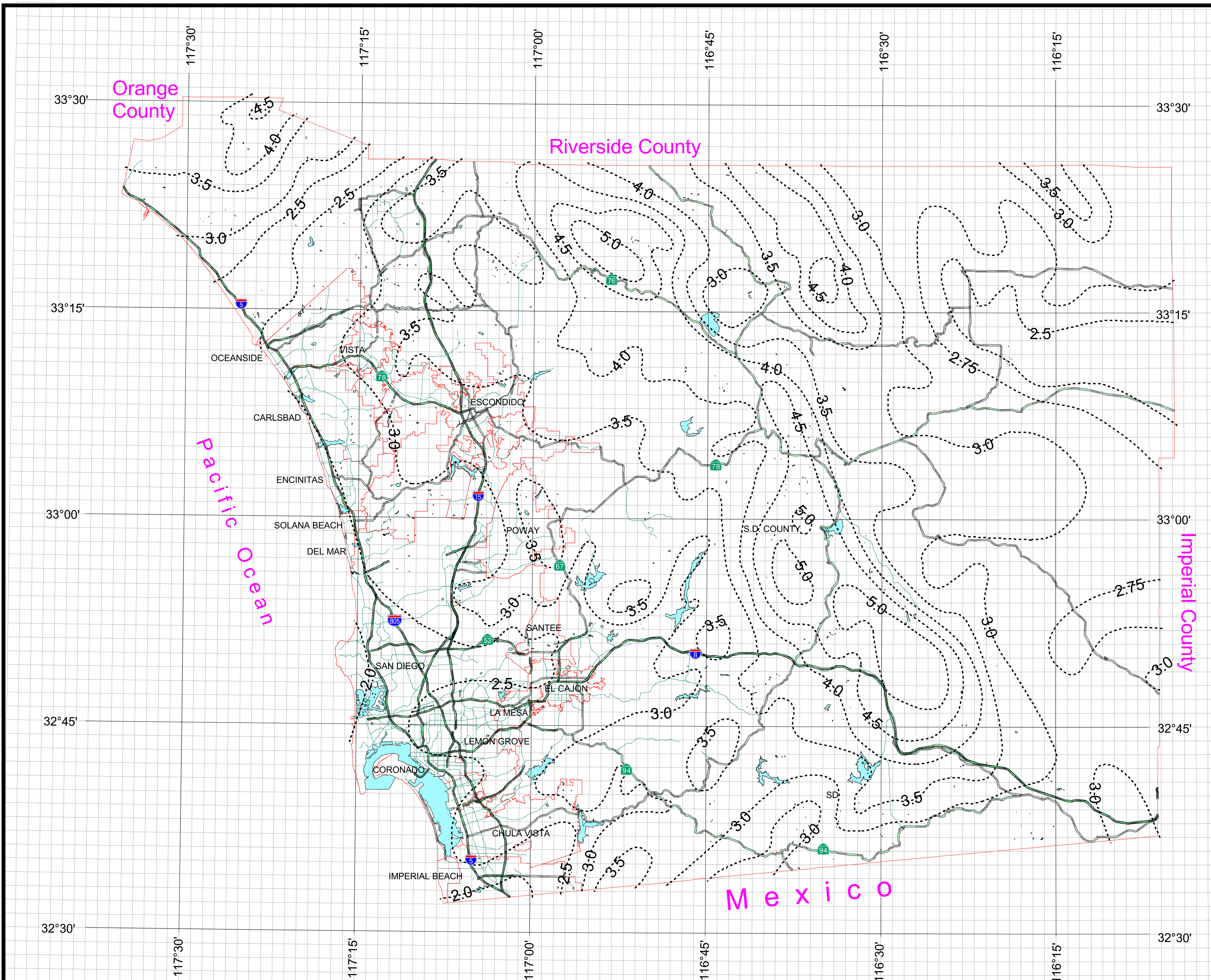
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluviials



100 Year Rainfall Event - 6 Hours

....	Isopluvial (inches)

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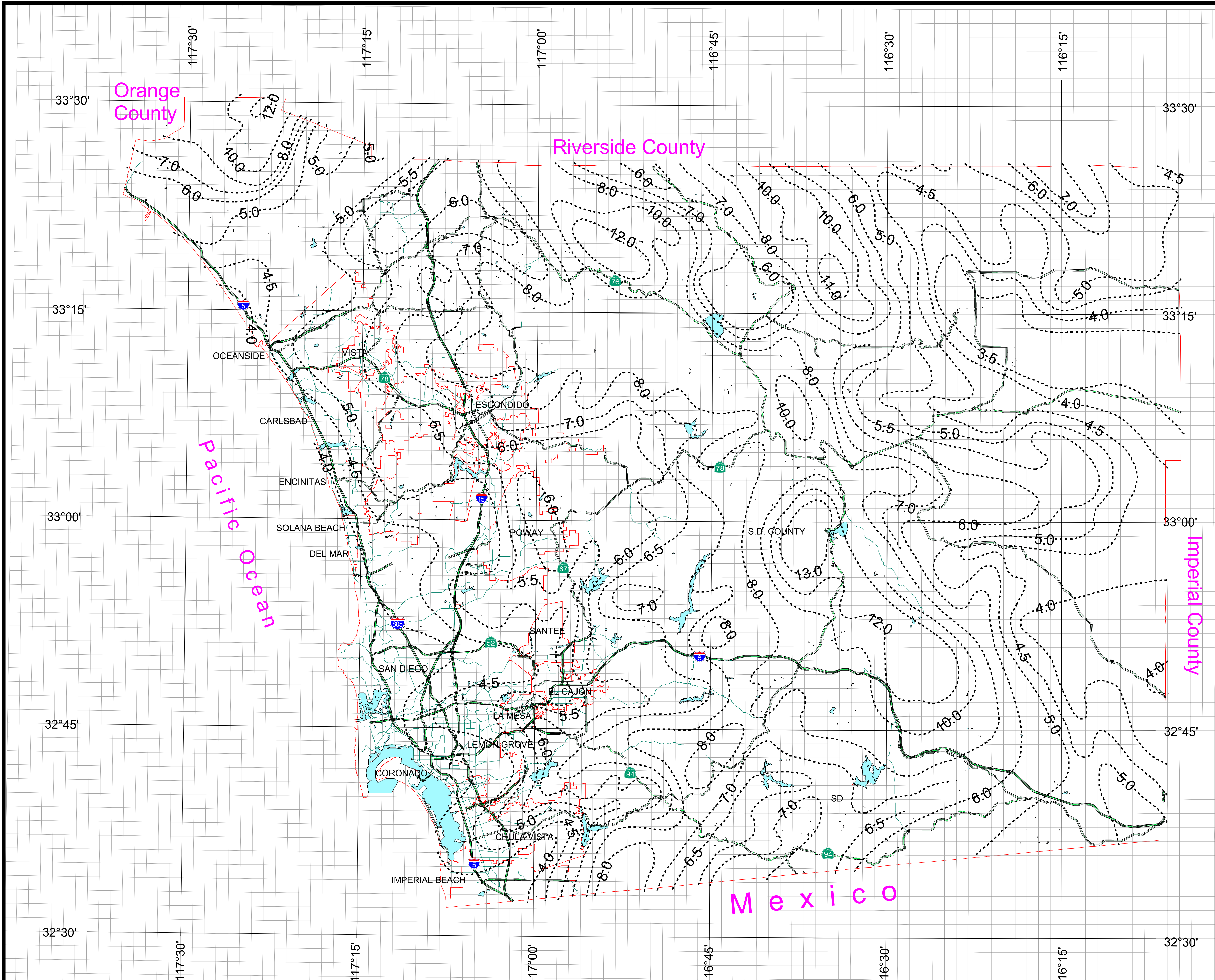
N
W E
S

3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

Department of Public Works
Geographic Information Services

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N
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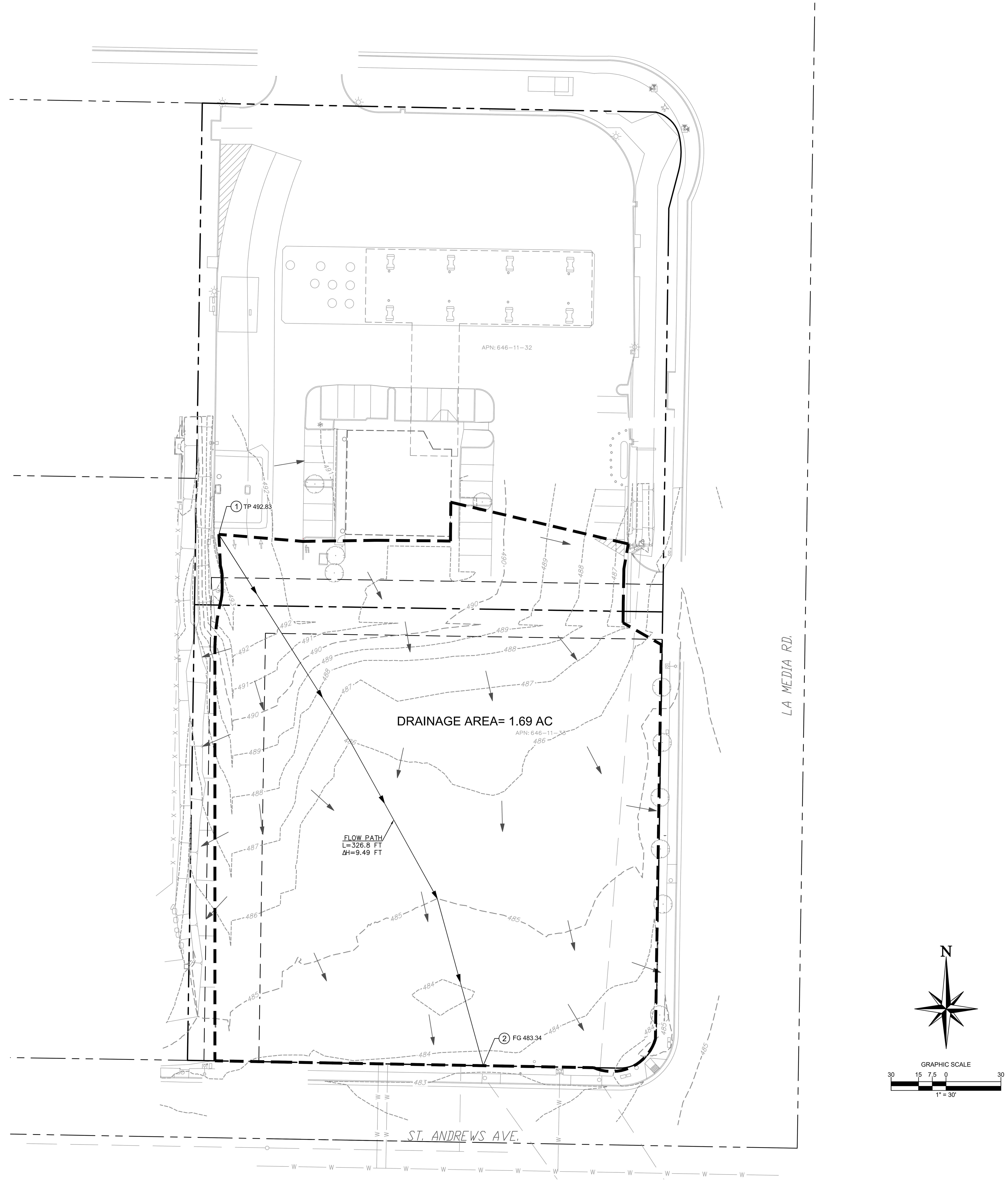
S

3 0 3 Miles



SOIL TYPE NOTE:
THE ENTIRE SITE IS CLASSIFIED AS TYPE D PER NRCS.

CCSYA NOTE:
THE PROJECT IS NOT WITHIN OR DOESN'T RECEIVE OR DRAINS FROM CRITICAL COARSE SEDIMENT YIELD AREAS.

GROUNDWATER NOTE:
THERE IS NO GROUNDWATER ON THE SITE OR 1,000 FEET RADIUS FROM THE SITE PER GEOTRACKER GAMA GROUNDWATER.

HYDROLOGY MAP LEGEND

- SHEET FLOW DIRECTION
- TRIBUTARY AREA
- FLOW PATH
- EXISTING 5' INTERVAL CONTOUR LINE
- EXISTING 1' INTERVAL CONTOUR LINE
- NODE NUMBER

Hydrology Summary Table				
Pre-Development Conditions, CN=93				
Pre-Development Flowrates				
Q (5-Yr)	Q (10-Yr)	Q (25-Yr)	Q (50-Yr)	Q (100-Yr)
5.318 cfs	6.643 cfs	7.962 cfs	9.274 cfs	10.58 cfs
Pre-Development Runoff				
V (5-Yr)	V (10-Yr)	V (25-Yr)	V (50-Yr)	V (100-Yr)
11,257 cf	14,260 cf	17,302 cf	20,370 cf	23,457 cf

NOTE: DISCHARGE FLOWRATES AND RUNOFF LISTED ON THIS TABLE OCCUR AT NODE 2 SHOWN ON PLAN

7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

EXISTING HYDROLOGY

CORE STATES GROUP
3401 Centrelake Drive, Suite 330
Ontario, CA 91761
Phone (909) 467-8909
santi@core-eng.com

ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

ISSUE	DATE	DESCRIPTION

Job#:	SEI-16380.0169
Scale:	AS SHOWN
Date:	01-10-19
Drawn By:	RM
Checked By:	TV

EXISTING CONDITION HYDROLOGY EXHIBIT

Drawing: F:\7-Eleven\1\San Diego, CA 32290 – SEI-16380.0155 f1\Vault\Civil\Construction Plans\Existing Hydrology Map.dwg ; EXST HYDRO
User: RHERNANDEZ
Last Modified: Jan. 10, 19 – 15:20
Plot Date/Time: Jan. 10, 19 – 15:29:22

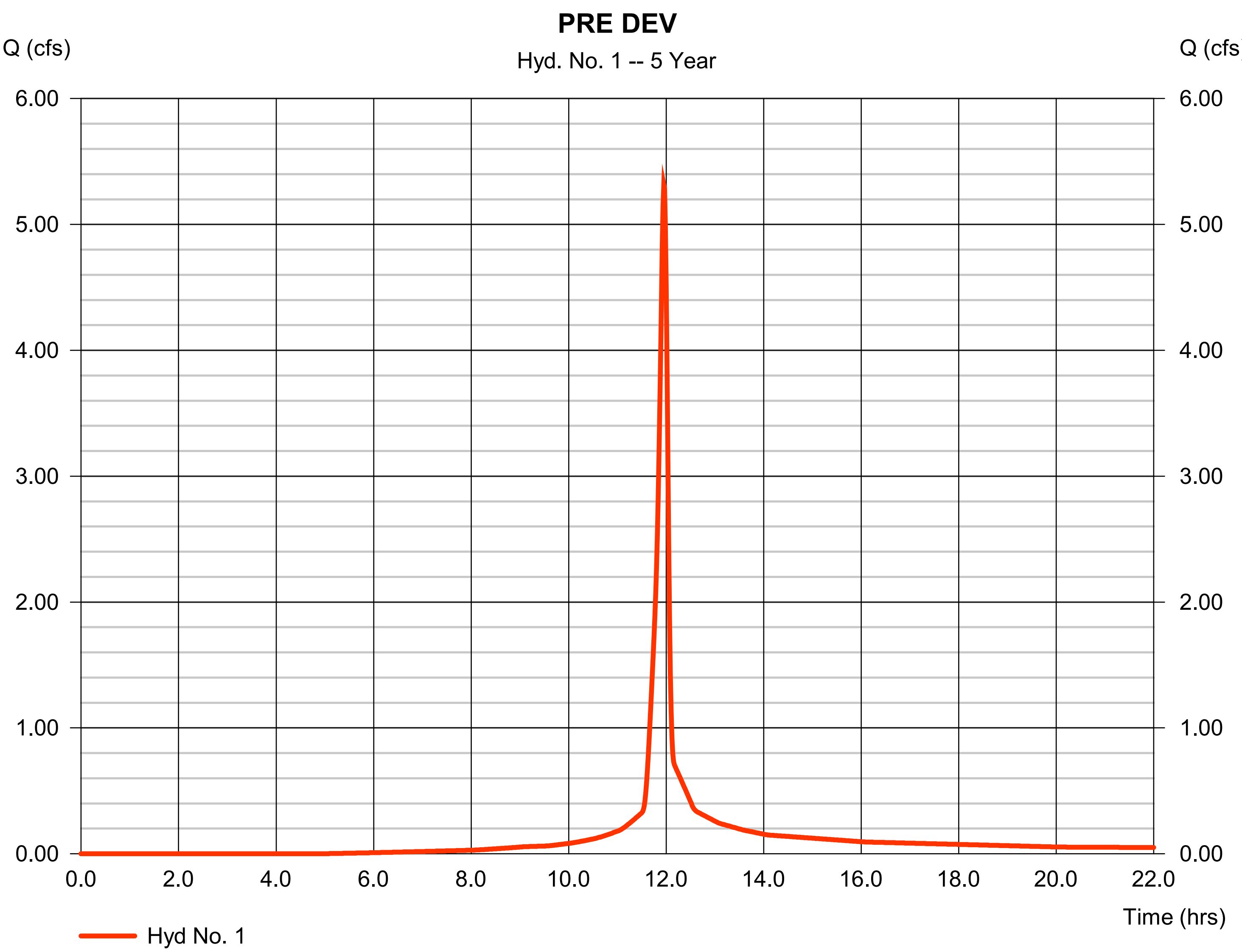
Hydrograph Report

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 5.318 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 11,257 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



Hydrograph Report

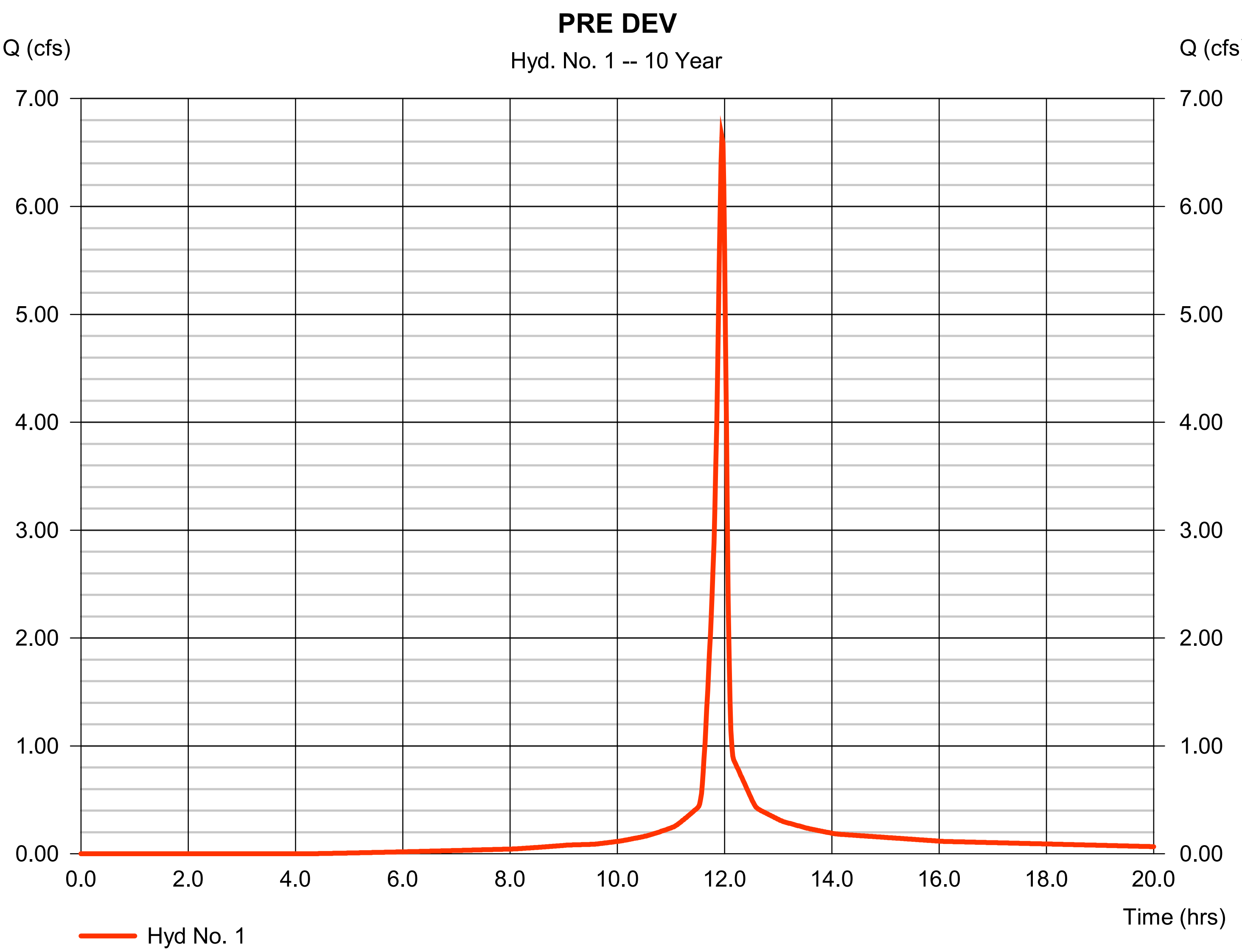
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 | Thursday, 01 / 10 / 2019

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 6.643 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 14,260 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



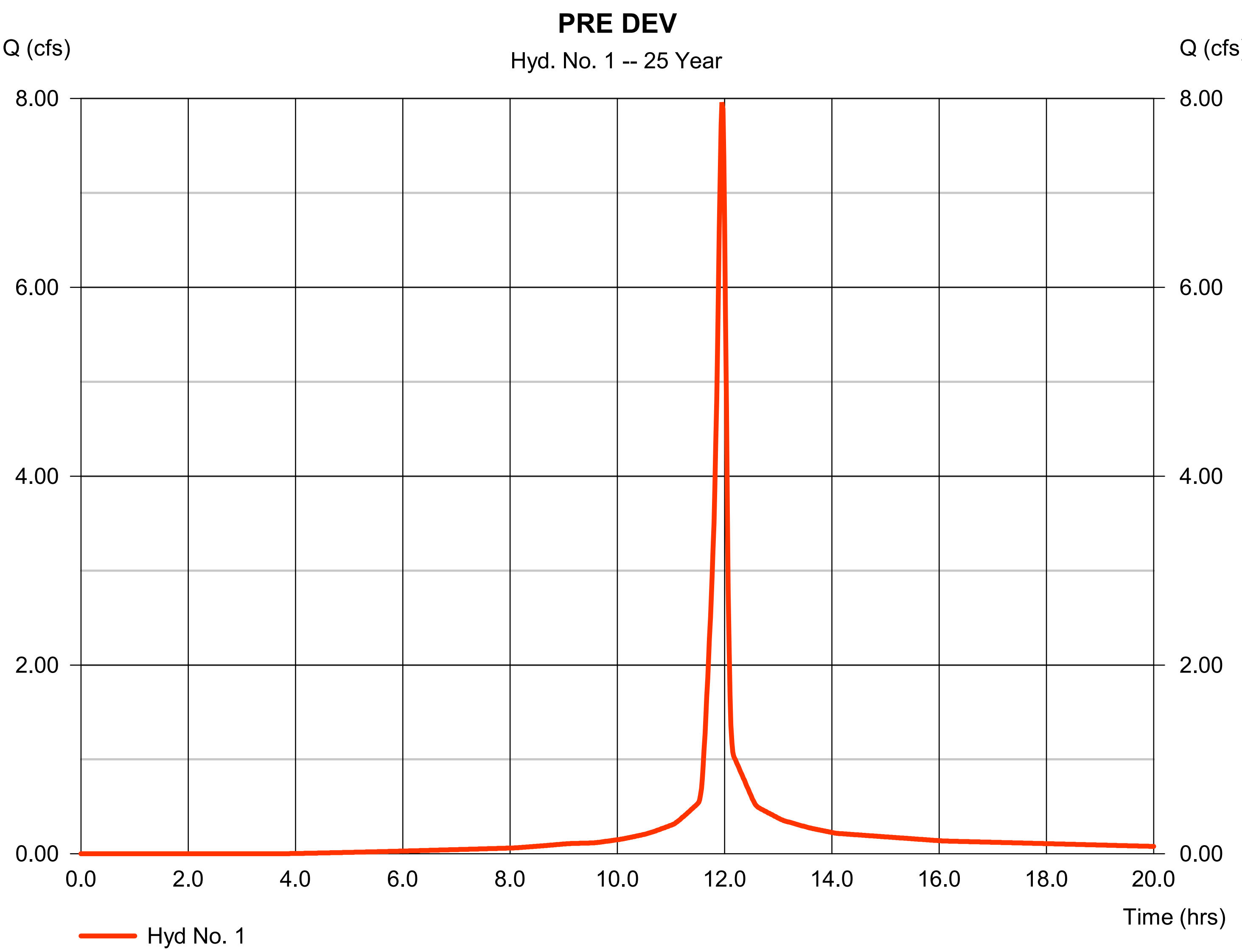
Hydrograph Report

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 7.962 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 17,302 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



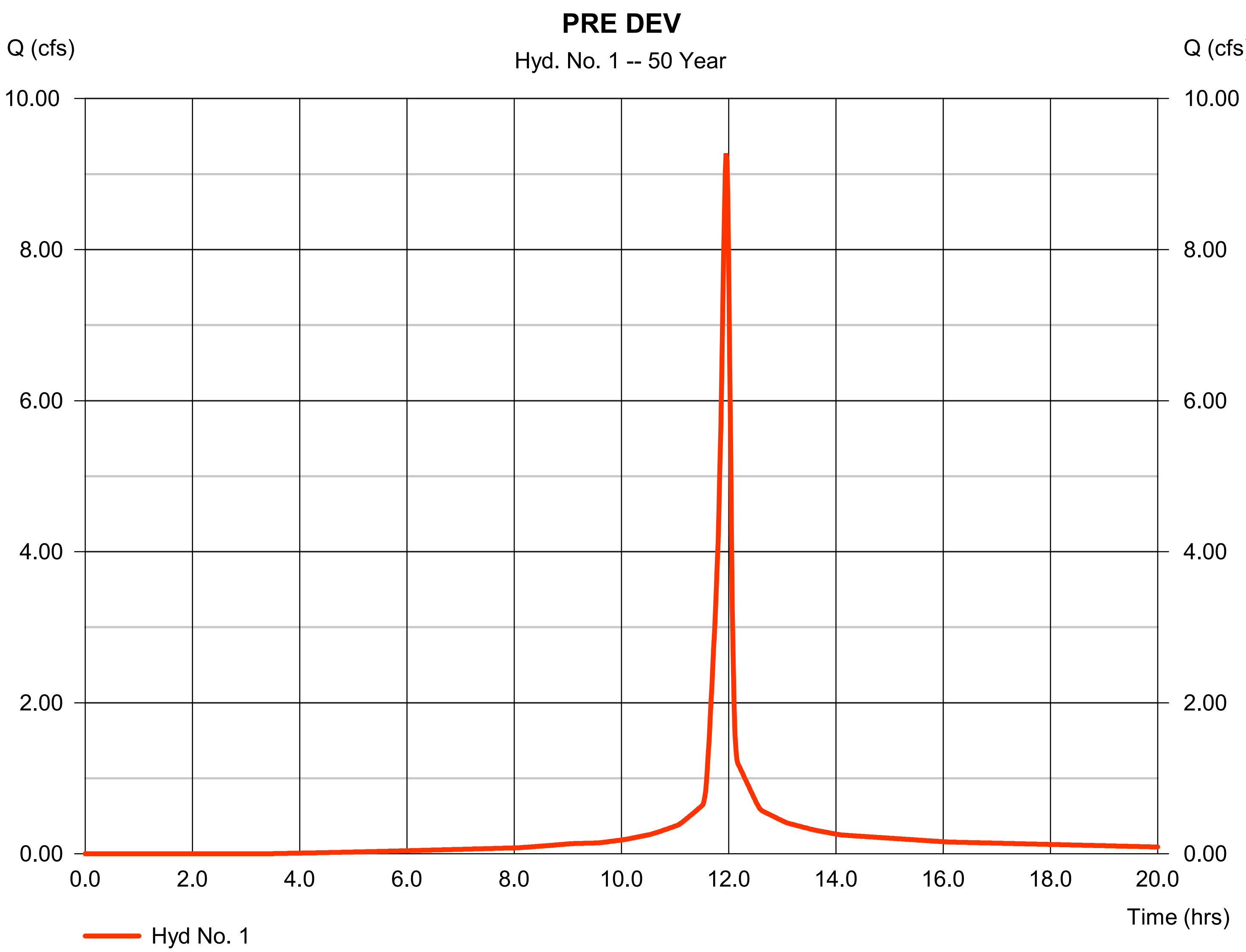
Hydrograph Report

Hyd. No. 1

PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 9.274 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 20,370 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690



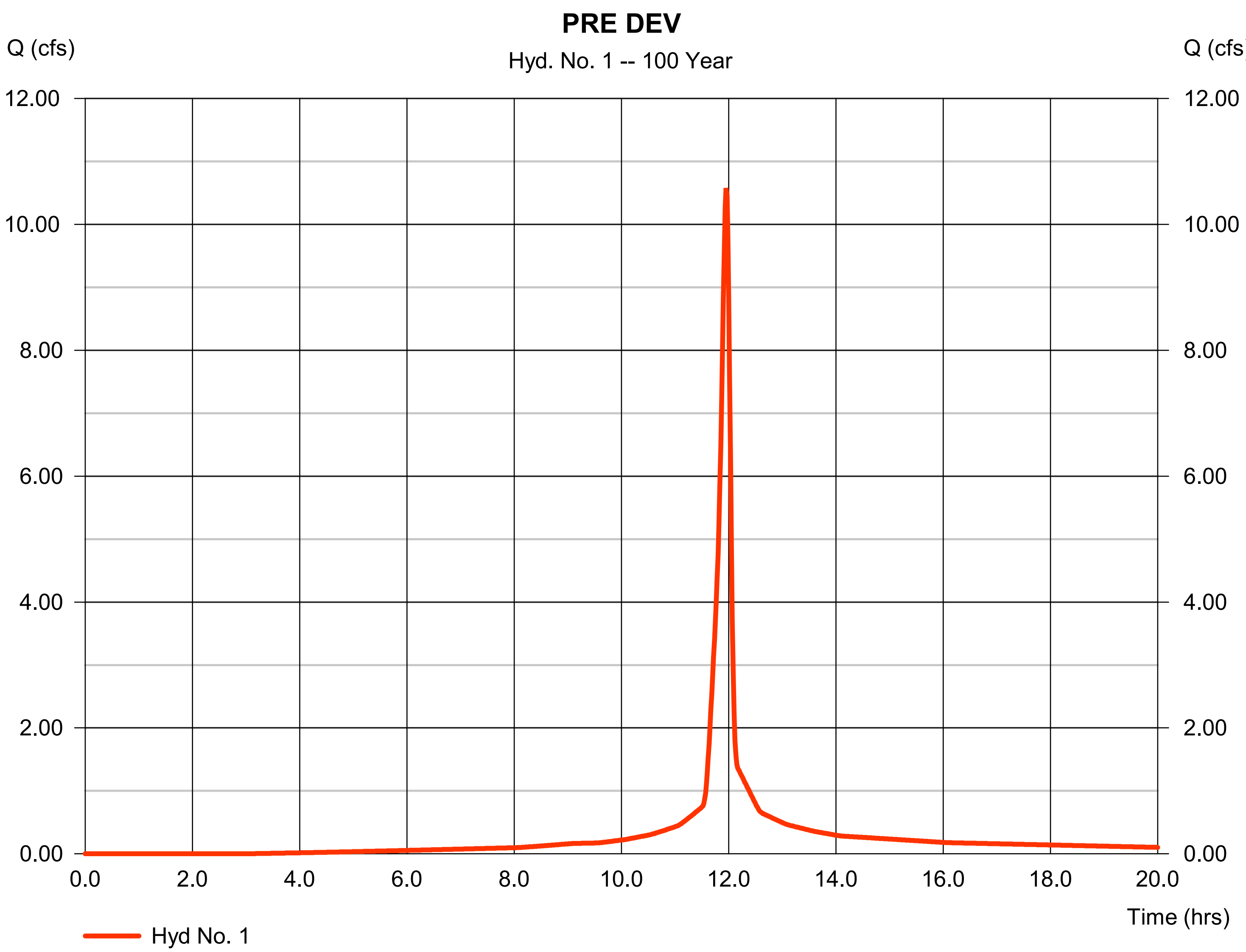
Hydrograph Report

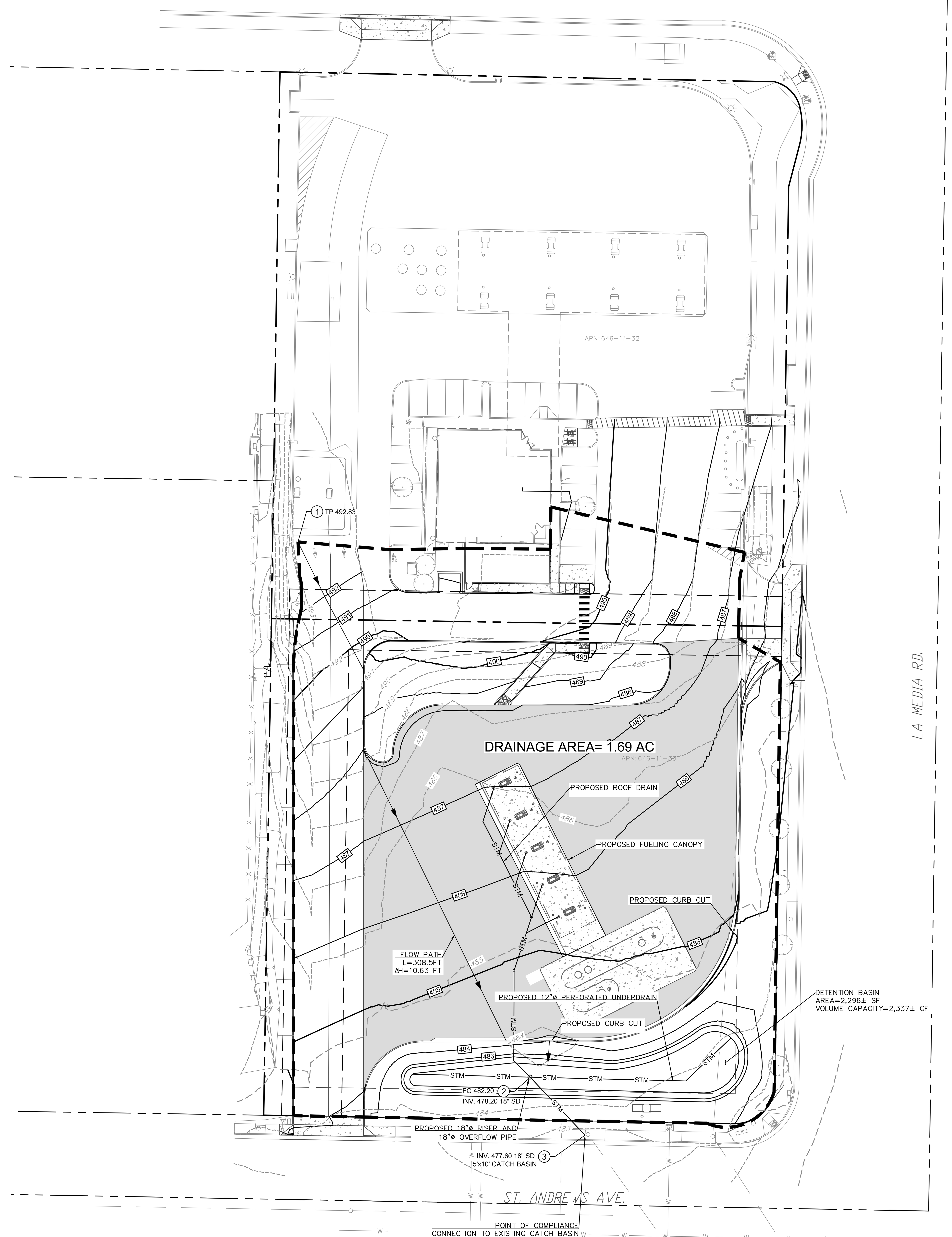
Hyd. No. 1

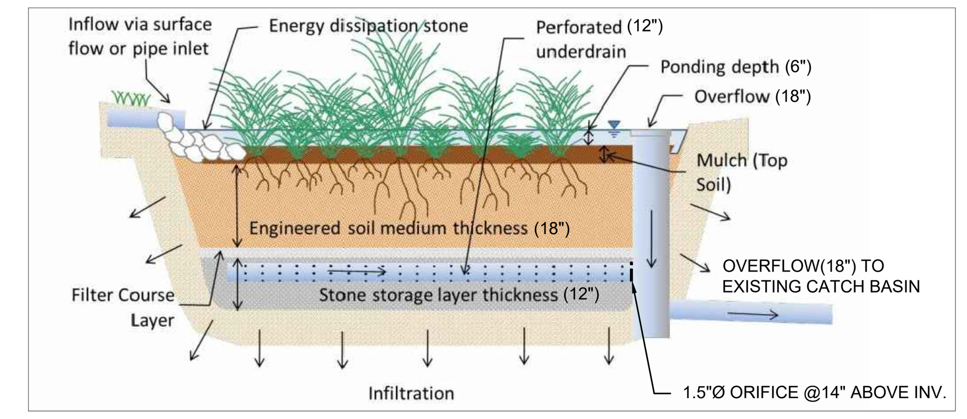
PRE DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 10.58 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 23,457 cuft
Drainage area	= 1.690 ac	Curve number	= 93*
Basin Slope	= 2.9 %	Hydraulic length	= 327 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

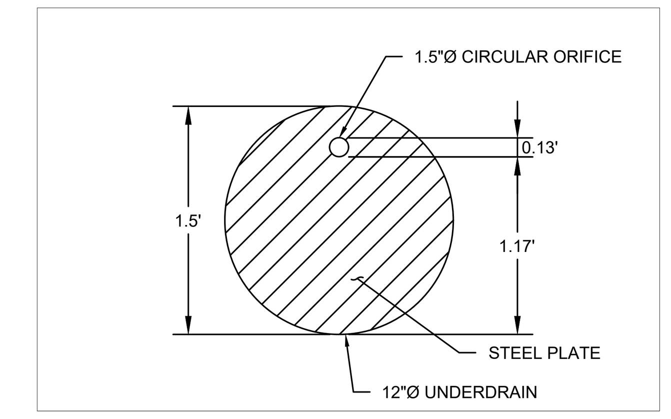
* Composite (Area/CN) = [(1.290 x 93) + (0.400 x 92)] / 1.690







BIOFILTRATION / INFILTRATION POND DETAILS
N.T.S.



ORIFICE DETAILS
1"=1'

HYDROLOGY MAP LEGEND

- TRIBUTARY AREA
- FLOW PATH
- EXISTING 5' INTERVAL CONTOUR LINE
- EXISTING 1' INTERVAL CONTOUR LINE
- PROPOSED 5' INTERVAL CONTOUR LINE
- PROPOSED 1' INTERVAL CONTOUR LINE
- (1) NODE NUMBER

Hydrology Summary Table					
Pre-Development Conditions, CN=93					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	5.318 cfs	6.643 cfs	7.962 cfs	9.274 cfs	10.58 cfs
Peak Runoff	11,257 cf	14,260 cf	17,302 cf	20,370 cf	23,457 cf
Post-Construction, CN=90					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	4.695 cfs	6.018 cfs	7.345 cfs	8.671 cfs	9.995 cfs
Peak Runoff	9,686 cf	12,552 cf	15,487 cf	18,468 cf	21,483 cf
Post-Construction Orifice Design					
	5-Year	10-Year	25-Year	50-Year	100-Year
Peak Flowrate	0.628 cfs	0.754 cfs	0.879 cfs	1.001	1.121
Peak Runoff	8,863 cf	11,664 cf	14,550	17,495	20,475

NOTE: POST-CONSTRUCTION FLOWRATES AND RUNOFF VOLUMES LISTED ON THIS TABLE OCCUR AT NODE 2 AS SHOWN ON PLAN.

NOTE: THERE ARE NO NEGATIVE IMPACTS TO ADJACENT PROPERTIES

N

GRAPHIC SCALE
30 15 7.5 0 30
1" = 30'

7-ELEVEN, INC.
3200 HACKBERRY ROAD, IRVING, TEXAS 75063

7-ELEVEN No. 32290
8395 OTAY MESA ROAD
SAN DIEGO, CA 92154

PROPOSED HYDROLOGY

CORE STATES GROUP

ENGINEER:
TRAVIS P. VINCENT
STATE REGISTRATION NUMBER
No. 37356

ISSUE	DATE	DESCRIPTION

Job#: SEI-16380.0169
Scale: AS SHOWN
Date: 01-10-19
Drawn By: RM
Checked By: TV

PROP. CONDITION
HYDROLOGY EXHIBIT

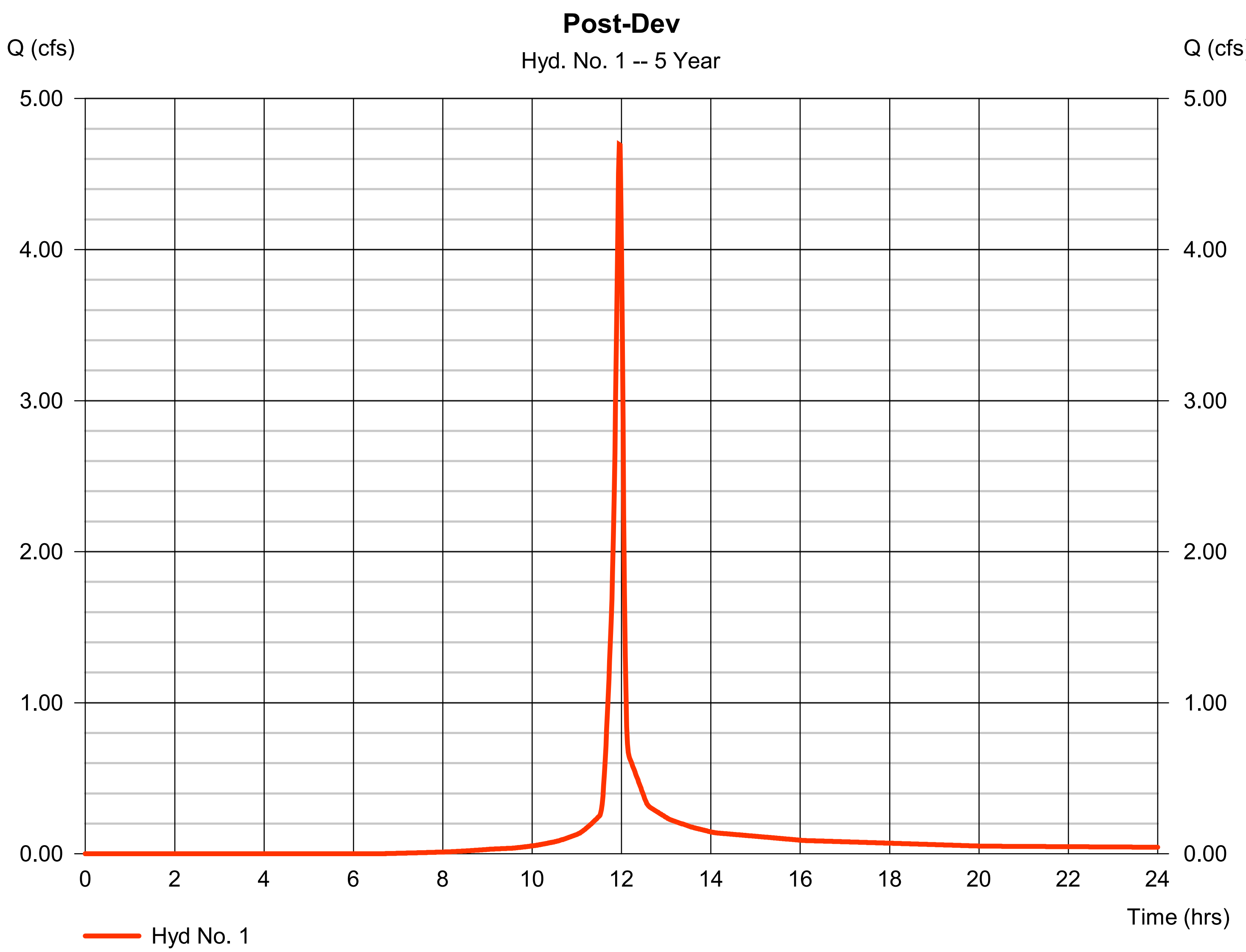
Hydrograph Report

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 4.695 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 9,686 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



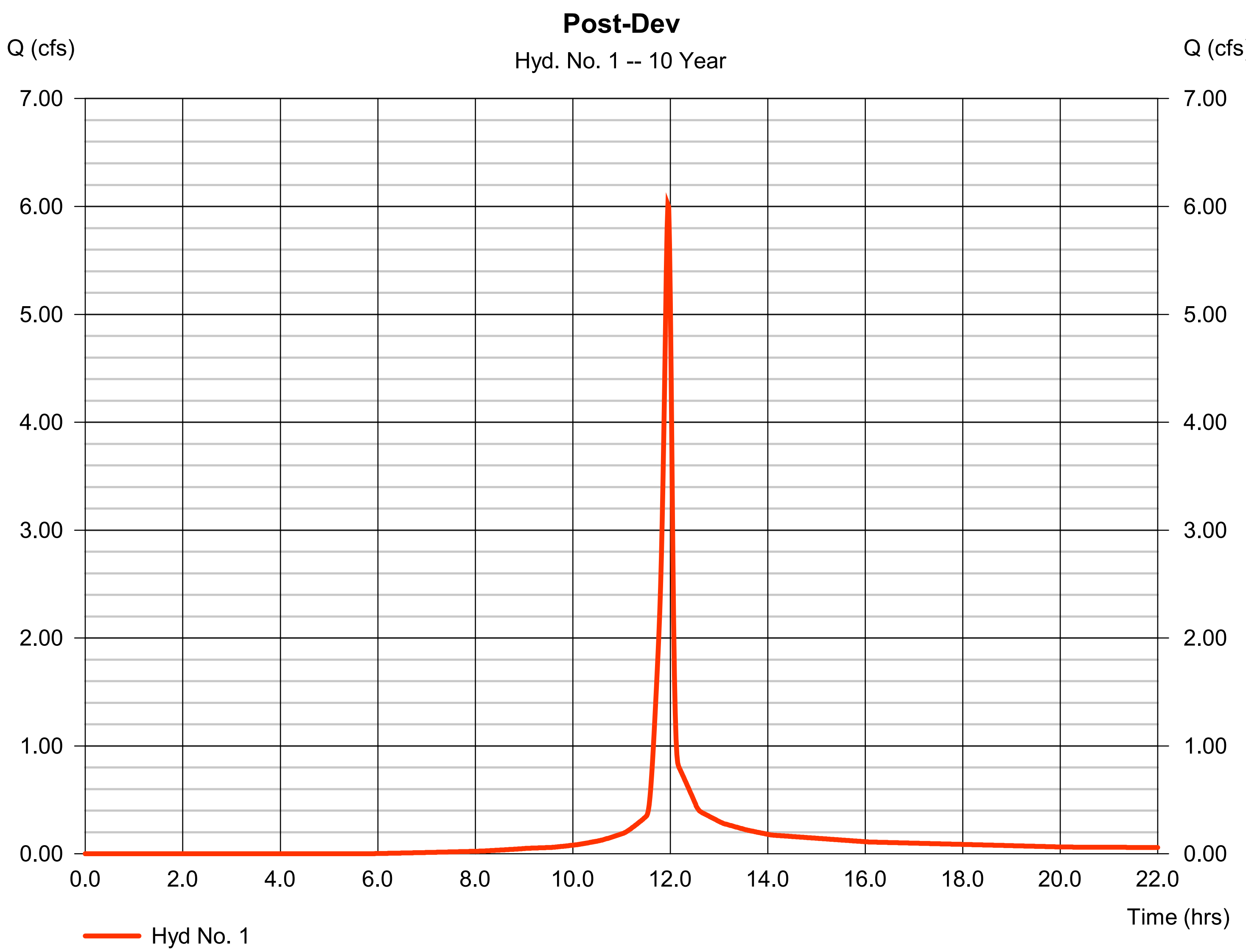
Hydrograph Report

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 6.018 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 12,552 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



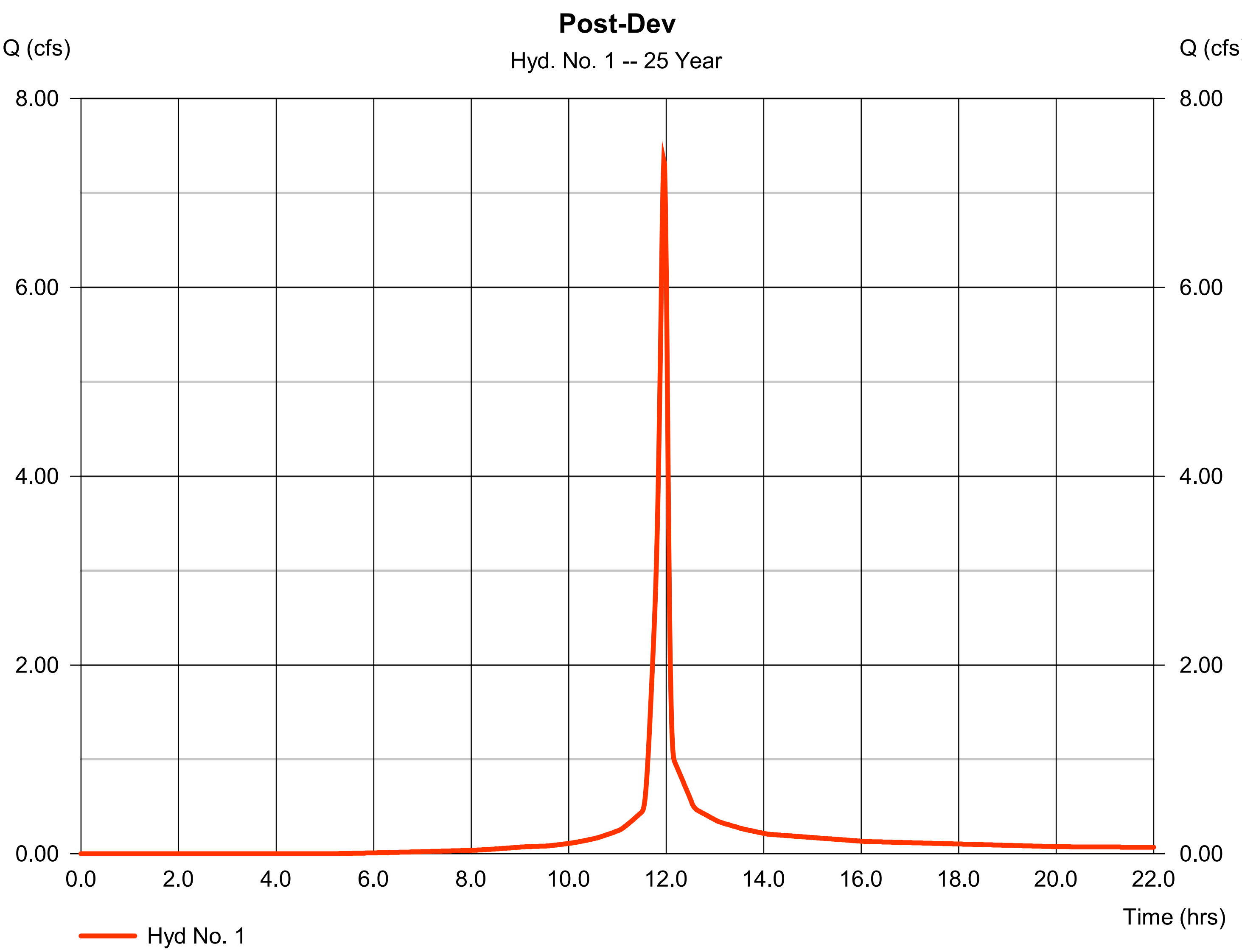
Hydrograph Report

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 7.345 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 15,487 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



Hydrograph Report

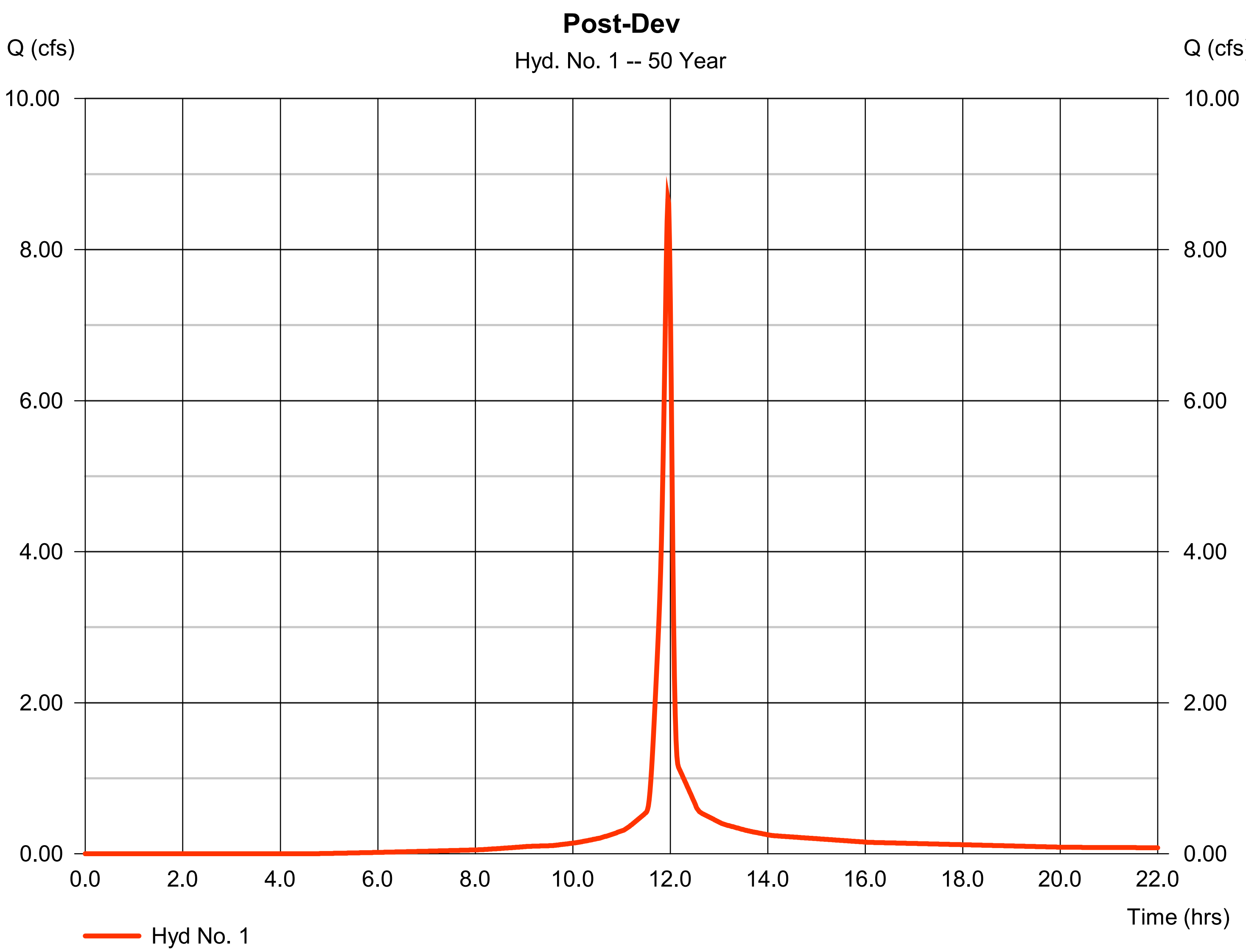
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 — Thursday, 01 / 10 / 2019

Hyd. No. 1

Post-Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 8.671 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 18,468 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



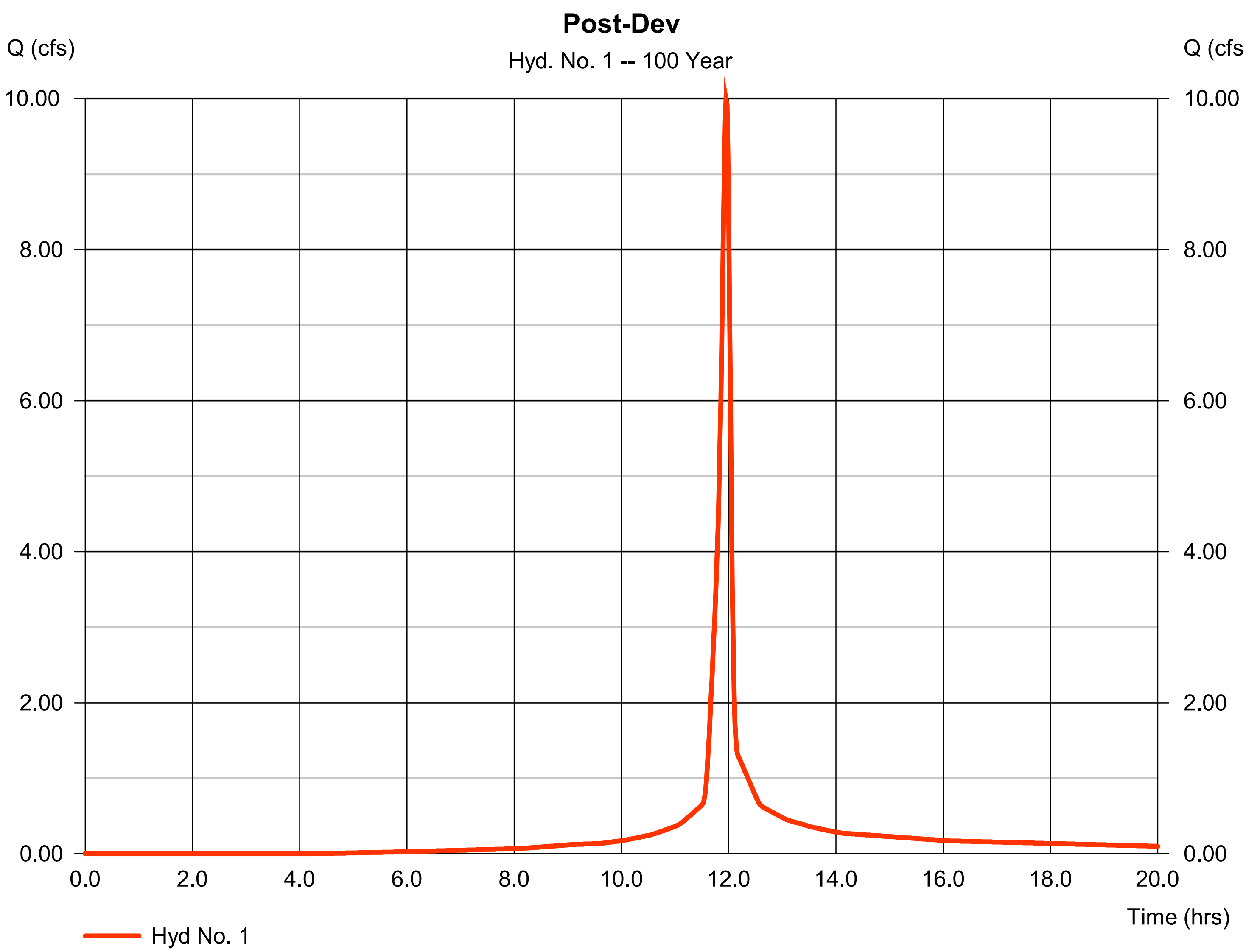
Hydrograph Report

Hyd. No. 1

Post-Dev

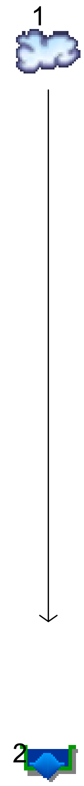
Hydrograph type	= SCS Runoff	Peak discharge	= 9.995 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 21,483 cuft
Drainage area	= 1.690 ac	Curve number	= 90*
Basin Slope	= 3.4 %	Hydraulic length	= 309 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.470 x 84) + (1.130 x 93)] / 1.690



Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11



Legend

Hyd.	Origin	Description
1	SCS Runoff	Post-Dev
2	Reservoir	orifice calcs

Project: P:\7-Eleven\FL\San Diego, CA 32290 - SEI-16380.0155 FL\Otay Mesa - WQMP\3rd Submittal\Drainage Report\01-10-19 Dra

Thursday, 01 / 10 / 2019

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	-------	-------	4.695	6.018	7.345	8.671	9.995	Post-Dev
2	Reservoir	1	-------	-------	-------	0.628	0.754	0.879	1.001	1.121	orifice calcs

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.695	1	717	9,686	------	------	------	Post-Dev
2	Reservoir	0.628	1	730	8,863	1	487.33	4,305	orifice calcs

Hydrograph Report

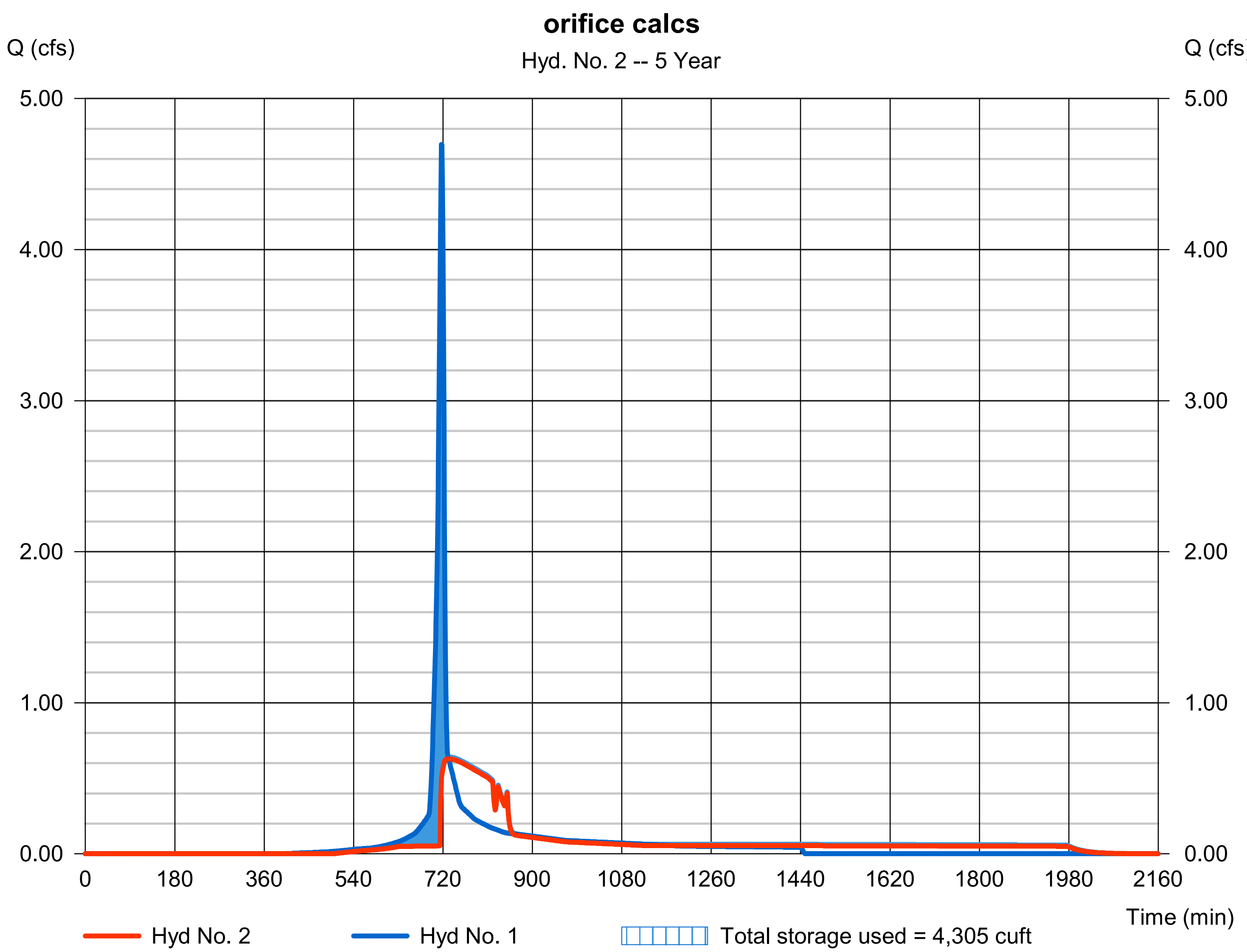
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 0.628 cfs
Storm frequency	= 5 yrs	Time to peak	= 730 min
Time interval	= 1 min	Hyd. volume	= 8,863 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 487.33 ft
Reservoir name	= <New Pond>	Max. Storage	= 4,305 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 1 - <New Pond>

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	475.00	n/a	0	0
3.20	478.20	n/a	20	20
7.00	482.00	n/a	24	44
7.20	482.20	n/a	108	152
8.20	483.20	n/a	2,185	2,337
9.20	484.20	n/a	663	3,000
50.00	525.00	n/a	17,000	20,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.60	0.00	0.00	0.00
Span (in)	= 1.60	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 476.17	0.00	0.00	0.00
Length (ft)	= 1.00	0.00	0.00	0.00
Slope (%)	= 1.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2000.00	0.00	0.00	0.00
Crest El. (ft)	= 483.20	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.170 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	475.00	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
0.32	2	475.32	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
0.64	4	475.64	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
0.96	6	475.96	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
1.28	8	476.28	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
1.60	10	476.60	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
1.92	12	476.92	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
2.24	14	477.24	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
2.56	16	477.56	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
2.88	18	477.88	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
3.20	20	478.20	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
3.58	22	478.58	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
3.96	25	478.96	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
4.34	27	479.34	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
4.72	30	479.72	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
5.10	32	480.10	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
5.48	34	480.48	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
5.86	37	480.86	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
6.24	39	481.24	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
6.62	41	481.62	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
7.00	44	482.00	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
7.02	55	482.02	0.00	---	---	---	0.00	---	---	---	0.001	---	0.006
7.04	65	482.04	0.00	---	---	---	0.00	---	---	---	0.002	---	0.012
7.06	76	482.06	0.00	---	---	---	0.00	---	---	---	0.002	---	0.017
7.08	87	482.08	0.00	---	---	---	0.00	---	---	---	0.003	---	0.023
7.10	98	482.10	0.00	---	---	---	0.00	---	---	---	0.004	---	0.029
7.12	109	482.12	0.00	---	---	---	0.00	---	---	---	0.005	---	0.035
7.14	120	482.14	0.00	---	---	---	0.00	---	---	---	0.006	---	0.041
7.16	130	482.16	0.00	---	---	---	0.00	---	---	---	0.007	---	0.046
7.18	141	482.18	0.00	---	---	---	0.00	---	---	---	0.007	---	0.052
7.20	152	482.20	0.00	---	---	---	0.00	---	---	---	0.008	---	0.058
7.30	371	482.30	0.00	---	---	---	0.00	---	---	---	0.008	---	0.058
7.40	589	482.40	0.00	---	---	---	0.00	---	---	---	0.008	---	0.059
7.50	808	482.50	0.00	---	---	---	0.00	---	---	---	0.008	---	0.059
7.60	1,026	482.60	0.00	---	---	---	0.00	---	---	---	0.009	---	0.060
7.70	1,245	482.70	0.00	---	---	---	0.00	---	---	---	0.009	---	0.061
7.80	1,463	482.80	0.00	---	---	---	0.00	---	---	---	0.009	---	0.061

Continues on next page...

<New Pond>

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
7.90	1,682	482.90	0.00	---	---	---	0.00	---	---	---	0.009	---	0.062
8.00	1,900	483.00	0.00	---	---	---	0.00	---	---	---	0.009	---	0.062
8.10	2,119	483.10	0.00	---	---	---	0.00	---	---	---	0.009	---	0.063
8.20	2,337	483.20	0.00	---	---	---	0.00	---	---	---	0.009	---	0.063
8.30	2,403	483.30	0.18 ic	---	---	---	0.00 s	---	---	---	0.009	---	0.421
8.40	2,470	483.40	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.321
8.50	2,536	483.50	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.366
8.60	2,602	483.60	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.413
8.70	2,669	483.70	0.18 ic	---	---	---	0.00 s	---	---	---	0.010	---	0.460
8.80	2,735	483.80	0.18 ic	---	---	---	0.00 s	---	---	---	0.011	---	0.293
8.90	2,801	483.90	0.19 ic	---	---	---	0.00 s	---	---	---	0.011	---	0.488
9.00	2,867	484.00	0.19 ic	---	---	---	0.00	---	---	---	0.011	---	0.497
9.10	2,934	484.10	0.19 ic	---	---	---	0.00	---	---	---	0.012	---	0.507
9.20	3,000	484.20	0.19 ic	---	---	---	0.00	---	---	---	0.012	---	0.517
13.28	4,700	488.28	0.23 ic	---	---	---	0.00	---	---	---	0.013	---	0.678
17.36	6,400	492.36	0.27 ic	---	---	---	0.00	---	---	---	0.013	---	0.825
21.44	8,100	496.44	0.30 ic	---	---	---	0.00	---	---	---	0.014	---	0.963
25.52	9,800	500.52	0.33 ic	---	---	---	0.00	---	---	---	0.015	---	1.095
29.60	11,500	504.60	0.36 ic	---	---	---	0.00	---	---	---	0.016	---	1.222
33.68	13,200	508.68	0.38 ic	---	---	---	0.00	---	---	---	0.017	---	1.345
37.76	14,900	512.76	0.41 ic	---	---	---	0.00	---	---	---	0.017	---	1.465
41.84	16,600	516.84	0.43 ic	---	---	---	0.00	---	---	---	0.018	---	1.583
45.92	18,300	520.92	0.45 ic	---	---	---	0.00	---	---	---	0.019	---	1.699
50.00	20,000	525.00	0.47 ic	---	---	---	0.00	---	---	---	0.020	---	1.812

...End

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	6.018	1	717	12,552	------	------	------	Post-Dev
2	Reservoir	0.754	1	733	11,664	1	490.75	5,727	orifice calcs

Hydrograph Report

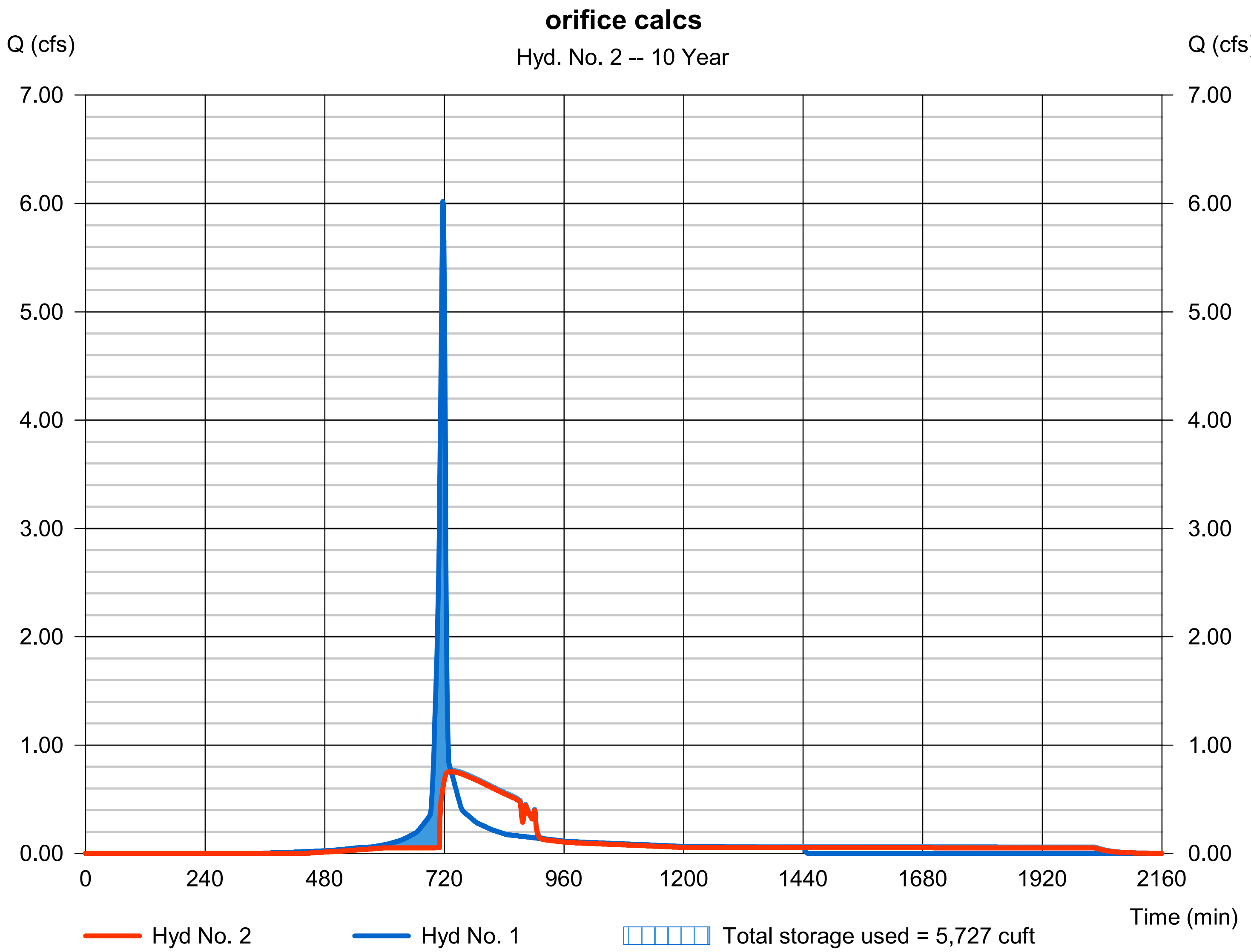
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 0.754 cfs
Storm frequency	= 10 yrs	Time to peak	= 733 min
Time interval	= 1 min	Hyd. volume	= 11,664 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 490.75 ft
Reservoir name	= <New Pond>	Max. Storage	= 5,727 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	7.345	1	717	15,487	------	------	------	Post-Dev
2	Reservoir	0.879	1	734	14,550	1	494.37	7,235	orifice calcs

Hydrograph Report

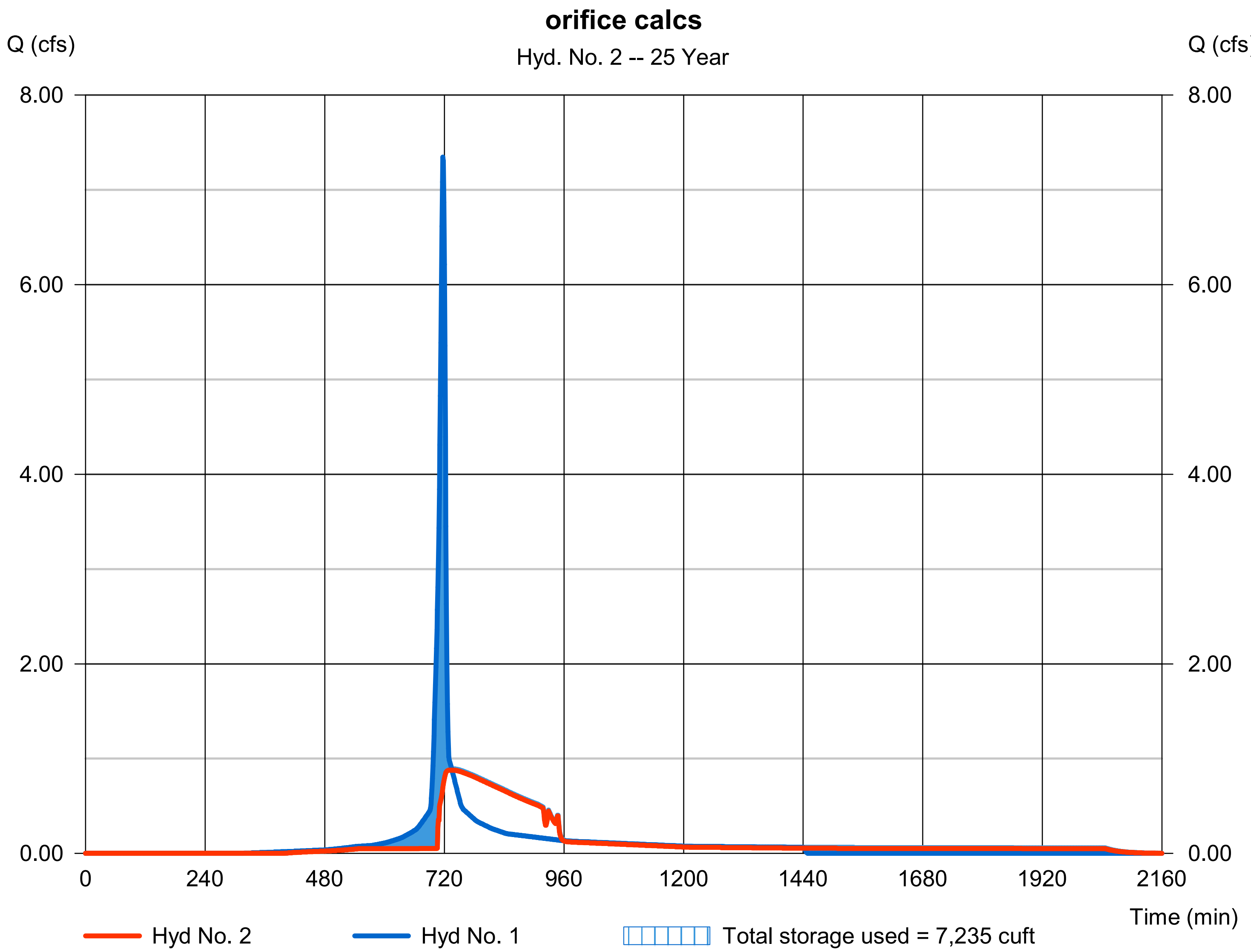
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 0.879 cfs
Storm frequency	= 25 yrs	Time to peak	= 734 min
Time interval	= 1 min	Hyd. volume	= 14,550 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 494.37 ft
Reservoir name	= <New Pond>	Max. Storage	= 7,235 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	8.671	1	717	18,468	------	------	------	Post-Dev
2	Reservoir	1.001	1	736	17,495	1	498.08	8,782	orifice calcs

Hydrograph Report

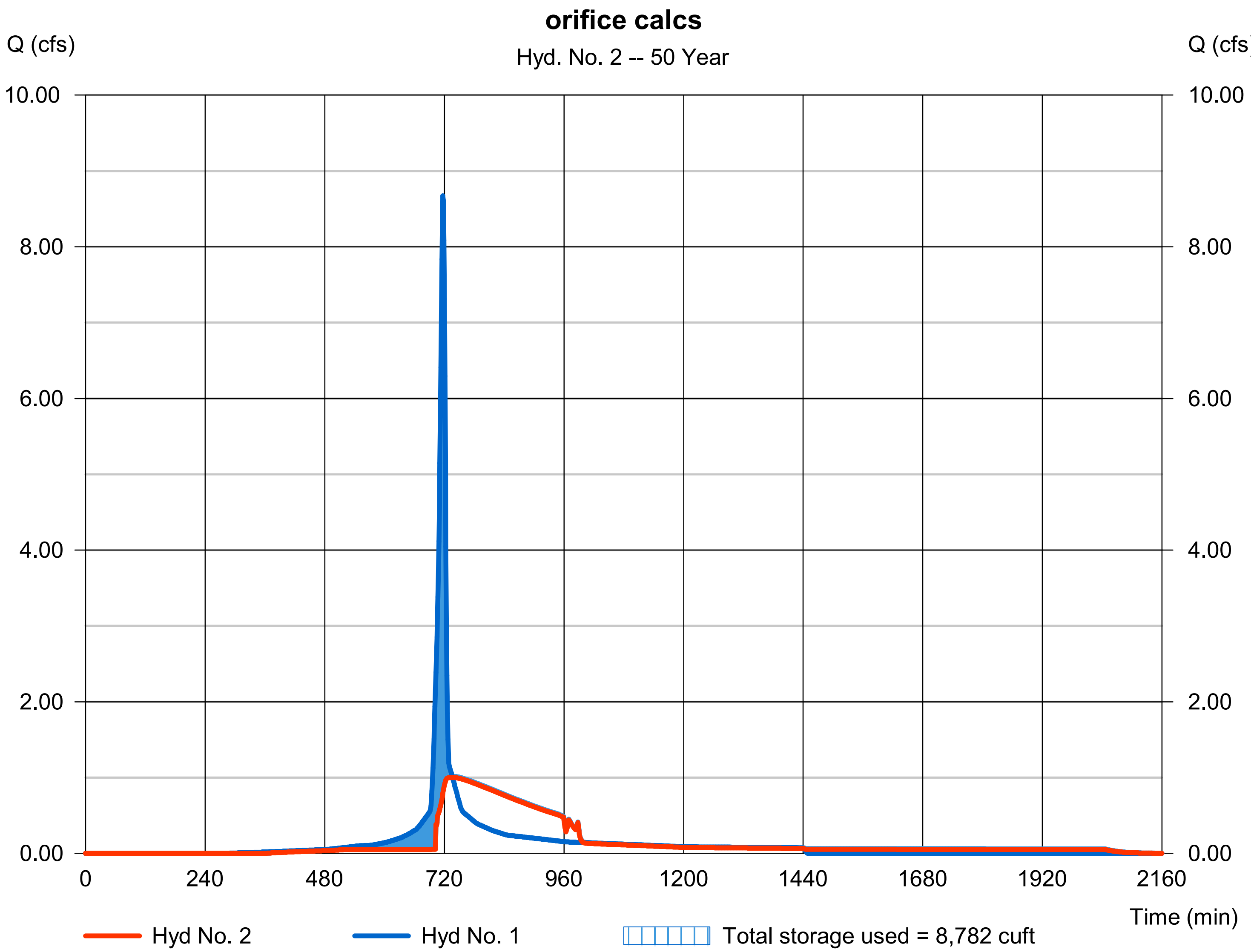
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 — Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 1.001 cfs
Storm frequency	= 50 yrs	Time to peak	= 736 min
Time interval	= 1 min	Hyd. volume	= 17,495 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 498.08 ft
Reservoir name	= <New Pond>	Max. Storage	= 8,782 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	9.995	1	717	21,483	------	------	------	Post-Dev
2	Reservoir	1.121	1	736	20,475	1	501.85	10,353	orifice calcs

Hydrograph Report

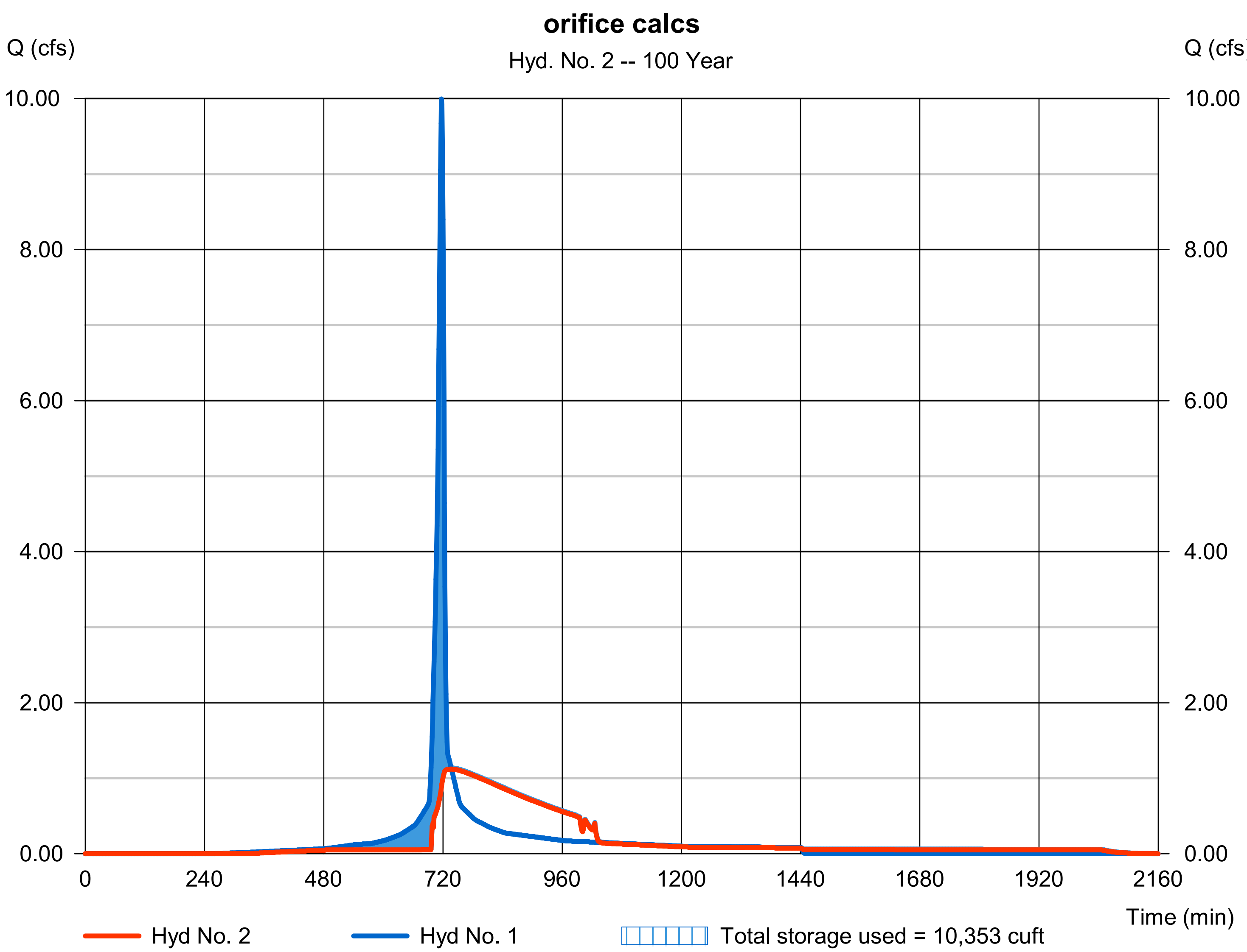
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v11 | Thursday, 01 / 10 / 2019

Hyd. No. 2

orifice calcs

Hydrograph type	= Reservoir	Peak discharge	= 1.121 cfs
Storm frequency	= 100 yrs	Time to peak	= 736 min
Time interval	= 1 min	Hyd. volume	= 20,475 cuft
Inflow hyd. No.	= 1 - Post-Dev	Max. Elevation	= 501.85 ft
Reservoir name	= <New Pond>	Max. Storage	= 10,353 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	3.7551	0.4000	0.5228	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	6.1774	0.9000	0.5439	--------
25	0.0000	0.0000	0.0000	--------
50	0.0000	0.0000	0.0000	--------
100	9.8068	0.8000	0.5439	--------

File name: LA County IDF NOAAA.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1.55	1.10	0.90	0.78	0.69	0.63	0.58	0.54	0.51	0.48	0.46	0.44
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.35	1.68	1.37	1.18	1.05	0.96	0.88	0.82	0.77	0.73	0.69	0.66
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	3.77	2.69	2.19	1.88	1.67	1.52	1.40	1.30	1.22	1.16	1.10	1.05

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	2.20	0.00	2.50	3.00	3.50	4.00	4.50
SCS 6-Hr	0.00	1.80	0.00	1.40	1.60	1.80	2.30	2.50
Huff-1st	0.00	1.55	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX F

CAP CHECKLIST

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST INTRODUCTION

In December 2015, the City adopted a Climate Action Plan (CAP) that outlines the actions that City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions. The purpose of the Climate Action Plan Consistency Checklist (Checklist) is to, in conjunction with the CAP, provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).[1]

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

This Checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this Checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law.

[1] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

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CAP CONSISTENCY CHECKLIST SUBMITTAL APPLICATION

- The Checklist is required only for projects subject to CEQA review.[2]
- If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- The requirements in the Checklist will be included in the project's conditions of approval.
- The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: 553296 / 7-ELEVEN Otay Mesa CUP/SDP

Property Address: 8395 Otay Mesa Road, San Diego, CA 92154

Applicant Name/Co.: Travis P. Vincent / Core States Group

Contact Phone: (909) 467-8940 Contact Email: tvincent@core-eng.com

Was a consultant retained to complete this checklist? ☐ Yes ☐ No If Yes, complete the following

Consultant Name: ______ Contact Phone: ______

Company Name: ______ Contact Email: ______

Project Information

1. What is the size of the project (acres)? 3.07
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units):
   - ☐ Residential (indicate # of multi-family units):
   - ☒ Commercial (total square footage): 855
   - ☐ Industrial (total square footage):
   - ☐ Other (describe):
3. Is the project or a portion of the project located in a Transit Priority Area? ☒ Yes ☐ No
4. Provide a brief description of the project proposed:

There is an existing C-store and fueling operation on the northern 1.38 of this 3.07 acre site. The majority of the southerly 1.69 acres of the site is currently vacant and comprised of pervious soil. There is an existing 25' wide ac drive aisle running along the west side of the vacant southerly portion of the site that connects a driveway on St. Andrews avenue to the existing vehicle fuel station and convenience store that fronts Otay Mesa Road. The vacant portion of the site to be to be developed will contain a fuel canopy, 5 fuel dispensers, a concrete sidewalk for access to the existing northerly developed portion of the site and landscaping. The existing convenience store will contain an 855 SF addition of a service window to conduct transactions for the new development on the previously undeveloped portion of the site. A detention basin will be constructed to comply with Water Quality requirements. A pylon sign will also be installed.

[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency		
Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
A. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR, B. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment, would the proposed amendment result in an increased density within a Transit Priority Area (TPA)[4] and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?; OR, C. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?	☑	☐
If "***Yes***," proceed to Step 2 of the Checklist. For question B above, complete Step 3. For question C above, provide estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation. If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.		

The Land Use designation from the General Plan is Commercial Employment, Retail & Services.
The Land use designation within the Otay Mesa Community Plan is Heavy Commercial.
The zoning Designation is IL-3-1.

The proposed project is consistent with the existing General Plan and Community Plan land use and zoning designations.

[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

[4] This category applies to all projects that answered in the affirmative to question 3 on the previous page: Is the project or a portion of the project located in a transit priority area.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[5] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs*. • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component. The project will include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A) for non residential buildings with a roof slope less that 2:12. See highlighted section in Attachment A.	☑	☐	☐

[5] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits or other permits that do not result in the expansion or enlargement of a building (e.g., decks, garages, etc.), and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

2. *Plumbing fixtures and fittings* With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following: Residential buildings: • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? Nonresidential buildings: • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and • Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)? Check "N/A" only if the project does not include any plumbing fixtures or fittings. Plumbing fixtures used for this facility will be in compliance with the appropriate California Green Building Standards and Codes, specifically Table A5.303.2.3.1. There are no appliances proposed for this project.	☑	☐	☐

Strategy 3: Bicycling, Walking, Transit & Land Use			
3. *Electric Vehicle Charging* • Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? • Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents? • Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use? Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces. The scope of work will require the installation of additional cabinets , 50% of which will provide space for future charging station circuits.	☑	☐	☐

Strategy 3: Bicycling, Walking, Transit & Land Use (Complete this section if project includes non-residential or mixed uses)			
4. *Bicycle Parking Spaces* Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6] Check "N/A" only if the project is a residential project. The project is supplying short term bicycle parking spots even though the project is exempt under page 36 of Chapter 14, Article 2, Division 5 which state none are required when building additions are less than 1,000 sf. The project is proposing a building addition of 855 sf. Long Term bicycle parking spots are exempt under page 37 of Chapter 14, Article 2, Division 5 which state none are required when building additions are less than 1,000 sf. The project is not proposing long term bicycle parking spots.	☑	☐	☐

[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

5. *Shower facilities*

If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below?

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

☐ ☐ ☐

Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).

There are fewer than 10 employees on duty at any give time.

6. *Designated Parking Spaces*

If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.

☑ ☐ ☐

2 zero emission designated parking space have been provided. The total number of spaces on site is 27, so only 2 designated spaces are required.

7. *Transportation Demand Management Program*

If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes:

At least one of the following components:

- Parking cash out program
- Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools
- Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development

And at least three of the following components:

- Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees
- On-site carsharing vehicle(s) or bikesharing
- Flexible or alternative work hours
- Telework program
- Transit, carpool, and vanpool subsidies
- Pre-tax deduction for transit or vanpool fares and bicycle commute costs
- Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use?

☐ ☐ ☐

Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees).

The project does not accommodate over 50 tenant-occupants.

Step 3: Project CAP Conformance Evaluation (if applicable)

The third step of the CAP consistency review only applies if Step 1 is answered in the affirmative under option B. The purpose of this step is to determine whether a project that is located in a TPA but that includes a land use plan and/or zoning designation amendment is nevertheless consistent with the assumptions in the CAP because it would implement CAP Strategy 3 actions. In general, a project that would result in a reduction in density inside a TPA would not be consistent with Strategy 3.The following questions must each be answered in the affirmative and fully explained.

1. **Would the proposed project implement the General Plan's City of Villages strategy in an identified Transit Priority Area (TPA) that will result in an increase in the capacity for transit-supportive residential and/or employment densities?**

   Considerations for this question:
   - Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?
   - Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA?
   - Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?

2. **Would the proposed project implement the General Plan's Mobility Element in Transit Priority Areas to increase the use of transit?**

   Considerations for this question:
   - Does the proposed project support/incorporate identified transit routes and stops/stations?
   - Does the project include transit priority measures?

3. **Would the proposed project implement pedestrian improvements in Transit Priority Areas to increase walking opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?
   - Does the proposed project urban design include features for walkability to promote a transit supportive environment?

4. **Would the proposed project implement the City of San Diego's Bicycle Master Plan to increase bicycling opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?
   - Does the overall project circulation system provide a balanced, multimodal, "complete streets" approach to accommodate mobility needs of all users?

5. **Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?**

   Considerations for this question:
   - Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?
   - Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?
   - Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

6. **Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?**

   Considerations for this question:
   - Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?
   - Does the proposed project include policies or strategies for preserving existing trees?
   - Does the proposed project incorporate tree planting that will contribute to the City's 20% urban canopy tree coverage goal?

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST
ATTACHMENT A

This attachment provides performance standards for applicable Climate Action Pan (CAP) Consistency Checklist measures.

Table 1 **Roof Design Values for Question 1: Cool/Green Roofs supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**

Land Use Type	Roof Slope	Minimum 3-Year Aged Solar Reflectance	Thermal Emittance	Solar Reflective Index
Low-Rise Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
High-Rise Residential Buildings, Hotels and Motels	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
Non-Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 residential and non-residential voluntary measures shown in Tables A4.106.5.1 and A5.106.11.2.2, respectively. Roof installation and verification shall occur in accordance with the CALGreen Code.

CALGreen does not include recommended values for low-rise residential buildings with roof slopes of ≤ 2:12 for San Diego's climate zones (7 and 10). Therefore, the values for climate zone 15 that covers Imperial County are adapted here.

Solar Reflectance Index (SRI) equal to or greater than the values specified in this table may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance.

Table 2	Fixture Flow Rates for Non-Residential Buildings related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan
Fixture Type	**Maximum Flow Rate**
Showerheads	1.8 gpm @ 80 psi
Lavatory Faucets	0.35 gpm @60 psi
Kitchen Faucets	1.6 gpm @ 60 psi
Wash Fountains	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering Faucets	0.18 gallons/cycle
Metering Faucets for Wash Fountains	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity Tank-type Water Closets	1.12 gallons/flush
Flushometer Tank Water Closets	1.12 gallons/flush
Flushometer Valve Water Closets	1.12 gallons/flush
Electromechanical Hydraulic Water Closets	1.12 gallons/flush
Urinals	0.5 gallons/flush

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Tables A5.303.2.3.1 and A5.106.11.2.2, respectively. See the California Plumbing Code for definitions of each fixture type.

Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

Acronyms:
gpm = gallons per minute
psi = pounds per square inch (unit of pressure)
in. = inch

Table 3	Standards for Appliances and Fixtures for Commercial Application related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan	
Appliance/Fixture Type	**Standard**	
Clothes Washers	Maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations.*	
Conveyor-type Dishwashers	0.70 maximum gallons per rack (2.6 L) (High-Temperature)	0.62 maximum gallons per rack (4.4 L) (Chemical)
Door-type Dishwashers	0.95 maximum gallons per rack (3.6 L) (High-Temperature)	1.16 maximum gallons per rack (2.6 L) (Chemical)
Undercounter-type Dishwashers	0.90 maximum gallons per rack (3.4 L) (High-Temperature)	0.98 maximum gallons per rack (3.7 L) (Chemical)
Combination Ovens	Consume no more than 10 gallons per hour (38 L/h) in the full operational mode.	
Commercial Pre-rinse Spray Valves (manufactured on or after January 1, 2006)	Function at equal to or less than 1.6 gallons per minute (0.10 L/s) at 60 psi (414 kPa) and • Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate. • Be equipped with an integral automatic shutoff. • Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gallons per minute (0.08 L/s) or less.	

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Section A5.303.3. See the California Plumbing Code for definitions of each appliance/fixture type.

Acronyms:
L = liter
L/h = liters per hour
L/s = liters per second
psi = pounds per square inch (unit of pressure)
kPa = kilopascal (unit of pressure)