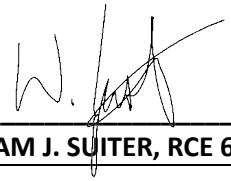
CITY OF SAN MARCOS

PRIORITY DEVELOPMENT PROJECT (PDP)
STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)
FOR
SAN MARCOS RESIDENCES

2972 & 2982 S SANTA FE AVENUE
SAN MARCOS, CA 92069

ASSESSOR'S PARCEL NUMBER(S):
217-161-18 & 217-161-19

ENGINEER OF WORK:



WILLIAM J. SUITER, RCE 68964

PREPARED FOR:

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PDP SWQMP PREPARED BY:

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(949) 661-6695

DATE OF SWQMP:

OCTOBER 2021
REVISED: MARCH 2022
REVISED: APRIL 2022

GRADING PLANS PREPARED BY:

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ACRONYMS

APN	Assessor's Parcel Number
BMP	Best Management Practice
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWQMP	Storm Water Quality Management Plan

PDP SWQMP PREPARER'S CERTIFICATION PAGE

Project Name: San Marcos Residences
Permit Application Number: [Insert Permit Application Number]

PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the City of San Marcos BMP Design Manual, which is a design manual for compliance with local City of San Marcos and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

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 BMP Design Manual. 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 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.

_____
Engineer of Work's Signature, PE Number & Expiration Date

W. Justin Suiter
Print Name

Pasco Laret Suiter & Associates
Company

_____
Date

Engineer's Seal:

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PDP SWQMP PROJECT OWNER'S CERTIFICATION PAGE

Project Name: San Marcos Residences
Permit Application Number: [Insert Permit Application Number]

PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for Santa Fe Flores, LP by Pasco Laret Suiter & Associates. The PDP SWQMP is intended to comply with the PDP requirements of the City of San Marcos BMP Design Manual, which is a design manual for compliance with local City of San Marcos and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

_____
Project Owner's Signature

Paul Mayer_____
Print Name

Santa Fe Flores LP_____
Company

_____
Date

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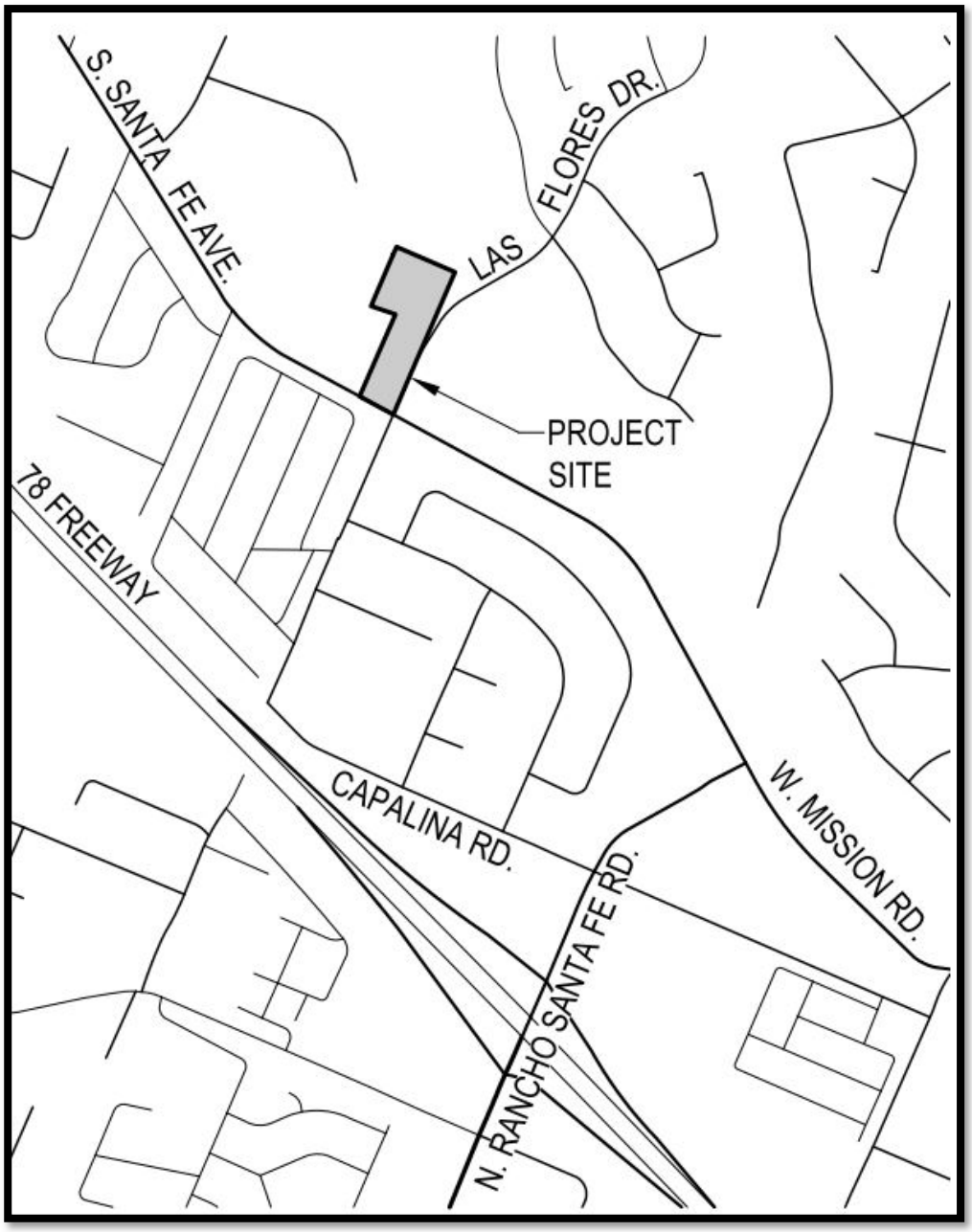
SUBMITTAL RECORD

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 column 4 summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	October 2021	☑Preliminary Design / Planning/ CEQA ☐ Final Design	Initial Submittal
2	March 2022	☑Preliminary Design / Planning/ CEQA ☐ Final Design	Resubmittal to address City comments
3	April 2022	☑ Preliminary Design / Planning/ CEQA ☐ Final Design	Resubmittal to address City comments
4		☐ Preliminary Design / Planning/ CEQA ☐ Final Design	

PROJECT VICINITY MAP

Project Name: San Marcos Residences
Permit Application Number: [Insert Permit Application Number]



FORM I-1 APPLICABILITY OF STORM WATER BMP REQUIREMENTS

Applicability of Storm Water Best Management Practices (BMP) Requirements **(Storm Water Intake Form for all Development Permit Applications)** **For detailed information please visit:** **http://www.san-marcos.net/departments/development-services/stormwater/development-planning**	**Form I-1** [March 15, 2016]

Project Identification	
Project Name: San Marcos Residences	
Description: Proposed 54-unit multifamily development with parking lots, access drive, outdoor garden area, miscellaneous hardscape and landscaping.	
Permit Application Number (if applicable):	Date: 10/21/2021
Project Address: 2972/2982 South Santa Fe Avenue	

Determination of Requirements

This form is required as part of the City's application process. The purpose of this form is to identify potential land development planning storm water requirements that apply to development projects.

Development projects are defined as construction, rehabilitation, redevelopment, or reconstruction of any public or private projects. In addition, the identification of a development project, as it relates to storm water regulations, would truly apply to development and redevelopment activities that have the potential to contact storm water and contribute a source of pollutants, or reduce the natural absorption and infiltration abilities of the land.

To access the BMP Design Manual, Storm Water Quality Management Plan (SWQMP) templates, and other pertinent information related to this program please refer to:
http://www.san-marcos.net/departments/development-services/stormwater/development-planning

Please answer each of the following steps below, starting with Step 1 and progressing through each step until reaching "Stop".

Step	Answer	Progression
Step 1: Based on the above, Is the project a "development project" (See definition above)? See Section 1.3 of the BMP Design Manual for further guidance if necessary.	☑ Yes	Go to Step 2.
	☐ No	Permanent BMP requirements do not apply. No SWQMP will be required. Provide brief discussion below. **STOP.**
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, Priority Development Project (PDP), or exception to PDP definitions? **To answer this item, complete Form I-2, Project Type Determination. See Section 1.4 of the BMP Design Manual *in its entirety* for guidance.** **In addition to Section 1.4, please refer to the City's SWQMP Submittal Requirements form.**	☐ Standard Project	Only Standard Project requirements apply, including Standard Project SWQMP. **STOP.**
	☑ PDP	Standard and PDP requirements apply, including PDP SWQMP. **Go to Step 3 on the following page.**
	☐ Exception to PDP definitions	Standard Project requirements apply, and any additional requirements specific to the type of project. Provide discussion and list any additional requirements below. Prepare Standard Project SWQMP. **STOP.**

Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:

Form I-1 Page 2, Form Date: March 15, 2016		
Step 3 (PDPs only). Please answer the list of questions in this section to determine if hydromodification requirements reply to the proposed PDP. Does the project:		
Step 3a. Discharge storm water runoff directly to the Pacific Ocean?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3b.
Step 3b. Discharge storm water runoff directly to an enclosed embayment, not within protected areas?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3c.
Step 3c. Discharge storm water runoff directly to a water storage reservoir or lake, below spillway or normal operating level?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3d.
Step 3d. Discharge storm water runoff directly to an area identified in WMAA?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Hydromodification requirements apply to the project. Go to Step 4.
Discussion / justification if hydromodification control requirements do not apply:		

Step 4 (PDPs subject to hydromodification control requirements only). Does protection of critical coarse sediment yield areas apply based on review of WMAA Potential Critical Coarse Sediment Yield Area Map? See Section 6.2 of the BMP Design Manual for guidance.	☐ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☑ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.

FORM I-2 PROJECT TYPE DETERMINATION CHECKLIST

Project Type Determination Checklist			Form I-2 [March 15, 2016]
Project Information			
Project Name/Description: San Marcos Residences			
Permit Application Number (if applicable):			Date:10/21/2021
Project Address: 2972/2982 South Santa Fe Avenue			
Project Type Determination: Standard Project or Priority Development Project (PDP)			
The project is (select one): ☑ New Development ☐ Redevelopment			
The total proposed newly created or replaced impervious area is: 70,628 ft^2 (1.62) acres			
Is the project in any of the following categories, (a) through (f)?			
Yes ☑	No ☐	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☐	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

Form I-2 Page 2, Form Date: March 15, 2016			
Yes ☐	No ☐	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Section 1.4.2 for additional guidance.*
Yes ☐	No ☐	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☐	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

☐ No – the project is <u>not</u> a Priority Development Project (Standard Project).

☑ Yes – the project is a Priority Development Project (PDP).

The following is for redevelopment PDPs only:

The area of existing (pre-project) impervious area at the project site is: _____ ft^2 (A)

The total proposed newly created or replaced impervious area is _____ ft^2 (B)

Percent impervious surface created or replaced (B/A)*100: _____%

The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – only new impervious areas are considered PDP

OR

☐ greater than fifty percent (50%) – the entire project site is a PDP

FORM I-3B SITE INFORMATION CHECKLIST FOR PDPS

Site Information Checklist For PDPs	Form I-3B (PDPs) [March 15, 2016]
Project Summary Information	
Project Name	San Marcos Residences
Project Address	2972 & 2982 South Santa Fe Avenue San Marcos, CA 92069
Assessor's Parcel Number(s) (APN(s))	217-161-18 & 217-161-19
Permit Application Number	
Project Hydrologic Unit	Select One: ☐ Santa Margarita 902 ☐ San Luis Rey 903 ☑ Carlsbad 904 ☐ San Dieguito 905 ☐ Penasquitos 906 ☐ San Diego 907 ☐ Pueblo San Diego 908 ☐ Sweetwater 909 ☐ Otay 910 ☐ Tijuana 911
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Agua Hedionda (904.2)
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	2.23 Acres (97,036 Square Feet)
Area to be Disturbed by the Project (Project Area)	2.06 Acres (89,554 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	1.62 Acres (70,628 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	0.43 Acres (18,926 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Form I-3B Page 2 of 10, Form Date: March 15, 2016
Description of Existing Site Condition
Current Status of the Site (select all that apply): ☐ Existing development ☐ Previously graded but not built out ☐ Demolition completed without new construction ☐ Agricultural or other non-impervious use ☑ Vacant, undeveloped/natural Description / Additional Information: Project site partially graded and storm drain improvements installed during construction of Las Flores abutment along the east side of the project site.
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 (GW): ☐ GW Depth < 5 feet ☐ 5 feet < GW Depth < 10 feet ☐ 10 feet < GW Depth < 20 feet ☑ GW Depth > 20 feet
Existing Natural Hydrologic Features (select all that apply): ☐ Watercourses ☐ Seeps ☐ Springs ☐ Wetlands ☑ None Description / Additional Information:

Description of Existing Site Drainage Patterns

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) Is runoff from offsite conveyed through the site? if yes, quantify 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 any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of 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.

Describe existing site drainage patterns (Refer to the "Preliminary Hydrology Study for San Marcos Residences" prepared by Pasco Laret Suiter & Associates dated October 2021.):

The site is surrounded by residential homes to the north, east and south, and industrial offices to the west. The site is primarily undeveloped with a shared access driveway at the property's southerly boundary. The driveway also provides access to the adjacent commercial property's parking lot and commercial building. The southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site. Las Flores Drive along the property's eastern boundary has approximately a 15-20% grade upward to the north to allow vehicle access over the railroad tracks north of the property. Elevations across the site range from a high of approximately 546 feet in the northeast corner of the property to a low of approximately 494.50 feet at the southwest corner of the property. The existing site is divided into four drainage basins:

The first drainage basin consists of the northerly half graded pad where runoff flows overland and into an existing storm drain inlet structure in the center of the pad. Captured runoff exits the site through an existing 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive.

The second drainage basin is a similar, but much smaller, sump condition into a storm drain inlet structure exists just southerly of the north half sump condition mentioned above. Captured runoff also exits the site through a separate 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive where it confluences with the north half pad runoff. Pipe flows continue to travel southerly down Las Flores Drive before combining with flows from a 54" RCP and 24" RCP. Combined pipe flows are then diverted to the west along South Santa Fe Avenue through a 60" RCP.

The third drainage basin consists of the southern half of the site where runoff generated from the adjacent liquor store property and the project site combines to surface flow southerly. Surface runoff exits the drainage basin through the existing shared access driveway on South Santa Fe Avenue then into the public street's curb and gutter and flows northerly approximately 100' before being captured by an existing curb inlet structure. Captured runoff is diverted across South Santa Fe Avenue through an 18" RCP storm drain pipe and into a 60" RCP that continues flowing westerly.

The fourth drainage basin is located along the west edge of Drainage Basin E1 north half pad, a small area of existing graded slopes that surface flows to the west and onto the adjacent property.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:
General Plan Amendment and Rezone from Commercial and Light Industrial to Multifamily Residential to allow 54 dwelling units on a 2.23 acre site. To achieve proposed density, applicant intends to utilize State density bonus law allowances.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

The project proposes to develop the existing vacant property and construct a new multi-family residential building with approximately 54 dwelling units, at-grade parking lots, access drives, hardscape and landscape, and associated improvements including proprietary biofiltration storm water devices that meet the requirements for pollutant control and an underground storm water storage facilities to comply with hydromodification management flow control and to mitigate the 100-year storm event peak discharge rate.

List/describe proposed pervious features of the project (e.g., landscape areas):

Proposed pervious features include landscape areas.

Does the project include grading and changes to site topography?
☑ Yes
☐ No

Description / Additional Information:

The project site will be graded to create pads suitable for the construction of structures, improvements and associated underground utilities.

Description of Proposed Site Drainage Patterns

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 or 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.

Describe proposed site drainage patterns (refer to "Preliminary Hydrology Study for San Marcos Residences" prepared by Pasco Laret Suiter & Associates dated October 2021.):
The proposed site is divided into five drainage basins:

The first drainage basin consists of the proposed site's upper level building, north parking lot area and a portion of existing public ROW hillside area that drains into the project site at the northeast corner of the property. Surface runoff will sheet flow southwesterly across the parking area, through a curb opening and into a proprietary biofiltration system. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility before exiting the project site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

The second drainage basin consists of the proposed site's lower level building, south parking lot area, and access road. Surface runoff will sheet flow southerly down the access road, across the parking area then through curb openings into one of two proprietary biofiltration systems. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

The third drainage basin consists of the adjacent property's existing commercial building, existing parking area and existing undeveloped hillside to the west of the project site. A new concrete ditch is proposed along the project site's westerly boundary along the new access road and a new ribbon gutter along the existing parking area to capture off-site runoff without comingling with on-site runoff and divert the surface flows out onto South Santa Fe Avenue as in the existing condition.

The fourth drainage basin consists of the existing hillside area at the northwest corner of the site. Storm water runoff will surface flow westerly and onto the adjacent property as in the existing condition.

The fifth drainage basin consists of the existing public right-of-way hillside area at the northeast corner of the project site. A new concrete ditch is proposed along the project's easterly boundary to capture off-site runoff from the hillside without comingling with on-site runoff and diverts the surface flow to an underground storm drain piping system to confluence with runoff from Drainage Basin 1. Pipe flows will combine with the first drainage basin pipe flows (downstream of its BMP systems) and exit the site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

Form I-3B Page 6 of 10, Form Date: March 15, 2016

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

☑ On-site 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:

Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):
Storm water runoff that leaves the project site enters the existing 60" RCP in South Santa Fe Avenue then diverts flow westerly approximately 600' down South Santa Fe Avenue then heads southerly approximately 400' down Community drive before entering an unlined vegetated channel/stream. Runoff continues to travel westerly downstream through the Agua Hedionda Hydrologic Area eventually outlets into the Agua Hedionda Lagoon and the Pacific Ocean.

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	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Agua Hedionda Creek	Pesticides, Fecal Indicator Bacteria, Pesticides, Metals/Metalloids, Nutrients, Salinity, Toxicity, Miscellaneous	Riparian Habitat Degradation, Hydromodification Impacts
Agua Hedionda Lagoon	Toxicity	

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 expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment		X	X
Nutrients		X	X
Heavy Metals			
Organic Compounds			
Trash & Debris		X	X
Oxygen Demanding Substances		X	
Oil & Grease		X	
Bacteria & Viruses		Potential	X
Pesticides		X	

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☑ 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):

Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

☐ Yes

☑ No, No critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

☐ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite

☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment

☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☑ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

☑ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite

☐ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2.b of the SWQMP.

☐ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

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.

There are two (2) POCs for the project, POC-1 and POC-2. POC-1 is located near the center of the property's eastern property boundary and POC-2 is located along near the center of the property's southern property boundary.

Has a geomorphic assessment been performed for the receiving channel(s)?

☑ No, the low flow threshold is 0.1Q2 (default low flow threshold)

☐ Yes, the result is the low flow threshold is 0.1Q2

☐ Yes, the result is the low flow threshold is 0.3Q2

☐ Yes, the result is the low flow threshold is 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

Discussion / Additional Information: (optional)

Form I-3B Page 10 of 10, Form Date: March 15, 2016
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.

FORM I-4 SOURCE CONTROL BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS

Source Control BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-4 [March 15, 2016]

Project Identification

Project Name: San Marcos Residences

Permit Application Number

Source Control BMPs

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual 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 Model 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?		
SC-1 Prevention of Illicit Discharges into the MS4	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented:			
SC-2 Storm Drain Stenciling or Signage	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented:			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☑ N/A
Discussion / justification if SC-3 not implemented:			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☑ N/A
Discussion / justification if SC-4 not implemented:			

Form I-4 Page 2 of 2, Form Date: March 15, 2016			
Source Control Requirement	**Applied?**		
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-5 not implemented:			
SC-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 and Equipment Cleaning	☐ 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
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

FORM I-5 SITE DESIGN BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS

Site Design BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-5 [March 15, 2016]

Project Identification

Project Name: San Marcos Residences

Permit Application Number

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual 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 Model 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.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐ Yes	☐ No	☑ N/A
Discussion / justification if SD-1 not implemented:			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☐ Yes	☑ No	☐ N/A
Discussion / justification if SD-2 not implemented:			
SD-3 Minimize Impervious Area	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented:			
SD-5 Impervious Area Dispersion	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-5 not implemented:			

Form I-5 Page 2 of 2, Form Date: March 15, 2016			
Site Design Requirement	**Applied?**		
SD-6 Runoff Collection	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-6 not implemented:			
SD-7 Landscaping with Native or Drought Tolerant Species	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐ Yes	☑ No	☐ N/A
Discussion / justification if SD-8 not implemented:			

FORM I-6 SUMMARY OF PDP STRUCTURAL BMPS

Summary of PDP Structural BMPs	Form I-6 (PDPs) [March 15, 2016]
Project Identification	
Project Name: San Marcos Residences	
Permit Application Number	
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). 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 local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity, and the local jurisdiction must confirm the maintenance (see Section 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. **DMAs 1-3/ BMPs 1-3** Step 1A: The DMA is not self-mitigating, de minimis, or self-retaining. Step 1B: There are no site design BMPs proposed for the project for which the runoff factor can be adjusted. Step 2: Harvest and use is not feasible. Refer to Attachment 1c. Step 3: Pursuant to the geotechnical report and Worksheet C.4-1, infiltration is not feasible. Step 4: Proprietary Biofiltration BMPs (BF-3) have been selected and sized per the design criteria to meet pollutant control requirements and an underground storm water storage facility has been selected and sized per the design criteria to meet hydromodification management flow control requirements and to mitigate the project site's 100-year peak flows **DMAs 4-6** According to section 5.2.1 of the BMP Design Manual for the City of San Marcos, these DMAs qualify as self-mitigating since the vegetation in the landscaped area is native and/or non-native/ non-invasive drought tolerant species that do not require regular application of fertilizers and pesticides, soils are	

<table>
<tr><th colspan="2">Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016</th></tr>
<tr><td colspan="2">Undisturbed native topsoil, or disturbes soils that have been amended and aerated, impervious area within the self-mitigated area is only hydraulically connected to a brow ditch and not any other impervious areas, and the self-mitigating areas are hydraulically separated from DMAs that contain permanent pollutant control BMPs.</td></tr>
<tr><td colspan="2">Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)</td></tr>
<tr><td>Structural BMP ID No. 1</td><td>DMA Nos: 1</td></tr>
<tr><td colspan="2">Construction Plan Sheet No.</td></tr>
<tr><td colspan="2">Type of structural BMP:
☐ Retention by harvest and use (HU-1)
☐ 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)
☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐ 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)</td></tr>
<tr><td colspan="2">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)</td></tr>
<tr><td>Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)</td><td>William J. Suiter, RCE 68964
Pasco Laret Suiter & Associates
1911 San Diego Avenue, Suite 100
San Diego, CA 92110</td></tr>
<tr><td>Who will be the final owner of this BMP?</td><td>Santa Fe Flores LP</td></tr>
<tr><td>Who will maintain this BMP into perpetuity?</td><td>Santa Fe Flores LP</td></tr>
<tr><td>What is the funding mechanism for maintenance?</td><td>Santa Fe Flores LP</td></tr>
</table>

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 2	DMA Nos: 2
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ 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) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ 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 forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 3	DMA Nos: 3
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ 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) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ 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 forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 10	DMA Nos: 1
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ 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) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ 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 forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 11	DMA Nos: 2-3
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ 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) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ 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 forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

ATTACHMENT 1 BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☑ 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	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☑ 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	☑ Included

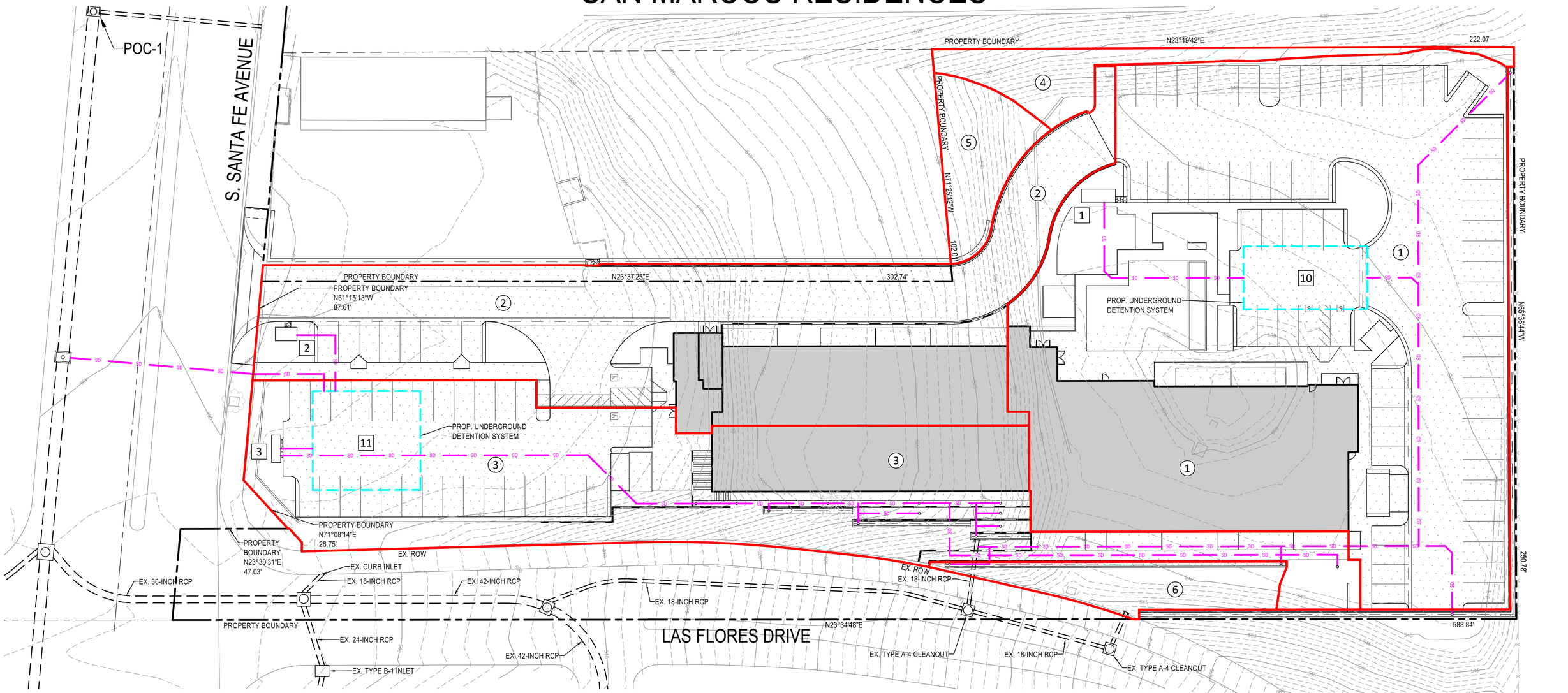
Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA 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
- ☐ Existing topography and impervious areas
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☐ Proposed demolition
- ☐ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ 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)
- ☐ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
- ☐ Structural BMPs (identify location, type of BMP, and size/detail)

DMA EXHIBIT

SAN MARCOS RESIDENCES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)	DMA TYPE	BMP TYPE	BMP NAME	BMP SIZE PROVIDED
1	43,998/ 1.01	34,828/ 0.800	9,170/ 0.211	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	1	90 SF
				DRAINS TO BMP	DETENTION VAULT	10	H: 5.58' W: 27.56' L: 54.23'
2	22,743/ 0.522	20,908/ 0.480	1,835/ 0.042	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	2	57 SF
3	23,845/ 0.547	16,781/ 0.385	7,064/ 0.162	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	3	48 SF
2 3	46,588/ 1.070	37,689/ 0.865	8,899/ 0.204	DRAINS TO BMP	DETENTION VAULT	11	H: 3.54' W: 43.31' L: 47.20'
4	2,470/ 0.057	0/ 0.00	2,470/ 0.057	SELF MITIGATING	-		-
5	2,306/ 0.053	0/ 0.00	2,306/ 0.053	SELF MITIGATING	-		-
6	2,522/ 0.058	374/ 0.009	2,148/ 0.049	SELF MITIGATING	-		-

AREA CALCULATIONS

TOTAL SITE AREA: 97,036 SF (2.228 AC)
AREA DISTURBED BY PROJECT: 90,586 SF (2.080 AC)

EXISTING IMPERVIOUS AREA: 859 SF (0.020 AC)
PROPOSED IMPERVIOUS AREA: 72,891 SF (1.673 AC)
INCREASE IMPERVIOUS AREA: 72,032 SF (1.654 AC)

SOIL TYPE INFORMATION

SOIL: TYPE C & D HYDROLOGIC SOILS PER OBSERVED ONSITE SUBSURFACE SOIL CONDITIONS PROVIDED IN THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSRIDER, INC.

GROUNDWATER INFORMATION

GROUNDWATER NOT ENCOUNTERED IN ANY OF THE BORINGS CONDUCTED BY GHOSTRIDER, INC., ACCORDING TO THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSTRIDER, INC. CONCLUSION IN REPORT STATES "NO GROUNDWATER WAS ENCOUNTERED WITHIN ANY HAND AUGER BORING TO THE MAXIMUM EXPLORED DEPTH OF 50½ FEET".

TREATMENT CONTROL BMPS

PROPRIETARY BIOFILTRATION BF-3

POTENTIAL POLLUTANT SOURCE AREAS

TRASH DUMPESTERS, ROOFS, PARKING LOTS, LANDSCAPING, RESTAURANT(S), WATER FEATURES, AND OUTDOOR STORAGE AREAS.

SOURCE CONTROLS

SC-1: PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
SC-2: STORM DRAIN STENCILING OR SIGNAGE
SC-5: PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
SC-6: ADDITIONAL BMPS BASED ON POTENTIAL SOURCES ON RUNOFF POLLUTANTS

LEGEND

PROPERTY LINE
RIGHT-OF-WAY
CENTER LINE OF ROAD
DMA BOUNDARY
EXISTING STORM DRAIN LINE
PROPOSED STORM DRAIN LINE
PROPOSED UNDERGROUND R-TANK DETENTION SYSTEM
LIMITS OF PROP. BUILDING
LIMITS OF PROP. CONCRETE PAVEMENT
DMA AREA # (X)
BMP # [X]

SCALE: 1" = 20'
20 10 0 20 40 60

DMA EXHIBIT
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: 02/28/22 ~ PLOT DATE: 02/28/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\Attachments\Attachment 1 - Backup for BMPs\Att 1a - DMA Exhibit\3527-WQMP-DMA Exhibit.dwg

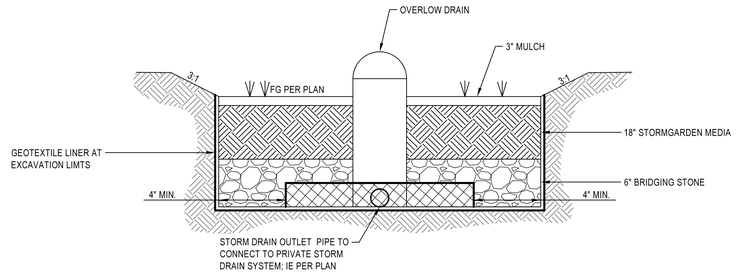
DMA EXHIBIT

SAN MARCOS RESIDENCES

StormGarden Biofilttration System
San Marcos Residences
3/1/2022

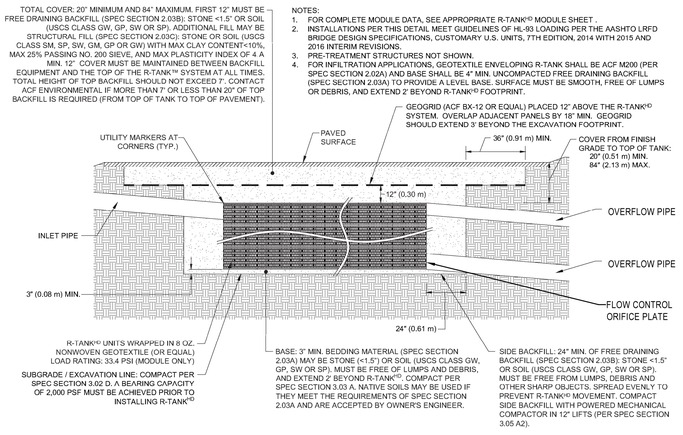
DMA	BMP type	DMA AREA (SF)	Total DMA AREA (acres)	REQ flow for dma (cfs)	StormGarden Filter Bed Size (SF)	StormGarden System Flow Rate (cfs)
1	StormGarden Boxless BioFiltration	43,998	1.01		70	0.226
2	StormGarden Boxless BioFiltration	22,743	0.52		41	0.132
3	StormGarden Boxless BioFiltration	23,845	0.55		34	0.110
Totals					***145***	

NOTES:
1. StormGarden loading rate at 145"/HR is 1.45 GPM/SF of Filter Bed.
2. The StormGarden width and length can be customized to any size and shape conceivable because it is a boxless system and indpendent of a concrete form.



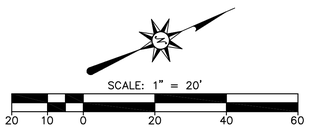
TYPICAL SECTION - STORMGARDEN BIOFILTRATION SYSTEM

SCALE: NOT TO SCALE



TYPICAL SECTION - R-TANK STORMWATER DETENTION SYSTEM

SCALE: NOT TO SCALE



DMA EXHIBIT
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: ---- ~ PLOT DATE: 04/28/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\Attachments\Attachment 1 - Backup for BMPs\Att 1a - DMA Exhibit\3527-WQMP-DMA Exhibit.dwg

ATTACHMENT 1c

Harvest and Use Feasibility Screening	**Worksksheet B.3-1**

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?

∨ Toilet and urinal flushing
√ Landscape irrigation
Other:_____

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.

Toilet/Urinal Flushing

(9.3 gal/person-day) x (0.13368 cuft/gal) x (1.5 days) = 1.86 cuft/person-36hr

Assume (2 people per 1-bed/1bath unit x 23 units) x (1.86 cuft/person-36 hr) = 85.56 cuft/36hr

(3 people per 2-bed/2-bath unit x 27 units) x (1.86 cuft/person-36hr) = 150.66 cuft/36hr

Total Toilet/Urinal Flushing= 85.56 + 150.66 = 236 cuft/36hr

Landscape Irrigation

(0.43 ac irrigated) x (390 gal/ac-36hr) x (0.13368 cuft/gal) = 23 cuft/36hr

Total = 236 cuft + 23 cuft = 259 cuft

3. Calculate the DCV using worksheet B-2.1.

DCV = 3,912 cuft

3a. Is the 36-hour demand greater than or equal to the DCV?	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36-hour demand less than 0.25DCV?
Yes / ∨ No	Yes / ∨ No	∨ Yes
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	∨ Harvest and use is considered to be infeasible.

ATTACHMENT 1d

October 18, 2021 CTE Job No. 10-16426G

Mr. Paul Mayer
P.O. Box 903
Rancho Santa Fe, California
Phone: (858) 888-2488 Via Email: pm@pemcor.net

Subject: Site Percolation Testing and Infiltration Feasibility Evaluation
Proposed S. Santa Fe Multi-Family Housing Development
2927 S. Santa Fe Avenue
San Marcos, California

References: At End of Document – Appendix A

Mr. Mayer:

In accordance with your request and our proposal No. G-5522 dated August 30, 2021, CTE, Inc. has performed percolation testing at the site and provides an evaluation of the infiltration characteristics and feasibility for the proposed project located at the subject site. This report presents the accumulated field and laboratory data collected and provides preliminary conclusions and recommendations regarding the site's suitability for design and development of stormwater infiltration BMP devices.

Our evaluation of the site's infiltration characteristics and feasibility was performed in general accordance with the guidelines set forth in the *City of San Marcos BMP design Manual (Updated February 2016).*

Based on our geotechnical analysis of the accumulated data and information, and in consideration of the potential for geotechnical hazards associated with onsite infiltration, CTE has determined that infiltration in any amount at the site is not feasible and should not be allowed. Any/all basins for storage of stormwater runoff should be lined with an impermeable liner and piped offsite via a suitable discharge outlet.

1.0 SITE DESCRIPTION & PERCOLATION TESTING

1.1 Site Description

The subject site is located at 2927 S. Santa Fe Avenue. The proposed development is bounded by S. Santa Fe Avenue to the southwest, N. Las Flores Drive to the east, and commercial structures to the north and west.

The subject site generally descends to the southwest with approximate elevations ranging from a high of 540 feet above mean sea level (msl) at the northeast end of the site, to a low of 495 feet above msl at the southern end of the site. The site currently consists of three undeveloped terraced building pads that are separated by an approximately 10-foot-tall 2:1 (horizontal distance: vertical distance) slope.

1.2 Field Exploration

Due to the sloping nature of the site, and in consideration of the proposed multi-story structures that are planned to be terraced into the sloping site, CTE determined that the southern-lower area of the site is the only potential suitable/feasible area for development of infiltration BMP devices. As such, our percolation testing was only performed in this area.

Two percolation test borings were excavated on September 30, 2021 using a Diedrich D50 truck-mounted drill rig equipped with eight-inch diameter hollow-stem augers to depths of five feet below the existing ground surface. The test holes were excavated such that the percolation testing was performed at or near the anticipated bottom elevation of proposed infiltration basin/s.

Groundwater was not encountered in either of the percolation test excavations. In addition, groundwater was not encountered in any of the previous subsurface explorations (extending to a maximum depth of approximately 51.5 feet below existing ground surface) performed by Ghostrider, Inc., as referenced in their Limited Geotechnical Investigation Report, dated July 1st, 2020.

1.3 Site-Specific Geologic and Soil Information

Reference to the published regional geologic map, *Geologic Map of the Oceanside 30'x60' Quadrangle, Kennedy & Tan, 2007*, indicates that the site is underlain by Tertiary-age Santiago Formation (May Symbol: Tsa). However, during our subsurface field explorations within the southern-lower portion of the site, young alluvial deposits were encountered at the surface and extended to the maximum explored depth of 5 feet bgs. As observed in the exploratory excavations, the encountered alluvial materials consist of stiff to very stiff, dark brown, moist, Sandy Clay (CL) with some gravel. Detailed logs of the percolation test borings are provided in the attached Appendix C.

1.4 Percolation Test Methods

Percolation testing was performed on October 1st, 2021, subsequent to a twenty-hour presoak period, and in general accordance with applicable regional standards outlined in the *Riverside County – Low Impact Development BMP Design Handbook (09/2011)*. The percolation rate test results are presented in the following section in Table 2.2 and are included in Appendix B.

2.0 CALCULATED INFILTRATION RATE

As per the regionally accepted methods outlined in the *Riverside County – Low Impact Development BMP Design Handbook (09/2011),* percolation test rates are to be converted to infiltration rates using the Porchet Method. The intent of calculating the converted infiltration rate is to take into account bias inherent in percolation test borehole sidewall infiltration that would not occur at a basin bottom where such sidewalls may not present.

The infiltration rate (I_t) is derived by the equation:

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r = effective radius of test hole
H_{avg} = average head over the time interval, inches

Given the measured percolation rates, the calculated infiltration rates are presented with and without a Factor of Safety applied in Table 2.2 below. A completed C.4-1 Worksheet is included in Appendix D. The civil engineer of record should determine an appropriate factor of safety to be applied via completion of Worksheet D.5-1 provided in Appendix D of the *City of San Marcos BMP design Manual (Updated February 2016).* However, CTE does not recommend using a factor of safety of less than 2.0.

TABLE 2.0
RESULTS OF PERCOLATION TESTING WITH FACTOR OF SAFETY APPLIED

Test Location	Test Depth (inches)	Procedure	Geologic Unit	Percolation Rate (inches per hour)	Infiltration Rate (inches per hour)	Infiltration Rate with FOS of 2 Applied (inches per hour)
P-1	60	Non-Sandy	Qya	1.250	0.052	0.026
P-2	60	Non-Sandy	Qya	1.250	0.052	0.026

NOTES Water level was measured from a fixed point at the top of the hole.
Weather was sunny during percolation testing.
Qya = Quaternary Young Alluvial Deposits
The test holes were eight inches in diameter.

3.0 CONCLUSIONS

The percolation testing and converted infiltration rates indicate that partial infiltration at the site appears feasible, however, based on the sloping nature of the site, the planned development, the presence of high to very high expansion potential soils, the fine-grained nature of the encountered soils, and the potential for lateral migration of infiltration water into relatively close proximity public right-of-way and utility trenches, it is CTE opinion that the site is not considered suitable for infiltration in any amount. Any/all basins for storage of stormwater runoff should be lined with an impermeable liner and piped offsite via a suitable discharge outlet.

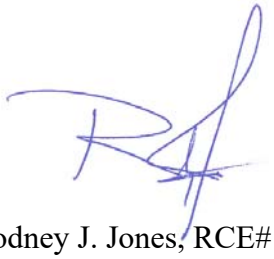
4.0 LIMITATIONS

CTE's conclusions and recommendations are based on an analysis of the observed conditions in the explored locations,the data collected and our evaluation of potential geotechnical hazards related to onsite infiltration.

The opportunity to be of service on this project is appreciated. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

CONSTRUCTION TESTING & ENGINEERING, INC.



Rodney J. Jones, RCE# 84232
Senior Engineer

Attachments:

Figure 1 Percolation Test Location Map

Appendix A References
Appendix B Percolation Test Data and Infiltration Rate Conversion Calculations
Appendix C Percolation Test Boring Logs
Appendix D Laboratory Test Results
Appendix E Worksheet C.4-1

40' 0 20' 40'

LEGEND

P-2 APPROXIMATE PERC TEST LOCATION

Qya QUATERNARY YOUNG ALLUVIAL FLOOD PLAIN DEPOSITS

Tsa TERTIARY SANTIAGO FORMATION

APPROXIMATE GEOLOGIC CONTACT

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GEOLOGIC/PERC TEST LOCATION MAP
S. SANTA FE MULTI-FAMILY HOUSING DEVELOPMENT
2927 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

SCALE:	DATE:
1"=40'	10/21
CTE JOB NO.: 10-16426G	FIGURE: 1

S:\Projects\10-16426G (S. Santa Fe Ave Perc Testing)\Figure 1.dwg

APPENDIX A

REFERENCES

1. Ghostrider, Inc., Limited Geotechnical Investigation, 2972 South Santa Fe Avenue, San Marcos, Project No. 19-2118C, dated July 1, 2020.

2. Kennedy, M.P. and Tan, S.S., 2007, "Geologic Map of the Oceanside 30' x 60' Quadrangle, California", California Geological Survey, Map No. 2.

3. Riverside County, Revised 9/2011, "Design Handbook for Low Impact Development BMPs"".

4. City of San Marcos, February 2016, "BMP Design Manual For Permanent Site Design, Storm Water Treatment and Hydromodification Management"

APPENDIX B

PERCOLATION TEST DATA AND INFILTRATION RATE CONVERSION CALCULATIONS

Project: **S. SANTA FE MULTI-FAMILY HOUSING**

Project No.: **10-16426G** Tables P-1

Percolation Field Data and Calculated Rates

P-1 **Total Depth:** **60 inches**

Time	Test Interval Time (minutes)	Test Refill Depth /Inches	Water Level Initial/Start Depth /Inches	Water Level End/Final Depth /Inches	Incremental Water Level Change (inches)	Percolation Rate inches/minute	Percolation Rate inches/hour
7:25:00	Initial	None	12.88	initial	-		
7:55:00	30	12	12.88	14.63	1.75	0.058	3.500
8:25:00	30	12.75	12.00	14.13	2.13	0.071	4.250
8:55:00	30	12.875	12.75	14.13	1.38	0.046	2.750
9:25:00	30	12.125	12.88	14.00	1.13	0.038	2.250
9:55:00	30	13.75	12.13	13.75	1.63	0.054	3.250
10:25:00	30	11.625	13.75	14.63	0.88	0.029	1.750
10:55:00	30	13	11.63	13.00	1.38	0.046	2.750
11:25:00	30	13.875	13.00	13.88	0.88	0.029	1.750
11:55:00	30	12.625	13.88	14.50	0.63	0.021	1.250
12:25:00	30	13.375	12.63	13.38	0.75	0.025	1.500
12:55:00	30	13.5	13.38	14.00	0.63	0.021	1.250
13:25:00	30	NO	13.50	14.13	0.63	0.021	1.250

P-2 **Total Depth:** **60 inches**

Time	Test Interval Time (minutes)	Test Refill Depth /Inches	Water Level Initial/Start Depth /Inches	Water Level End/Final Depth /Inches	Incremental Water Level Change (inches)	Percolation Rate inches/minute	Percolation Rate inches/hour
7:25:00	Initial	None	11.50	initial	-		
7:55:00	30	12.25	11.50	15.13	3.625	0.121	7.250
8:25:00	30	12.125	12.25	15.63	3.375	0.113	6.750
8:55:00	30	12.5	12.13	15.13	3.000	0.100	6.000
9:25:00	30	12	12.50	15.50	3.000	0.100	6.000
9:55:00	30	10	12.00	15.75	3.750	0.125	7.500
10:25:00	30	11.125	10.00	14.13	4.125	0.138	8.250
10:55:00	30	13.625	11.13	13.63	2.500	0.083	5.000
11:25:00	30	12.625	13.63	14.63	1.000	0.033	2.000
11:55:00	30	13.625	12.63	13.63	1.000	0.033	2.000
12:25:00	30	12.75	13.63	14.25	0.625	0.021	1.250
12:55:00	30	13.5	12.75	13.50	0.750	0.025	1.500
13:25:00	30	NO	13.50	14.13	0.625	0.021	1.250

Percolation Rate Conversion P-1

		Inches
Time Interval,	Δt =	30
Final Depth of Water,	D_f =	14.13
Test Hole Radius,	r =	4
Initial Depth to Water,	D_0 =	13.50
Total Depth of Test Hole,	D_T =	60

H_o =	46.5	in
H_f =	45.875	in
$\Delta H = \Delta D$ =	0.625	in
H_{avg} =	46.1875	in
I_t =	0.052	in/hr

Percolation Rate Conversion P-2

		Inches
Time Interval,	Δt =	30
Final Depth of Water,	D_f =	14.13
Test Hole Radius,	r =	4
Initial Depth to Water,	D_0 =	13.50
Total Depth of Test Hole,	D_T =	60

H_o =	46.5	in
H_f =	45.875	in
$\Delta H = \Delta D$ =	0.625	in
H_{avg} =	46.1875	in
I_t =	0.052	in/hr

TABLE

RESULTS OF PERCOLATION TESTING WITH 2.0 FACTOR OF SAFETY APPLIED

Test Location	Test Depth (inches)	Procedure	Soil Type* (USCS Classification)	Percolation Rate (inches per hour)	Infiltration Rate (inches per hour)	Infiltration Rate with FOS of 2 Applied (inches per hour)
P-1	60	Non-Sandy	Qya	1.250	0.052	0.026
P-2	60	Non-Sandy	Qya	1.250	0.052	0.026

APPENDIX C

PERCOLATION TEST BORING LOGS

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DEFINITION OF TERMS

PRIMARY DIVISIONS			SYMBOLS	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	**GRAVELS** MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	**SILTS AND CLAYS** LIQUID LIMIT IS LESS THAN 50		ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	

12" 3" 3/4" 4 10 40 200

CLEAR SQUARE SIEVE OPENING U.S. STANDARD SIEVE SIZE

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density
GS- Grain Size Distribution
SE- Sand Equivalent
EI- Expansion Index
CHM- Sulfate and Chloride Content , pH, Resistivity
COR - Corrosivity
SD- Sample Disturbed
PM- Permeability
SG- Specific Gravity
HA- Hydrometer Analysis
AL- Atterberg Limits
RV- R-Value
CN- Consolidation
CP- Collapse Potential
HC- Hydrocollapse
REM- Remolded
PP- Pocket Penetrometer
WA- Wash Analysis
DS- Direct Shear
UC- Unconfined Compression
MD- Moisture/Density
M- Moisture
SC- Swell Compression
OI- Organic Impurities

FIGURE: BL1

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PROJECT:	DRILLER:	SHEET: of
CTE JOB NO:	DRILL METHOD:	DRILLING DATE:
LOGGED BY:	SAMPLE METHOD:	ELEVATION:

BORING LEGEND

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0									
								Block or Chunk Sample	
								Bulk Sample	
5									
								Standard Penetration Test	
10								Modified Split-Barrel Drive Sampler (Cal Sampler)	
								Thin Walled Army Corp. of Engineers Sample	
15								Groundwater Table	
								Soil Type or Classification Change	
20								? ? ? ? ? ? ?	
								Formation Change [(Approximate boundaries queried (?)]	
						"SM"		Quotes are placed around classifications where the soils exist in situ as bedrock	
25									

FIGURE: BL2

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PROJECT:	S. SANTA FE MULTI-FAMILY HOUSING DE	DRILLER:	PACIFIC DRILLING	SHEET:	1 of 1
CTE JOB NO:	10-16426G	DRILL METHOD:	HOLLOW-STEM AUGER	DRILLING DATE:	9/30/2021
LOGGED BY:	DJT	SAMPLE METHOD:	SPT	ELEVATION:	~497 FEET

BORING: P-1

Depth (Feet)	Bulk Sample	Driven Type	Blows/6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**QUATERNARY YOUNG ALLUVIAL DEPOSITS:** Very stiff, slightly moist, dark brown, sandy CLAY with gravel.	
		▮	5 8 9						GS
5								Total Depth: 5' No Groundwater Encountered Backfilled with Soil Cuttings	
10									
15									
20									
25									

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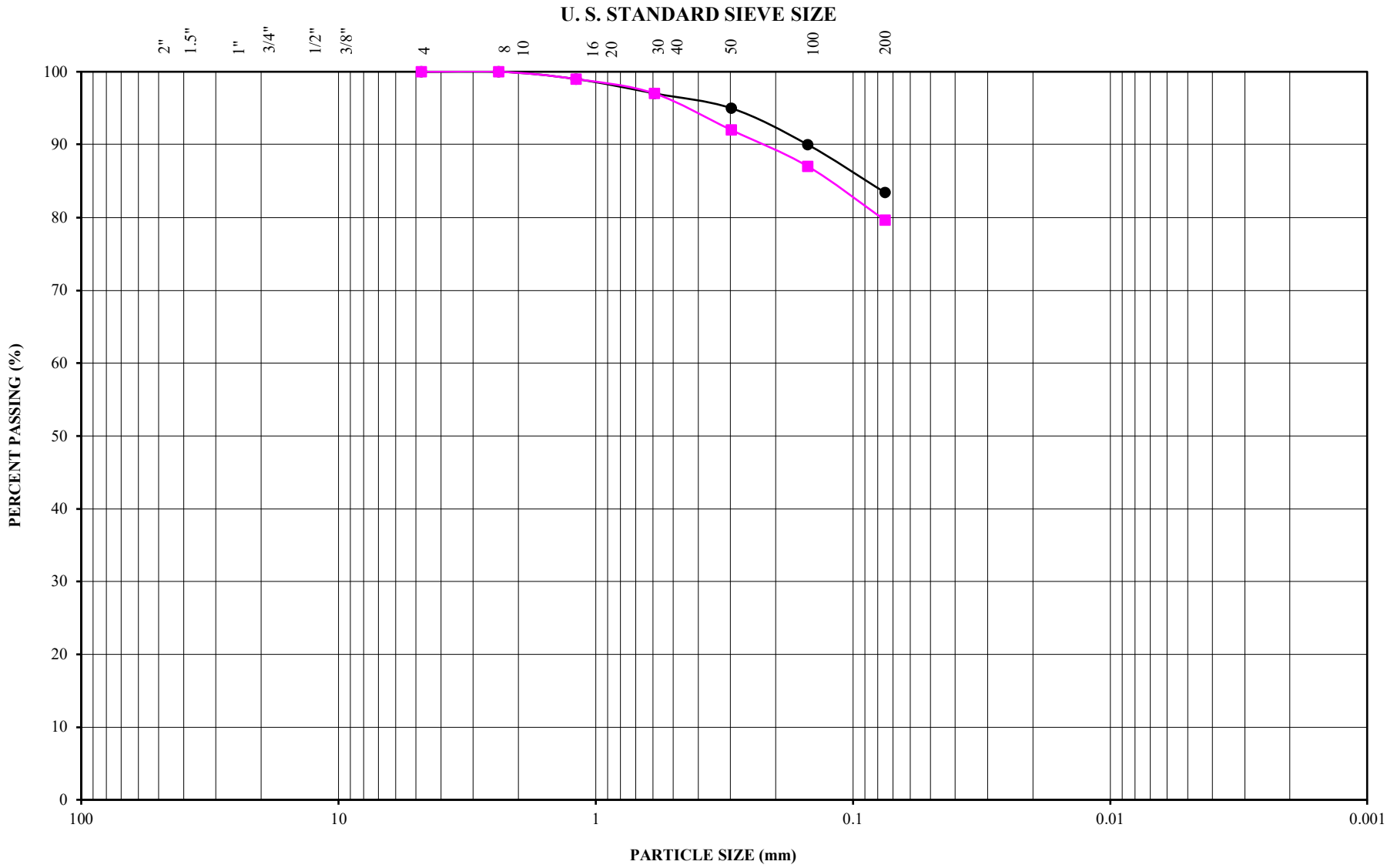
PROJECT:	S. SANTA FE MULTI-FAMILY HOUSING DE	DRILLER:	PACIFIC DRILLING	SHEET:	1 of 1
CTE JOB NO:	10-16426G	DRILL METHOD:	HOLLOW-STEM AUGER	DRILLING DATE:	9/30/2021
LOGGED BY:	DJT	SAMPLE METHOD:	SPT	ELEVATION:	~497 FEET

BORING: P-2

Depth (Feet)	Bulk Sample	Driven Type	Blows/6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**QUATERNARY YOUNG ALLUVIAL DEPOSITS:** Very stiff, slightly moist, dark brown, sandy CLAY with gravel.	
			4 8 8						GS
5								Total Depth: 5' No Groundwater Encountered Backfilled with Soil Cuttings	
10									
15									
20									
25									

APPENDIX D

LABORATORY TEST RESULTS



PARTICLE SIZE ANALYSIS

CTE A Universal Engineering Sciences Company
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Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
P-1	4-5	●			CL
P-2	4-5	■			CL
CTE JOB NUMBER:		10-16426G		FIGURE:	C-1

APPENDIX E

C.4-1 WORKSHEET

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Worksheet C.4-1 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis:

Refer to CTE's "Site Percolation Testing and Infiltration Feasibility Evaluation" letter report, dated October 18, 2021, CTE Job No. 10-16426G.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X

Provide basis:

Refer to CTE's "Site Percolation Testing and Infiltration Feasibility Evaluation" letter report, dated October 18, 2021, CTE Job No. 10-16426G.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	CTE concludes that the site is in a "no infiltration" conditions.	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

ATTACHMENT 1e

3527 San Marcos Residences
2/15/2022

Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA-1

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.7	inches
2	Area tributary to BMP (s)	A=	1.01	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.73	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1882	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	34,828	0.9	31,345	
Pervious	9,170	0.1	917	
Total	43,998		32,262	0.73

DMA-2

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.7	inches
2	Area tributary to BMP (s)	A=	0.52	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.84	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1108	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	20,908	0.9	18,817	
Pervious	1,835	0.1	184	
Total	22,743		19,001	0.84

3527 San Marcos Residences
2/15/2022

Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA-3

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.7	inches
2	Area tributary to BMP (s)	A=	0.55	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.66	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	922	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	16,781	0.9	15,103	
Pervious	7,064	0.1	706	
Total	23,845		15,809	0.66

3527 San Marcos Residences
2/28/2022

Appendix B: Storm Water Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.6-1: Flow-Thru Design Flows

DMA-1

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	1882	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	1.01	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.73	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.15	cfs
		1.5Q=	0.222	cfs

DMA-2

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	1108	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.52	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.84	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.09	cfs
		1.5Q=	0.131	cfs

DMA-3

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	922	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.55	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.66	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.07	cfs
		1.5Q=	0.109	cfs

StormGarden Biofilttration System
San Marcos Residences
3/1/2022

DMA	BMP type	DMA AREA (SF)	Total DMA AREA (acres)	REQ flow for dma (cfs)	StormGarden Filter Bed Size (SF)	StormGarden System Flow Rate (cfs)
1	StormGarden Boxless BioFiltration	43,998	1.01		70	0.226
2	StormGarden Boxless BioFiltration	22,743	0.52		41	0.132
3	StormGarden Boxless BioFiltration	23,845	0.55		34	0.110
Totals					***145***	

NOTES:

1. StormGarden loading rate at 145"/HR is 1.45 GPM/SF of Filter Bed.
2. The StormGarden width and length can be customized to any size and shape conceivable because it is a boxless system and indpendent of a concrete form.

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.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☑ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
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, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☑ Included ☐ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐ Included ☑ Not required because BMPs will drain in less than 96 hours

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

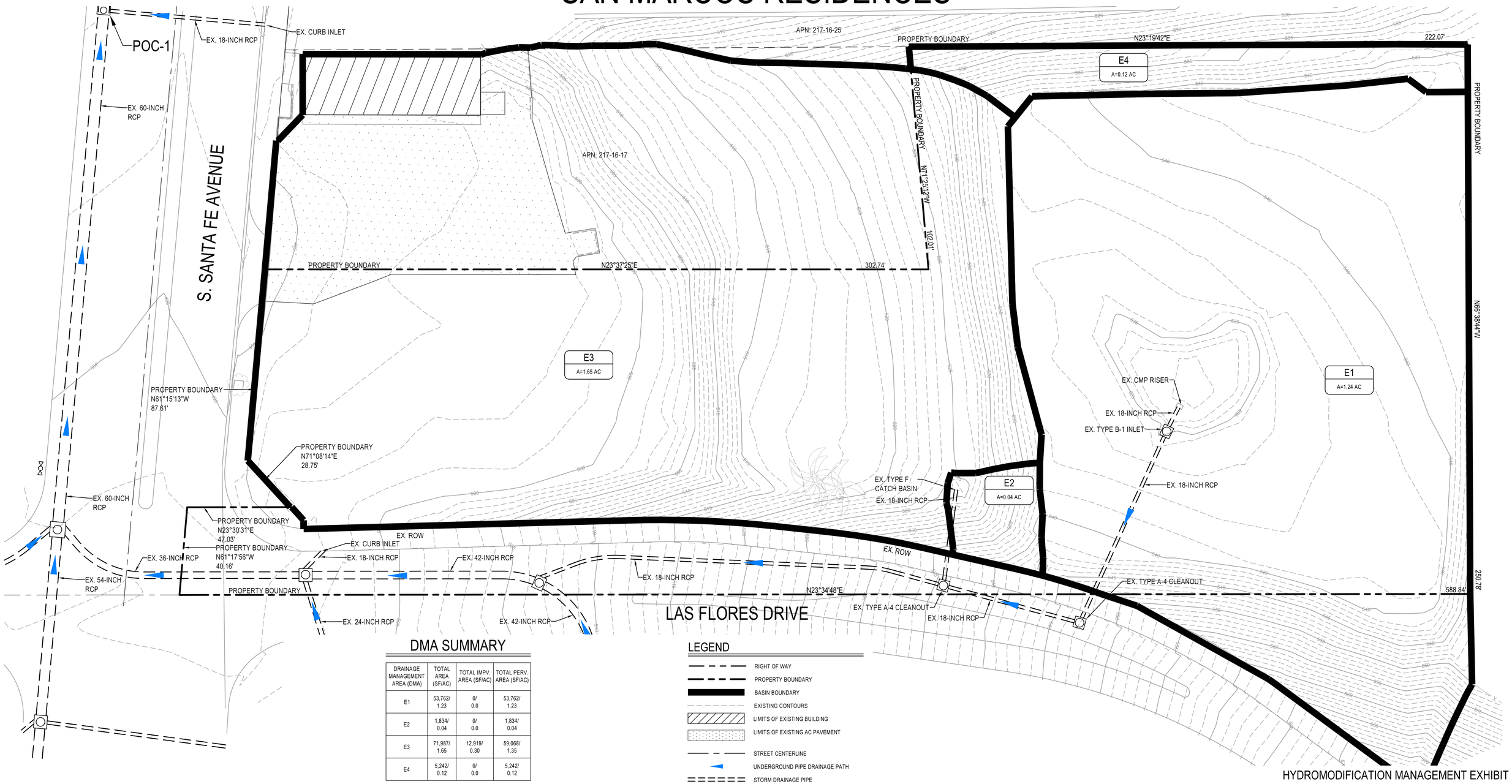
The Hydromodification Management Exhibit must identify:

- ☐ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected
- ☐ 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)

HYDROMODIFICATION MANAGEMENT EXHIBIT

PRE-PROJECT CONDITIONS

SAN MARCOS RESIDENCES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)
E1	53,762/ 1.23	0/ 0.0	53,762/ 1.23
E2	1,834/ 0.04	0/ 0.0	1,834/ 0.04
E3	71,987/ 1.65	12,919/ 0.30	59,068/ 1.35
E4	5,242/ 0.12	0/ 0.0	5,242/ 0.12

LEGEND

- RIGHT OF WAY
- PROPERTY BOUNDARY
- BASIN BOUNDARY
- EXISTING CONTOURS
- LIMITS OF EXISTING BUILDING
- LIMITS OF EXISTING AC PAVEMENT
- STREET CENTERLINE
- UNDERGROUND PIPE DRAINAGE PATH
- STORM DRAINAGE PIPE
- DMA ID / DMA AREA (AC) — DMA REFERENCE CALLOUT

SCALE: 1" = 20'

20 10 0 20 40 60

HYDROMODIFICATION MANAGEMENT EXHIBIT
PRE-PROJECT CONDITIONS
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

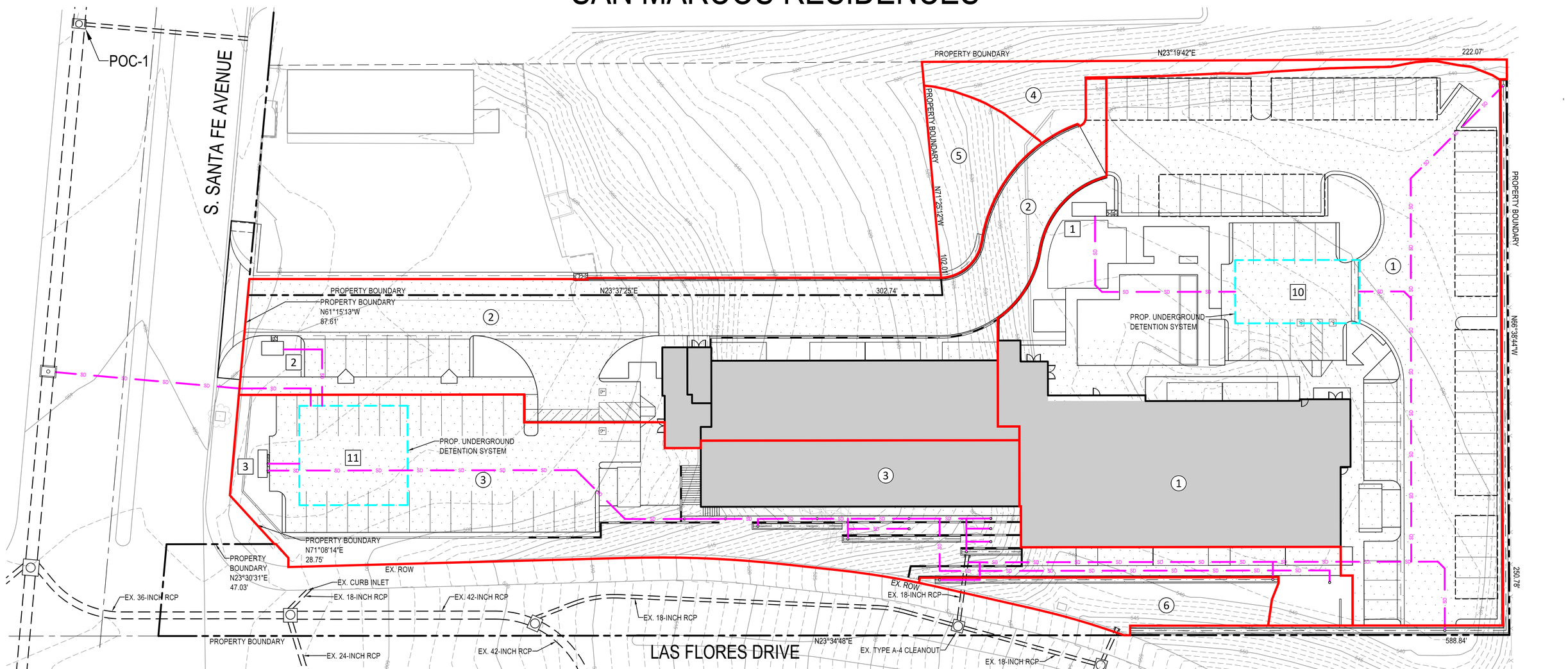
PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: 10/18/21 ~ PLOT DATE: 10/18/21 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\Attachments\Attachment 2 - Backup for Hydromodification Control Measures\Att 2a - Hydromod Exhibit\3527-WQMP-Hydromod Exhibit, Pre Project.dwg

HYDROMODIFICATION MANAGEMENT EXHIBIT

POST-PROJECT CONDITIONS

SAN MARCOS RESIDENCES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)	DMA TYPE	BMP TYPE	BMP NAME	BMP SIZE PROVIDED
1	43,998/ 1.01	34,828/ 0.800	9,170/ 0.211	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	1	110 SF
				DRAINS TO BMP	DETENTION VAULT	10	H: 5.58' W: 27.56' L: 54.23'
2	22,743/ 0.522	20,908/ 0.480	1,835/ 0.042	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	2	56 SF
3	23,845/ 0.547	16,781/ 0.385	7,064/ 0.162	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	3	44 SF
2 3	46,588/ 1.070	37,689/ 0.865	8,899/ 0.204	DRAINS TO BMP	DETENTION VAULT	11	H: 3.54' W: 43.31' L: 47.20'
4	2,470/ 0.057	0/ 0.00	2,470/ 0.057	SELF MITIGATING	-		-
5	2,306/ 0.053	0/ 0.00	2,306/ 0.053	SELF MITIGATING	-		-
6	2,522/ 0.058	374/ 0.009	2,148/ 0.049	SELF MITIGATING	-		-

AREA CALCULATIONS

TOTAL SITE AREA: 97,036 SF (2.228 AC)
AREA DISTURBED BY PROJECT: 90,586 SF (2.080 AC)

EXISTING IMPERVIOUS AREA: 859 SF (0.020 AC)
PROPOSED IMPERVIOUS AREA: 72,891 SF (1.673 AC)
INCREASE IMPERVIOUS AREA: 72,032 SF (1.654 AC)

SOIL TYPE INFORMATION

SOIL: TYPE C & D HYDROLOGIC SOILS PER OBSERVED ONSITE SUBSURFACE SOIL CONDITIONS PROVIDED IN THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSRIDER, INC.

GROUNDWATER INFORMATION

GROUNDWATER NOT ENCOUNTERED IN ANY OF THE BORINGS CONDUCTED BY GHOSTRIDER, INC., ACCORDING TO THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSTRIDER, INC. CONCLUSION IN REPORT STATES "NO GROUNDWATER WAS ENCOUNTERED WITHIN ANY HAND AUGER BORING TO THE MAXIMUM EXPLORED DEPTH OF 50½ FEET".

TREATMENT CONTROL BMPS

PROPRIETARY BIOFILTRATION BF-3

POTENTIAL POLLUTANT SOURCE AREAS

TRASH DUMPESTERS, ROOFS, PARKING LOTS, LANDSCAPING, RESTAURANT(S), WATER FEATURES, AND OUTDOOR STORAGE AREAS.

SOURCE CONTROLS

SC-1: PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
SC-2: STORM DRAIN STENCILING OR SIGNAGE
SC-5: PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
SC-6: ADDITIONAL BMPS BASED ON POTENTIAL SOURCES ON RUNOFF POLLUTANTS

LEGEND

PROPERTY LINE
RIGHT-OF-WAY
CENTER LINE OF ROAD
DMA BOUNDARY
EXISTING STORM DRAIN LINE
PROPOSED STORM DRAIN LINE
PROPOSED UNDERGROUND R-TANK DETENTION SYSTEM
LIMITS OF PROP. BUILDING
LIMITS OF PROP. CONCRETE PAVEMENT
DMA AREA #
BMP #

SCALE: 1" = 20'

HYDROMODIFICATION MANAGEMENT EXHIBIT
POST-PROJECT CONDITIONS
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
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SAVE DATE: 02/15/22 ~ PLOT DATE: 02/28/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\Attachments\Attachment 2 - Backup for Hydromodification Control Measures\Att 2a - Hydromod Exhibits\3527-WQMP-Hydromod Exhibit, Post Project.dwg

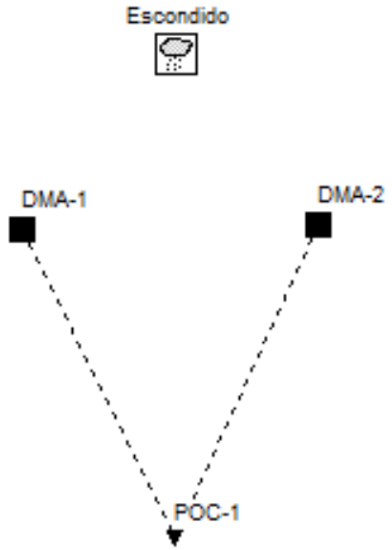
ATTACHMENT 2b


Potential Critical Coarse Sediment Yield Areas, Regional San Diego County Watersheds
Source:Project Clean Water
File Name: WMAA Mapping Data from Attachment C 2018_0906.zip
Date: 10/19/18 (Last Updated)
Legend
Creek
Yes
PROJECT SITE
N33°09'34.56"
W117°12'31.68"
W117°12'5.76"
W117°11'39.84"
N33°09'8.64"
Google Earth
Image Landsat / Copernicus
N
1000 ft

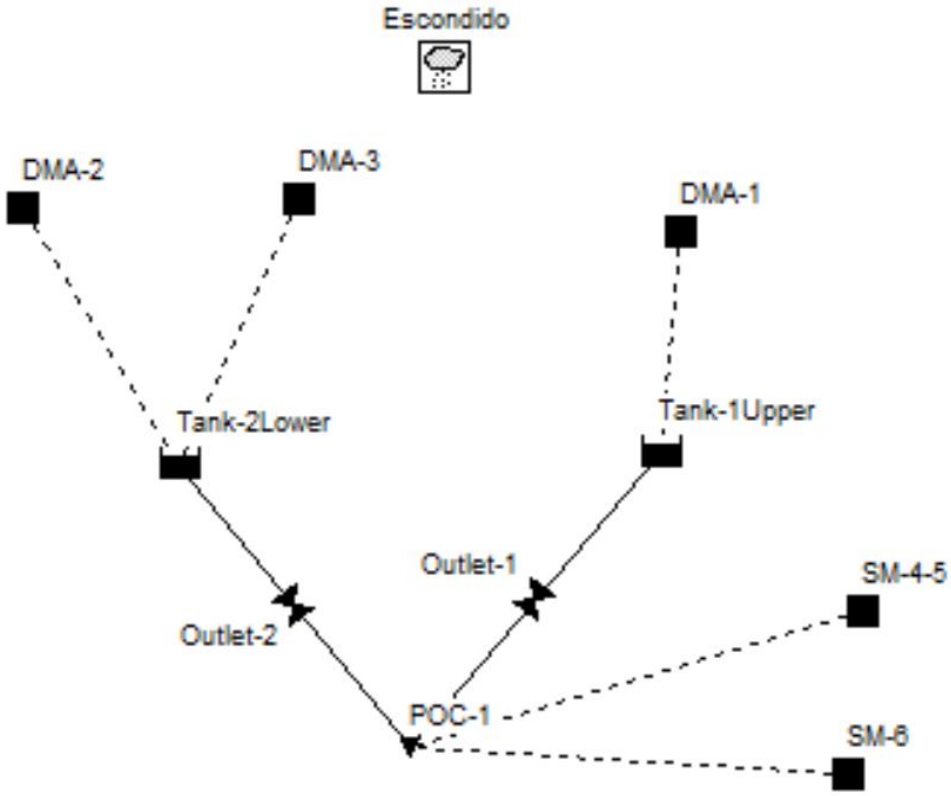
ATTACHMENT 2d

SWMM MODEL SCHEMATICS

PRE-PROJECT MODEL



POST-PROJECT MODEL



3527 South Santa Fe
3/2/2022

POC-1
SWMM INPUT

PRE-PROJECT

DMA	Basin	Area (ac)	Width (Area/Flow Length) (ft)	% Slope	% Impervious	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:	N-perv
1		1.1	290	8.0%	0%	0%	100%	0%	0.100	6.000	0.320	0.080
2		1.12	143	13.0%	0%	0%	46%	55%	0.059	7.635	0.325	0.080
	Total:	**2.22**										

POST-PROJECT

DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Impervious	% Slope	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:	N-perv
1	Tank-1	1.010	936	79%	5.0%	0%	100%	0%	0.075	6.000	0.320	0.06
2	Tank-2	0.522	758	92%	10.0%	0%	46%	54%	0.045	7.620	0.325	0.06
3	Tank-2	0.547	794	70%	7.0%	0%	33%	67%	0.037	8.010	0.327	0.06
SM-4 and 5	NA	0.110	165	0%	50.0%	0%	100%	0%	0.075	6.000	0.320	0.08
SM-6	NA	0.058	126	15%	50.0%	0%	100%	0%	0.075	6.000	0.320	0.08
	Total:	**2.25**										

Infiltration:		
C:	0.1	in/hr
D:	0.025	in/hr

Suction Head:		
C:	6	in
D:	9	in

Initial Deficit	
C:	0.32
D:	0.33

POC-1

```
[TITLE]
;;Project Title/Notes
3527 South Santa Fe
Pre-Development Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           09/24/1964
START_TIME           13:00:00
REPORT_START_DATE    09/24/1964
REPORT_START_TIME    13:00:00
END_DATE             05/23/2008
END_TIME             22:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

POC-1

```
;;-------------- --------- ------ ------ ----------
Escondido        INTENSITY 1:00     1.0      TIMESERIES Escondido

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-2            Escondido        POC-1            1.12     0        143      13       0
DMA-1            Escondido        POC-1            1.1      0        290      8        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-2            0.012      0.08       0.05       0.1        25         OUTLET
DMA-1            0.012      0.08       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-2            7.635      0.059      0.325
DMA-1            6          0.1        0.32

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-1            0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Escondido        FILE "J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\SWMM\Rain Data\escondido\escondido1.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            -33.882            5151.408

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
```

POC-1

```
[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-2            662.783            6679.992
DMA-1            -758.346           6657.435

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Escondido        -9.075             7491.454
```

POC-1

```
[TITLE]
;;Project Title/Notes
3527 South Santa Fe
Post-Project Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           09/24/1964
START_TIME           13:00:00
REPORT_START_DATE    09/24/1964
REPORT_START_TIME    13:00:00
END_DATE             05/23/2008
END_TIME             22:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

POC-1

```
;;-------------- --------- ------ ------ ----------
Escondido        INTENSITY 1:00     1.0      TIMESERIES Escondido

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-2            Escondido        Tank-2Lower      0.522    92       758      10       0
DMA-1            Escondido        Tank-1Upper      1.01     79       936      5        0
SM-4-5           Escondido        POC-1            0.11     0        165      50       0
DMA-3            Escondido        Tank-2Lower      0.547    70       794      7        0
SM-6             Escondido        POC-1            0.058    15       126      50       0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-2            0.012      0.06       0.05       0.1        25         OUTLET
DMA-1            0.012      0.06       0.05       0.1        25         OUTLET
SM-4-5           0.012      0.08       0.05       0.1        25         OUTLET
DMA-3            0.012      0.06       0.05       0.1        25         OUTLET
SM-6             0.012      0.08       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-2            7.62       0.045      0.325
DMA-1            6          0.075      0.32
SM-4-5           6          0.075      0.32
DMA-3            8.01       0.037      0.327
SM-6             6          0.075      0.32

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-1            0          FREE                        NO

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Name/Params            N/A      Fevap    Psi      Ksat     IMD
;;-------------- -------- ---------- ---------- ---------- ---------------------------- -------- -------- -------- -------- --------
Tank-1Upper      0        5.58       0          TABULAR    Tank1Upper                   0        0
Tank-2Lower      0        3.54       0          TABULAR    Tank-2Lower                  0        0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
Outlet-1         Tank-1Upper      POC-1            0          TABULAR/DEPTH   OUTLET-1                    NO
Outlet-2         Tank-2Lower      POC-1            0          TABULAR/DEPTH   OUTLET-2                    NO

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
OUTLET-1         Rating     0          0
```

POC-1

```
OUTLET-1                  0.2         0.01
OUTLET-1                  0.4         0.01
OUTLET-1                  0.6         0.02
OUTLET-1                  0.8         0.02
OUTLET-1                  1           0.02
OUTLET-1                  1.2         0.02
OUTLET-1                  1.4         0.02
OUTLET-1                  1.6         0.03
OUTLET-1                  1.8         0.03
OUTLET-1                  2           0.03
OUTLET-1                  2.2         0.03
OUTLET-1                  2.4         0.03
OUTLET-1                  2.6         0.03
OUTLET-1                  2.8         0.04
OUTLET-1                  3           0.04
OUTLET-1                  3.2         0.04
OUTLET-1                  3.4         0.04
OUTLET-1                  3.6         0.04
OUTLET-1                  3.8         0.04
OUTLET-1                  4           0.04
OUTLET-1                  4.2         0.04
OUTLET-1                  4.4         0.04
OUTLET-1                  4.6         0.05
OUTLET-1                  4.8         0.05
OUTLET-1                  5           0.05
OUTLET-1                  5.2         0.87
OUTLET-1                  5.4         3.61
OUTLET-1                  5.58        7
;
OUTLET-2          Rating  0           0
OUTLET-2                  0.1         0.01
OUTLET-2                  0.2         0.01
OUTLET-2                  0.3         0.01
OUTLET-2                  0.4         0.01
OUTLET-2                  0.5         0.01
OUTLET-2                  0.6         0.02
OUTLET-2                  0.7         0.02
OUTLET-2                  0.8         0.02
OUTLET-2                  0.9         0.02
OUTLET-2                  1           0.02
OUTLET-2                  1.1         0.02
OUTLET-2                  1.2         0.02
OUTLET-2                  1.3         0.02
OUTLET-2                  1.4         0.02
OUTLET-2                  1.5         0.03
OUTLET-2                  1.6         0.03
OUTLET-2                  1.7         0.03
OUTLET-2                  1.8         0.03
OUTLET-2                  1.9         0.03
OUTLET-2                  2           0.03
OUTLET-2                  2.1         0.03
```

POC-1

```
OUTLET-2                    2.2         0.03
OUTLET-2                    2.3         0.03
OUTLET-2                    2.4         0.03
OUTLET-2                    2.5         0.03
OUTLET-2                    2.6         0.03
OUTLET-2                    2.7         0.03
OUTLET-2                    2.8         0.04
OUTLET-2                    2.9         0.04
OUTLET-2                    3           0.04
OUTLET-2                    3.1         0.37
OUTLET-2                    3.2         1.51
OUTLET-2                    3.3         3.08
OUTLET-2                    3.4         4.99
OUTLET-2                    3.5         5.66
OUTLET-2                    3.54        5.69
;
Tank1Upper       Storage    0           1520
Tank1Upper                  5.58        1520
;
Tank-2Lower      Storage    0           1995
Tank-2Lower                 3.54        1995

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Escondido        FILE "J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\SWMM\Rain Data\escondido\escondido1.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            198.110            4329.947
Tank-1Upper      1409.511           5738.859
Tank-2Lower      -921.120           5673.022

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
```

POC-1

```
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-2            -1671.662          6910.758
DMA-1            1501.683           6805.419
SM-4-5           2380.183           4981.105
DMA-3            -341.754           6950.261
SM-6             2311.363           4206.877

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Escondido        392.092            7571.018
```

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
  --------------------------------------------------------------

  3527 South Santa Fe
  Pre-Development Condition


  ***********************************************************
  NOTE: The summary statistics displayed in this report are
  based on results found at every computational time step,
  not just on results from each reporting time step.
  ***********************************************************

  ****************
  Analysis Options
  ****************
  Flow Units ............... CFS
  Process Models:
    Rainfall/Runoff ........ YES
    RDII ................... NO
    Snowmelt ............... NO
    Groundwater ............ NO
    Flow Routing ........... NO
    Water Quality .......... NO
  Infiltration Method ...... GREEN_AMPT
  Starting Date ............ 09/24/1964 13:00:00
  Ending Date .............. 05/23/2008 22:00:00
  Antecedent Dry Days ...... 0.0
  Report Time Step ......... 01:00:00
  Wet Time Step ............ 00:15:00
  Dry Time Step ............ 04:00:00


  **************************        Volume         Depth
  Runoff Quantity Continuity     acre-feet        inches
  **************************     ---------       -------
  Total Precipitation ......       113.057       611.120
  Evaporation Loss .........         1.623         8.773
  Infiltration Loss ........       101.158       546.802
  Surface Runoff ...........        11.234        60.723
  Final Storage ............         0.000         0.000
  Continuity Error (%) .....        -0.847


  **************************        Volume        Volume
  Flow Routing Continuity        acre-feet      10^6 gal
  **************************     ---------     ---------
  Dry Weather Inflow .......         0.000         0.000
  Wet Weather Inflow .......        11.234         3.661
  Groundwater Inflow .......         0.000         0.000
  RDII Inflow ..............         0.000         0.000
  External Inflow ..........         0.000         0.000
  External Outflow .........        11.234         3.661
  Flooding Loss ............         0.000         0.000
```

```
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-2	611.12	0.00	11.07	537.38	0.00	69.00	69.00	2.10	0.88	0.113
DMA-1	611.12	0.00	6.43	556.40	0.00	52.29	52.29	1.56	0.82	0.086

```
Analysis begun on:  Wed Mar  2 11:57:09 2022
Analysis ended on:  Wed Mar  2 11:57:39 2022
Total elapsed time: 00:00:30
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
--------------------------------------------------------------

3527 South Santa Fe
Post-Project Condition


***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... KINWAVE
Starting Date ............ 09/24/1964 13:00:00
Ending Date .............. 05/23/2008 22:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00
Routing Time Step ........ 60.00 sec


*************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
*************************     ---------       -------
Total Precipitation ......       114.432       611.120
Evaporation Loss .........        11.688        62.417
Infiltration Loss ........        25.406       135.682
Surface Runoff ...........        79.431       424.198
Final Storage ............         0.005         0.025
Continuity Error (%) .....        -1.833


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        79.431        25.884
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
```

External Inflow	0.000	0.000
External Outflow	79.418	25.880
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.007	0.002
Continuity Error (%)	0.007	

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****

Minimum Time Step	:	59.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	1.00
Percent Not Converging	:	0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-2	611.12	0.00	75.02	40.19	499.47	8.58	508.05	7.20	0.45	0.831
DMA-1	611.12	0.00	65.42	114.54	428.12	13.73	441.85	12.12	0.84	0.723
SM-4-5	611.12	0.00	6.89	545.59	0.00	65.06	65.06	0.19	0.08	0.106
DMA-3	611.12	0.00	60.78	148.60	380.17	34.04	414.20	6.15	0.46	0.678
SM-6	611.12	0.00	17.37	463.93	82.01	55.52	137.52	0.22	0.05	0.225

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
POC-1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Tank-1Upper	STORAGE	0.05	5.15	5.15	11059 08:02	5.15
Tank-2Lower	STORAGE	0.05	3.15	3.15	10332 03:23	3.15

```
******************
Node Inflow Summary
******************

-------------------------------------------------------------------------------------------------
                                 Maximum  Maximum                  Lateral       Total        Flow
                                 Lateral    Total  Time of Max      Inflow      Inflow     Balance
                                  Inflow   Inflow   Occurrence      Volume      Volume       Error
Node                 Type           CFS      CFS  days hr:min    10^6 gal    10^6 gal     Percent
-------------------------------------------------------------------------------------------------
POC-1                OUTFALL       0.13     1.47  11059  08:01       0.411        25.9       0.000
Tank-1Upper          STORAGE       0.84     0.84  10332  03:16        12.1        12.1       0.007
Tank-2Lower          STORAGE       0.89     0.89  10332  03:31        13.4        13.4       0.007


*********************
Node Flooding Summary
*********************

No nodes were flooded.


**********************
Storage Volume Summary
**********************

-------------------------------------------------------------------------------------------------
                        Average     Avg  Evap Exfil       Maximum     Max    Time of Max    Maximum
                         Volume    Pcnt  Pcnt  Pcnt        Volume    Pcnt     Occurrence    Outflow
Storage Unit          1000 ft3    Full  Loss  Loss      1000 ft3    Full    days hr:min        CFS
-------------------------------------------------------------------------------------------------
Tank-1Upper              0.082       1     0     0         7.826      92    11059  08:01       0.66
Tank-2Lower              0.103       1     0     0         6.278      89    10332  03:21       0.90


***********************
Outfall Loading Summary
***********************

-----------------------------------------------------------
                        Flow       Avg       Max       Total
                        Freq      Flow      Flow      Volume
Outfall Node            Pcnt       CFS       CFS    10^6 gal
-----------------------------------------------------------
POC-1                  10.97      0.02      1.47      25.878
-----------------------------------------------------------
System                 10.97      0.02      1.47      25.878


********************
Link Flow Summary
********************
```

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
Outlet-1	DUMMY	0.66	11059	08:02			
Outlet-2	DUMMY	0.90	10332	03:23			

****
Conduit Surcharge Summary
****

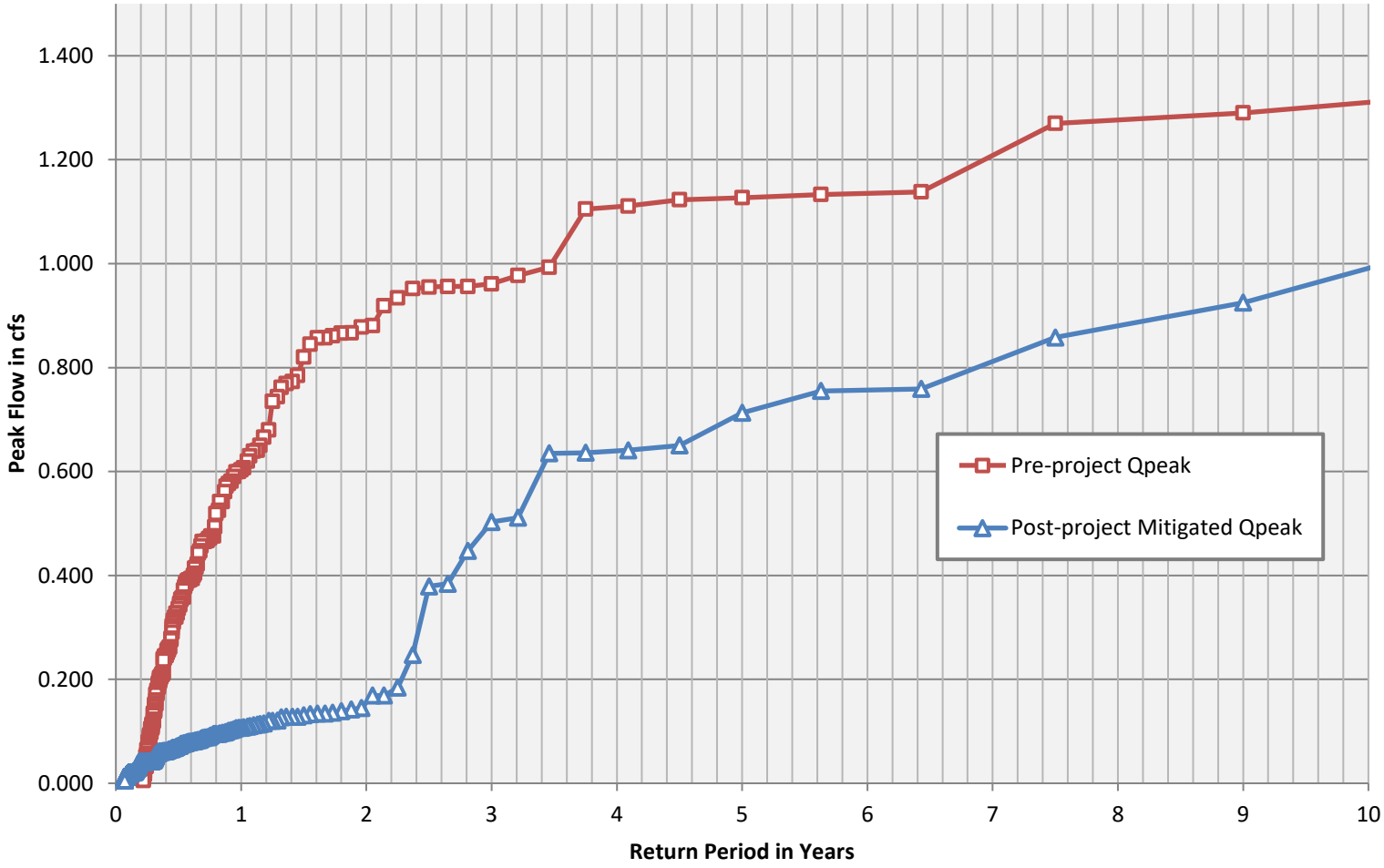
No conduits were surcharged.

Analysis begun on: Wed Mar 2 12:59:17 2022
Analysis ended on: Wed Mar 2 12:59:56 2022
Total elapsed time: 00:00:39

Peak Flow Frequency Summary

Return Period	Pre-project Qpeak (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1xQ2	0.088	0.016
2-year	0.879	0.156
5-year	1.127	0.713
10-year	1.310	0.991

Peak Flow Frequency Curves

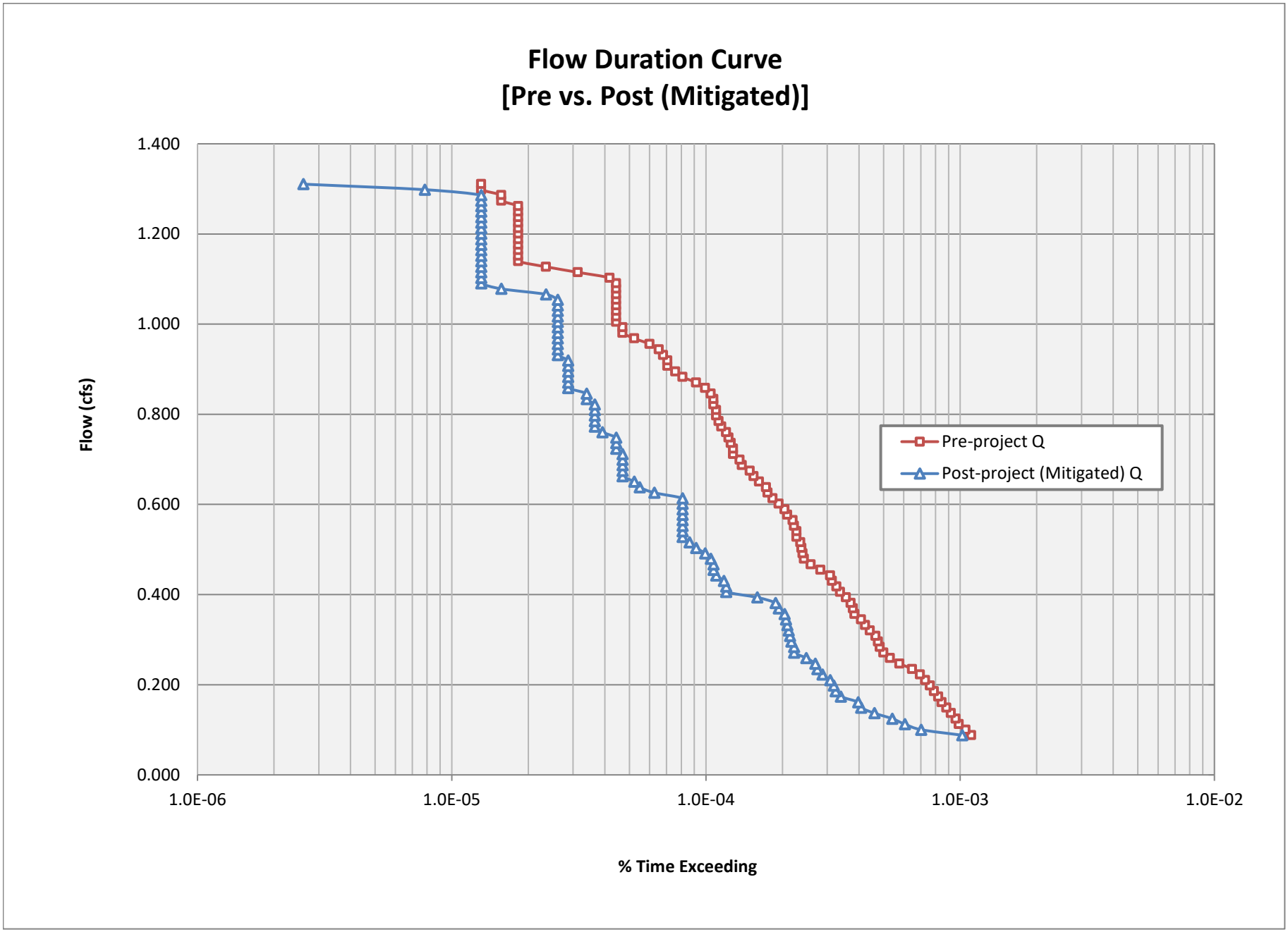


Low-flow Threshold:	10%	
0.1xQ2 (Pre):	0.088	cfs
Q10 (Pre):	1.310	cfs
Ordinate #:	100	
Incremental Q (Pre):	0.01223	cfs
Total Hourly Data:	382736	hours

The proposed BMP: PASSED

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.088	423	1.11E-03	390	1.02E-03	92%	Pass
1	0.100	402	1.05E-03	269	7.03E-04	67%	Pass
2	0.112	378	9.88E-04	232	6.06E-04	61%	Pass
3	0.125	368	9.61E-04	207	5.41E-04	56%	Pass
4	0.137	352	9.20E-04	176	4.60E-04	50%	Pass
5	0.149	338	8.83E-04	156	4.08E-04	46%	Pass
6	0.161	324	8.47E-04	152	3.97E-04	47%	Pass
7	0.174	314	8.20E-04	130	3.40E-04	41%	Pass
8	0.186	302	7.89E-04	124	3.24E-04	41%	Pass
9	0.198	291	7.60E-04	122	3.19E-04	42%	Pass
10	0.210	279	7.29E-04	118	3.08E-04	42%	Pass
11	0.222	266	6.95E-04	110	2.87E-04	41%	Pass
12	0.235	248	6.48E-04	105	2.74E-04	42%	Pass
13	0.247	221	5.77E-04	103	2.69E-04	47%	Pass
14	0.259	203	5.30E-04	95	2.48E-04	47%	Pass
15	0.271	191	4.99E-04	85	2.22E-04	45%	Pass
16	0.284	185	4.83E-04	85	2.22E-04	46%	Pass
17	0.296	182	4.76E-04	83	2.17E-04	46%	Pass
18	0.308	178	4.65E-04	82	2.14E-04	46%	Pass
19	0.320	169	4.42E-04	81	2.12E-04	48%	Pass
20	0.332	162	4.23E-04	80	2.09E-04	49%	Pass
21	0.345	156	4.08E-04	79	2.06E-04	51%	Pass
22	0.357	147	3.84E-04	78	2.04E-04	53%	Pass
23	0.369	145	3.79E-04	74	1.93E-04	51%	Pass
24	0.381	142	3.71E-04	72	1.88E-04	51%	Pass
25	0.394	136	3.55E-04	61	1.59E-04	45%	Pass
26	0.406	129	3.37E-04	46	1.20E-04	36%	Pass
27	0.418	125	3.27E-04	46	1.20E-04	37%	Pass
28	0.430	120	3.14E-04	45	1.18E-04	38%	Pass
29	0.442	118	3.08E-04	42	1.10E-04	36%	Pass
30	0.455	108	2.82E-04	41	1.07E-04	38%	Pass
31	0.467	99	2.59E-04	41	1.07E-04	41%	Pass
32	0.479	93	2.43E-04	40	1.05E-04	43%	Pass
33	0.491	92	2.40E-04	38	9.93E-05	41%	Pass
34	0.504	91	2.38E-04	35	9.14E-05	38%	Pass
35	0.516	90	2.35E-04	33	8.62E-05	37%	Pass
36	0.528	87	2.27E-04	31	8.10E-05	36%	Pass
37	0.540	87	2.27E-04	31	8.10E-05	36%	Pass
38	0.552	85	2.22E-04	31	8.10E-05	36%	Pass
39	0.565	84	2.19E-04	31	8.10E-05	37%	Pass
40	0.577	80	2.09E-04	31	8.10E-05	39%	Pass
41	0.589	78	2.04E-04	31	8.10E-05	40%	Pass
42	0.601	74	1.93E-04	31	8.10E-05	42%	Pass
43	0.614	70	1.83E-04	31	8.10E-05	44%	Pass
44	0.626	67	1.75E-04	24	6.27E-05	36%	Pass
45	0.638	66	1.72E-04	21	5.49E-05	32%	Pass
46	0.650	62	1.62E-04	20	5.23E-05	32%	Pass
47	0.663	59	1.54E-04	18	4.70E-05	31%	Pass
48	0.675	57	1.49E-04	18	4.70E-05	32%	Pass
49	0.687	53	1.38E-04	18	4.70E-05	34%	Pass
50	0.699	52	1.36E-04	18	4.70E-05	35%	Pass
51	0.711	49	1.28E-04	18	4.70E-05	37%	Pass
52	0.724	49	1.28E-04	17	4.44E-05	35%	Pass
53	0.736	48	1.25E-04	17	4.44E-05	35%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
54	0.748	47	1.23E-04	17	4.44E-05	36%	Pass
55	0.760	46	1.20E-04	15	3.92E-05	33%	Pass
56	0.773	44	1.15E-04	14	3.66E-05	32%	Pass
57	0.785	43	1.12E-04	14	3.66E-05	33%	Pass
58	0.797	42	1.10E-04	14	3.66E-05	33%	Pass
59	0.809	42	1.10E-04	14	3.66E-05	33%	Pass
60	0.821	41	1.07E-04	14	3.66E-05	34%	Pass
61	0.834	41	1.07E-04	13	3.40E-05	32%	Pass
62	0.846	40	1.05E-04	13	3.40E-05	33%	Pass
63	0.858	38	9.93E-05	11	2.87E-05	29%	Pass
64	0.870	35	9.14E-05	11	2.87E-05	31%	Pass
65	0.883	31	8.10E-05	11	2.87E-05	35%	Pass
66	0.895	29	7.58E-05	11	2.87E-05	38%	Pass
67	0.907	27	7.05E-05	11	2.87E-05	41%	Pass
68	0.919	27	7.05E-05	11	2.87E-05	41%	Pass
69	0.931	26	6.79E-05	10	2.61E-05	38%	Pass
70	0.944	25	6.53E-05	10	2.61E-05	40%	Pass
71	0.956	23	6.01E-05	10	2.61E-05	43%	Pass
72	0.968	20	5.23E-05	10	2.61E-05	50%	Pass
73	0.980	18	4.70E-05	10	2.61E-05	56%	Pass
74	0.993	18	4.70E-05	10	2.61E-05	56%	Pass
75	1.005	17	4.44E-05	10	2.61E-05	59%	Pass
76	1.017	17	4.44E-05	10	2.61E-05	59%	Pass
77	1.029	17	4.44E-05	10	2.61E-05	59%	Pass
78	1.041	17	4.44E-05	10	2.61E-05	59%	Pass
79	1.054	17	4.44E-05	10	2.61E-05	59%	Pass
80	1.066	17	4.44E-05	9	2.35E-05	53%	Pass
81	1.078	17	4.44E-05	6	1.57E-05	35%	Pass
82	1.090	17	4.44E-05	5	1.31E-05	29%	Pass
83	1.103	16	4.18E-05	5	1.31E-05	31%	Pass
84	1.115	12	3.14E-05	5	1.31E-05	42%	Pass
85	1.127	9	2.35E-05	5	1.31E-05	56%	Pass
86	1.139	7	1.83E-05	5	1.31E-05	71%	Pass
87	1.152	7	1.83E-05	5	1.31E-05	71%	Pass
88	1.164	7	1.83E-05	5	1.31E-05	71%	Pass
89	1.176	7	1.83E-05	5	1.31E-05	71%	Pass
90	1.188	7	1.83E-05	5	1.31E-05	71%	Pass
91	1.200	7	1.83E-05	5	1.31E-05	71%	Pass
92	1.213	7	1.83E-05	5	1.31E-05	71%	Pass
93	1.225	7	1.83E-05	5	1.31E-05	71%	Pass
94	1.237	7	1.83E-05	5	1.31E-05	71%	Pass
95	1.249	7	1.83E-05	5	1.31E-05	71%	Pass
96	1.262	7	1.83E-05	5	1.31E-05	71%	Pass
97	1.274	6	1.57E-05	5	1.31E-05	83%	Pass
98	1.286	6	1.57E-05	5	1.31E-05	83%	Pass
99	1.298	5	1.31E-05	3	7.84E-06	60%	Pass
100	1.310	5	1.31E-05	1	2.61E-06	20%	Pass


Flow Duration Curve
[Pre vs. Post (Mitigated)]
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
Flow (cfs)
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
% Time Exceeding
Pre-project Q
Post-project (Mitigated) Q

Summary for Pond 6P: Tank-1 Upper

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	8,482 cf	**Tank-1 Upper (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
100.00	1,600	0.0	0	0	1,600
101.00	1,600	95.0	1,520	1,520	1,742
102.00	1,600	95.0	1,520	3,040	1,884
103.00	1,600	95.0	1,520	4,560	2,025
104.00	1,600	95.0	1,520	6,080	2,167
105.00	1,600	95.0	1,520	7,600	2,309
105.08	1,600	95.0	122	7,722	2,320
105.58	1,600	95.0	760	8,482	2,391

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**12.00" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 100.00' / 99.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	100.00'	**0.90" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	105.08'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 6.00 6.00 0.00

Stage-Discharge for Pond 6P: Tank-1 Upper

Elevation (feet)	Primary (cfs)
100.00	0.00
100.20	0.01
100.40	0.01
100.60	0.02
100.80	0.02
101.00	0.02
101.20	0.02
101.40	0.02
101.60	0.03
101.80	0.03
102.00	0.03
102.20	0.03
102.40	0.03
102.60	0.03
102.80	0.04
103.00	0.04
103.20	0.04
103.40	0.04
103.60	0.04
103.80	0.04
104.00	0.04
104.20	0.04
104.40	0.04
104.60	0.05
104.80	0.05
105.00	0.05
105.20	0.87
105.40	**3.61**
105.58	**7.00**

Summary for Pond 8P: Tank-2 Lower

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	7,062 cf	**Tank-2 Lower (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
100.00	2,100	0.0	0	0	2,100
101.00	2,100	95.0	1,995	1,995	2,262
102.00	2,100	95.0	1,995	3,990	2,425
103.00	2,100	95.0	1,995	5,985	2,587
103.04	2,100	95.0	80	6,065	2,594
103.54	2,100	95.0	998	7,062	2,675

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**12.00" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 100.00' / 99.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	100.00'	**0.90" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	103.04'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 7.00 7.00 0.00

Stage-Discharge for Pond 8P: Tank-2 Lower

Elevation (feet)	Primary (cfs)
100.00	0.00
100.10	0.01
100.20	0.01
100.30	0.01
100.40	0.01
100.50	0.01
100.60	0.02
100.70	0.02
100.80	0.02
100.90	0.02
101.00	0.02
101.10	0.02
101.20	0.02
101.30	0.02
101.40	0.02
101.50	0.03
101.60	0.03
101.70	0.03
101.80	0.03
101.90	0.03
102.00	0.03
102.10	0.03
102.20	0.03
102.30	0.03
102.40	0.03
102.50	0.03
102.60	0.03
102.70	0.03
102.80	0.04
102.90	0.04
103.00	0.04
103.10	0.37
103.20	1.51
103.30	3.08
103.40	4.99
103.50	**5.66**
103.54	**5.69**

Vault Drawdown Calculation

Project Name	South Santa Fe	Tank-1	
Project No	3527	Date	3/2/2022
Vault Drawdown	**92.2**	**hrs**	

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter:	**0.9**	in
C:	**0.6**	

Surface Depth (ft)	Volume (cf)	$Q_{orifice}$ (cfs)	ΔT (hr)	Total Time (hr)
5.08	7722	0.048	0.000	0.0
4	6080	0.042	10.181	10.2
3	4560	0.036	10.773	21.0
2	3040	0.029	12.844	33.8
1	1520	0.020	16.960	50.8
0	0	0.000	41.484	92.2

Vault Drawdown Calculation

Project Name	South Santa Fe	Tank-2	
Project No	3527	Date	3/2/2022

Vault Drawdown	**94.2**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter:	**0.9**	in
C:	**0.6**	

Surface Depth (ft)	Volume (cf)	$Q_{orifice}$ (cfs)	ΔT (hr)	Total Time (hr)
3.04	6065	0.037	0.000	0.0
2	3990	0.029	17.468	17.5
1	1995	0.020	22.260	39.7
0	0	0.000	54.448	94.2

TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES

Manning's *n* Values for Overland Flow[1]

The BMP Design Manuals within the County of San Diego allow for a land surface description other than short prairie grass to be used for hydromodification BMP design only if documentation provided is consistent with Table A.6 of the SWMM 5 User's Manual.

In January 2016, the EPA released the SWMM Reference Manual Volume I – Hydrology (SWMM Hydrology Reference Manual). The SWMM Hydrology Reference Manual complements the SWMM 5 User's Manual by providing an in-depth description of the program's hydrologic components. Table 3-5 of the SWMM Hydrology Reference Manual expounds upon Table A.6 of the SWMM 5 User's Manual by providing Manning's *n* values for additional overland flow surfaces. Therefore, in order to provide SWMM users with a wider range of land surfaces suitable for local application and to provide Copermittees with confidence in the design parameters, we recommend using the values published by Yen and Chow in Table 3-5 of the EPA SWMM Reference Manual Volume I – Hydrology. The values are provided in the table below:

Overland Surface	**Manning value (*n*)**
Smooth asphalt pavement	0.010
Smooth impervious surface	0.011
Tar and sand pavement	0.012
Concrete pavement	0.014
Rough impervious surface	0.015
Smooth bare packed soil	0.017
Moderate bare packed soil	0.025
Rough bare packed soil	0.032
Gravel soil	0.025
Mowed poor grass	0.030
Average grass, closely clipped sod	0.040
Pasture	0.040
Timberland	0.060
Dense grass	0.060
Shrubs and bushes	0.080
Land Use	
Business	0.014
Semibusiness	0.022
Industrial	0.020
Dense residential	0.025
Suburban residential	0.030
Parks and lawns	0.040

[1]Content summarized from *Improving Accuracy in Continuous Simulation Modeling: Guidance for Selecting Pervious Overland Flow Manning's n Values in the San Diego Region* (TRWE, 2016).

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Diego County Area, California

July 27, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

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.

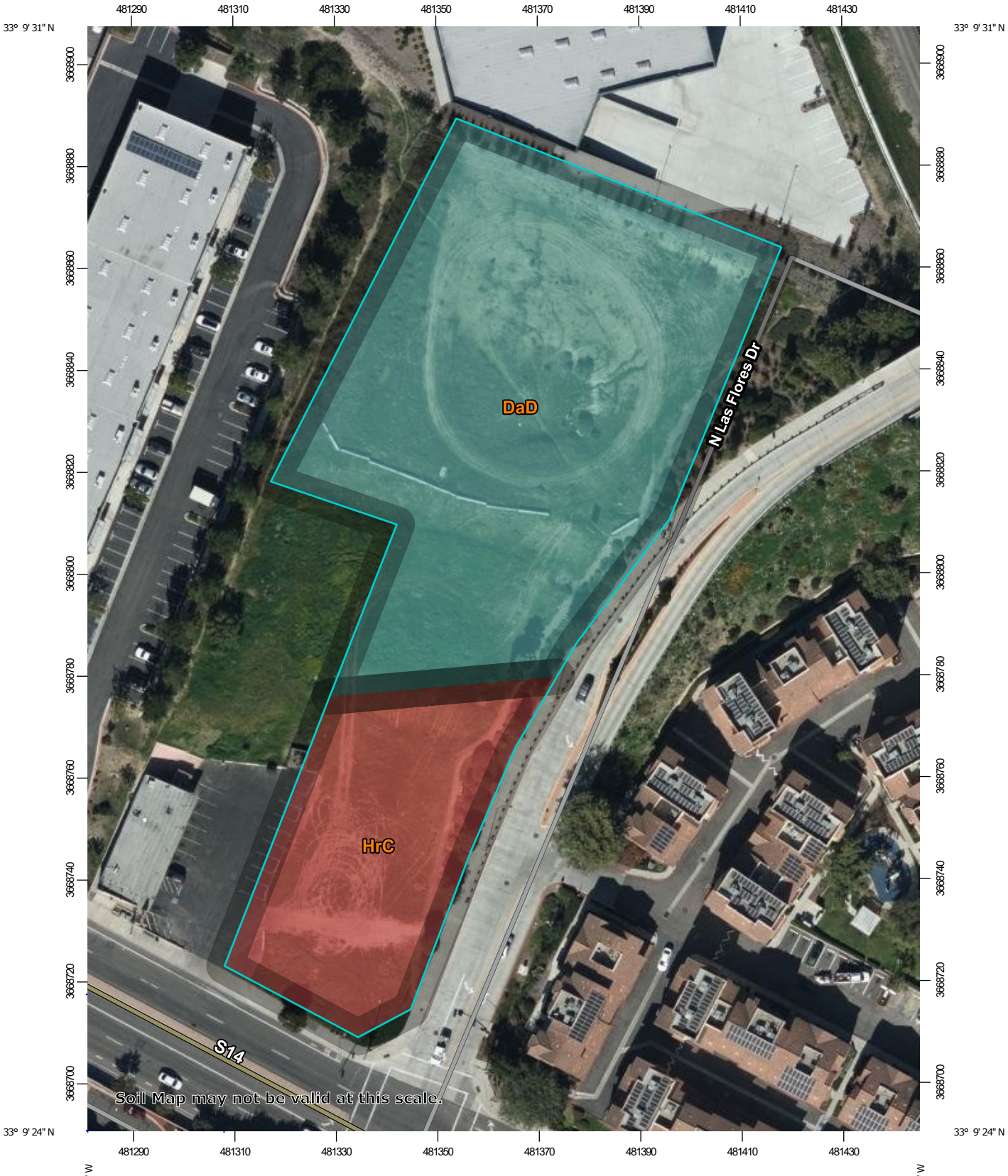
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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.

Map—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)



Map Scale: 1:1,060 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

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 15, May 27, 2020

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

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

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.

Table—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DaD	Diablo clay, 9 to 15 percent slopes, warm MAAT	C	1.7	72.6%
HrC	Huerhuero loam, 2 to 9 percent slopes	D	0.6	27.4%
Totals for Area of Interest			**2.3**	**100.0%**

Rating Options—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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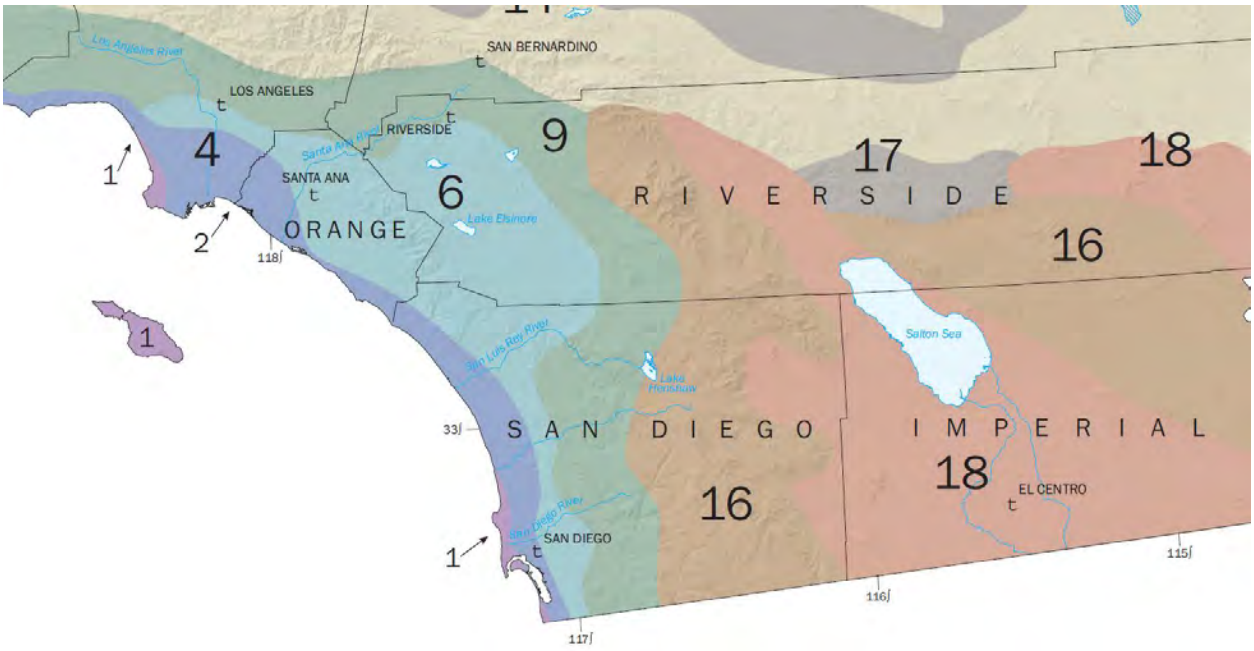


Figure G.1-2: California Irrigation Management Information System "Reference Evapotranspiration Zones"

Table G.1-1: Monthly Average Reference Evapotranspiration by ETo Zone (inches/month and inches/day) for use in SWMM Models for Hydromodification Management Studies in San Diego County CIMIS Zones 1, 4, 6, 9, and 16 (See CIMIS ETo Zone Map)

	January	February	March	April	May	June	July	August	September	October	November	December
Zone	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month
1	0.93	1.4	2.48	3.3	4.03	4.5	4.65	4.03	3.3	2.48	1.2	0.62
4	1.86	2.24	3.41	4.5	5.27	5.7	5.89	5.58	4.5	3.41	2.4	1.86
6	1.86	2.24	3.41	4.8	5.58	6.3	6.51	6.2	4.8	3.72	2.4	1.86
9	2.17	2.8	4.03	5.1	5.89	6.6	7.44	6.82	5.7	4.03	2.7	1.86
16	1.55	2.52	4.03	5.7	7.75	8.7	9.3	8.37	6.3	4.34	2.4	1.55
	January	February	March	April	May	June	July	August	September	October	November	December
Days	31	28	31	30	31	30	31	31	30	31	30	31
Zone	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day
1	0.030	0.050	0.080	0.110	0.130	0.150	0.150	0.130	0.110	0.080	0.040	0.020
4	0.060	0.080	0.110	0.150	0.170	0.190	0.190	0.180	0.150	0.110	0.080	0.060
6	0.060	0.080	0.110	0.160	0.180	0.210	0.210	0.200	0.160	0.120	0.080	0.060
9	0.070	0.100	0.130	0.170	0.190	0.220	0.240	0.220	0.190	0.130	0.090	0.060
16	0.050	0.090	0.130	0.190	0.250	0.290	0.300	0.270	0.210	0.140	0.080	0.050

ATTACHMENT 3 STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☑ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	☐ Included ☐ Not Applicable

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

☑ **Preliminary Design / Planning / CEQA level submittal:**

Attachment 3a must identify:

- ☐ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

☐ **Final Design level submittal:**

Attachment 3a must identify:

- ☐ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
- ☐ 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

Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the [City Engineer] to obtain the current maintenance agreement forms).

R-TANK MAINTENANCE

Designing an underground stormwater detention system with future maintenance in mind is a simple process that includes three primary objectives: **PREVENT** debris from entering the system by using good pre-treatment systems, **ISOLATE** debris and sediments that manage to enter the system, and **PROTECT** the body of the system by providing backflush mechanisms to ensure longevity.

1. PREVENT

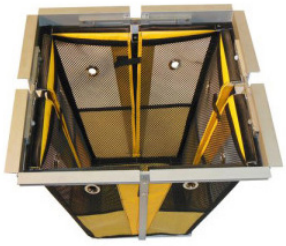
Keeping debris and sediment out of the system by pre-treating runoff is one of the smartest things an engineer can do when designing underground detention systems. It makes no sense to allow trash and sediments to flow unrestricted into an underground system where removal will be expensive. Instead, capture pollutants simply and inexpensively in the inlets, where removal is easy. There are several ways this can be accomplished with minimal cost impacts to your project.

Trash Guard Plus®

Trash Guard Plus®

Trash Guard Plus is a patented stormwater pretreatment device that traps debris, sediment and floatables in the inlet. It helps extend maintenance cycles by using the full volume of the inlet structure for sediment capacity. And it is easy to maintain by accessing pollutants through the manhole lid.

Trash Guard Plus works by both screening debris out of the runoff and by slowing the flow of runoff, causing sediments to fall to the bottom of the inlet. Testing at NC State has shown the Trash Guard to be effective at removing trash, sediment, nutrients, and metals.



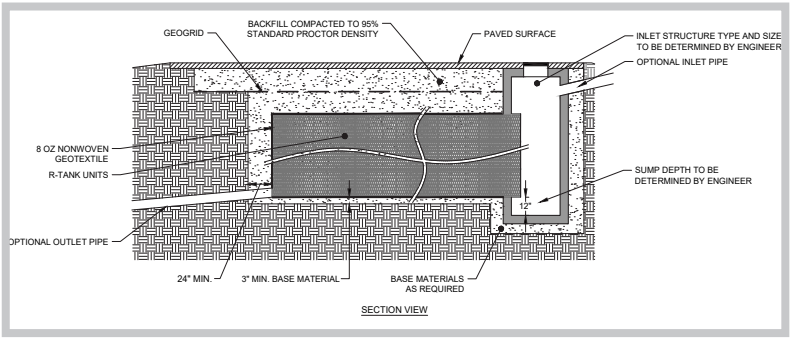
Gratemaster

Gratemaster

To treat a single inlet that serves as a junction for a larger drainage area, consider an insert like the Gratemaster. Ideal for capturing sediment and trash, it makes clean-up a snap by holding all the pollutants right near the surface for easy extraction.

R-Tank Screening

For a more centralized approach, some engineers prefer to create an opening in the inlet structures to allow the R-Tank modules to penetrate the structure to act as a trash screen. This works best with a structure that includes a sump (see drawing below).



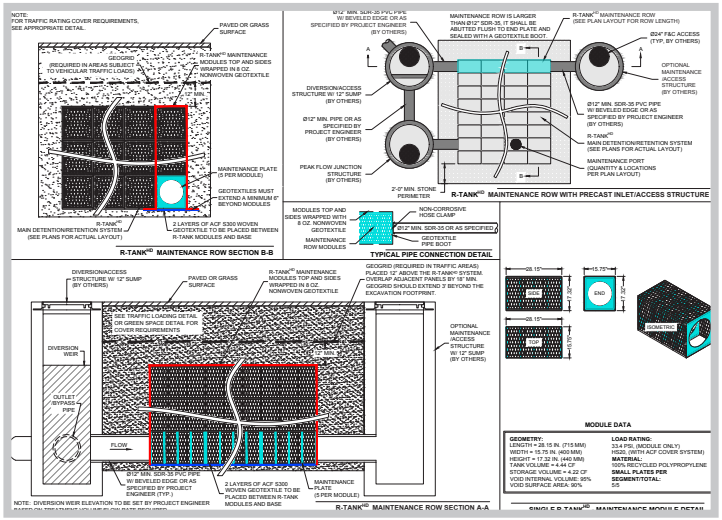
R-TANK MAINTENANCE

2. ISOLATE

Some pollutants may elude the pre-treatment systems. Trap these materials inside the maintenance row (see drawing to right). Consolidating sediments in a single location makes them easy to remove. Maintenance rows are formed by using maintenance modules, which have open internal components that are fully accessible by conventional jet-vac systems. These modules are set in a row (or multiple rows) to your desired length. Longer maintenance rows should include an access structure on both ends. Extremely long rows may require access from the middle of the row, as well.

The maintenance row is always wrapped in geotextile independently from the rest of the system. The geotextile retains trash, sediments, and other solids, preventing contamination of the rest of the system.

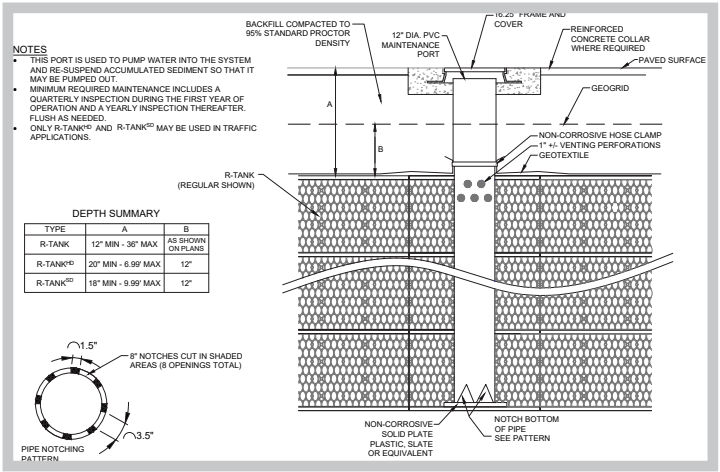
The maintenance row should be sized to treat the first flush (usually 1”) of runoff. Use a bypass structure to divert that flow into the maintenance row, and allow larger flows to continue to a downstream inlet where they can enter the R-Tank outside of the maintenance row.



The maintenance row is only available in LD, HD, and UD modules. For SD and XD modules, consider creating a forebay around the inlet locations to collect sediment. This is done by using a taller module installed at a lower invert. Geotextile baffles between the forebay and the rest of the system can help retain sediments. Concentrate Maintenance Ports (see PROTECT below) in the forebay to ensure access to sediment for removal.

3. PROTECT

Every good system has a fall-back plan. You can ensure a long system life by including maintenance ports throughout the system footprint to remove any pollutants that evade the pretreatment system and maintenance row. Maintenance ports should be specified within 10’ of inlet and outlet connections, and roughly 50’ on center (see maintenance port detail to right).



ENVIRONMENTAL
LET’S GET IT DONE
800.448.3636
acfenvironmental.com

StormGarden
HIGH RATE BIOFILTER

Maintenance Procedures

Maintaining the StormGarden system is necessary to continue the effective pollutant removal from stormwater runoff prior to discharge into the stormdarin system. Ongoing maintenance will also extend the life of the filter media and the StormGarden system. As the StormGarden filters stormwater runoff, pollutants accumulate within the filter media and floating debris such as silt, trash and leaves accumulate on top of the media underneath the concrete slab. When an excessive amount of silt and trash build up on top of the media, the flow-through rate of the media is reduced, thus decreasing the capacity of the system. Regular replacement of the top mulch layer helps stop the accumulation of such sediment and debris and maintaining the overall performance of the system.

The manufacturer or manufacturer's representative includes a 1-year maintenance plan with each StormGarden purchase. The included maintenance plan consists of a maximum of 2 scheduled visits. If additional visits are required due to excessive sediment and trash loading, they can be performed by the manufacturer/representative for an additional charge. The start of the maintenance plan begins when the system is activated for full operation. Full operation is defined as the unit installed, curb and gutter and transitions in place, and the unit activated by installation contractor, which includes the mulch and plant installed and the temporary throat protection removed.

Activation cannot occur until the site is fully stabilized, which means full landscaping, grass cover, final paving and sweeping is complete. Maintenance visits are scheduled seasonally. The spring visit cleans up after winter loads which include salts and sands, and the fall visit is to remove excessive leaves and debris.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the StormGarden system. Cleanup due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the 1-year maintenance plan provided by manufacturer/representative. Should a major contamination event occur, the owner must block off the outlet pipe to the StormGarden unit (where the cleaned runoff drains to from the StormGarden, such as the bypass inlet) and block off the throat of the StormGarden. All appropriate regulatory parties as well as the manufacturer/representative should be informed immediately.

Each maintenance visit consists of the following tasks:

- Visual inspection of StormGarden unit and surrounding area
- Removal of tree grate and erosion control stones
- Removal of sediment, trash, debris and mulch
- Mulch replacement
- Clean and replace erosion control stones
- Evaluation of plant and pruning or replacement if necessary
- Clean area around StormGarden unit
- Maintenance report

StormGarden Maintenance Checklist

System Component	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet/Forebay Area	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into StormGarden.	Inlet should be free of obstructions allowing free distributed flow of water into StormGarden.	Sediment and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debrison mulch cover.	Trash and debris should be removed, and mulch cover rakedlevel.
Mulch/Media	"Ponding" of water	"Ponding" could indicate clogging due to excessive fine sediment loading or spill of petroleum oils.	Stormwater should drain freely and evenly through system	Replace mulch and/or media as necessary.
Underdrain	Not draining/ponding of water above	"Ponding" could indicate the drain rock or perforated piping is clogged.	Stormwater should drain freely and evenly through system	Flush the underdrain piping using the cleanout provided. Worse case scenario is you replace all internal components if terminally failed.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence ofspill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Replant with plants suitable to for system. Contact qualified landscape professional or arborist.
Vegetation	Plant growth excessive.	Plants should be appropriate to the region/climate of the site.	Plants should not be overgrown or be excessive for the system.	Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch		Vault should be repaired.

Maintenance frequency will depend on site specific characteristics and will generally need to occur 1-2 times per year

StormGarden Inspection & Maintenance Log

StormGarden System Size/Model:_____Location: _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments

StormGarden Activation Checklist

Project Name:____________________________________ Company:____

Site Contact Name:____________________________________ Site Contact Phone/Email: ____________________________

Site Owner/End User Name:_________________________ Site Owner/End User Phone/Email: ____________________________

Site Designation	System Size	Final Pavement /Top Coat Complete	Landscaping Complete/ Soil Stabilized	Construction materials / Piles / Debris Removed	Throat Opening Measures According to Plan	Plant Species Requested
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	

ATTACHMENT 4 COPY OF PLAN SHEETS WITH PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

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. Photocopies of general brochures are not acceptable.

GPA21-0008 | MFSDP21-0002 | R21-0004

PRELIMINARY GRADING FOR SAN MARCOS RESIDENCES

2972 & 2982 S. SANTA FE AVENUE

LEGEND

- PROPERTY BOUNDARY
- CENTERLINE OF ROAD
- ADJACENT PROPERTY LINE / RIGHT-OF-WAY
- EXISTING CONTOUR LINE — 64
- EXISTING SPOT ELEVATION — (XXX.XX) FG
- PROPOSED SPOT ELEVATION — XXX.XX FS
- PROPOSED CURB & GUTTER
- PROPOSED RIBBON GUTTER
- PROPOSED RETAINING WALL
- PROPOSED GRADING DAYLIGHT
- PROPOSED STORM DRAIN — SD
- PROPOSED DOMESTIC WATER — W
- PROPOSED FIRE WATER — F
- PROPOSED SEWER — S
- PROPOSED UNDERGROUND STORM DRAIN DETENTION SYSTEM
- PROPOSED FIRE HYDRANT
- PROPOSED RIP RAP
- EXISTING WATER MAIN — W
- EXISTING SEWER MAIN — S
- EXISTING STORM DRAIN — SD
- EXISTING GAS MAIN — G
- EXISTING TELECOM CONDUIT — T

AERIAL TOPOGRAPHY

AERIAL TOPOGRAPHY SUPPLIED BY: HOOPER LAND COMPANY
1642 MOON ROCK ROAD
FALLBROOK, CA 92028
760-723-2891
SURVEY COMPLETED: JUNE 2020

ASSESSOR'S PARCEL NUMBER

217-161-18-00, 217-161-19-00

RAW EARTHWORK QUANTITIES

CUT:	17,500 CY
FILL:	250 CY
NET(EXPORT):	17,250 CY

THE ABOVE RAW EARTHWORK QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR SHALL NOT RELY UPON QUANTITIES FOR BID PURPOSES. CONTRACTOR TO VERIFY EARTHWORK QUANTITIES TO THEIR SATISFACTION PRIOR TO START OF WORK.

NOTE: QUANTITIES DO NOT INCLUDE ANY EARTHWORK FOR REMEDIAL PURPOSES. EARTHWORK ESTIMATES ARE BASED ON IN PLACE VOLUMES AN DO NOT ACCOUNT FOR ANY SHRINKAGE OR SWELL OF THE SOIL THAT MAY OCCUR DURING GRADING.

PROPOSED EASEMENT INFORMATION

1 PROPOSED LANDSCAPE MAINTENANCE EASEMENT FOR OPEN SPACE SLOPE TO THE CITY OF SAN MARCOS.

EXISTING EASEMENT INFORMATION

2 EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR PUBLIC HIGHWAY PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135, OFFICIAL RECORDS. NOT PLOTTABLE.

3 EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINE AND OTHER DISTRICT WORKS, RECORDED OCTOBER 24, 1925, IN BOOK 1136, PAGE 238, OFFICIAL RECORDS. NOT PLOTTABLE.

4 EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 19, 1973 AS DOC. NO. 73-167727, OFFICIAL RECORDS TO BE QUITCLAIMED.

5 EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED OCTOBER 25, 1979 AS DOC. NO. 79-448104, OFFICIAL RECORDS TO BE QUITCLAIMED. VACATION OF COUNTY HIGHWAY.

6 EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275 TO BE QUITCLAIMED. VACATION OF COUNTY HIGHWAY.

7 EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR PUBLIC STREET AND UTILITY PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887133.

8 EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR OPEN SPACE SLOPE LANDSCAPE MAINTENANCE AND ACCESS PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887134, OFFICIAL RECORDS.

9 EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR UTILITY PURPOSES, RECORDED NOVEMBER 17, 2005 AS DOC. NO. 2005-0996226, OFFICIAL RECORDS.

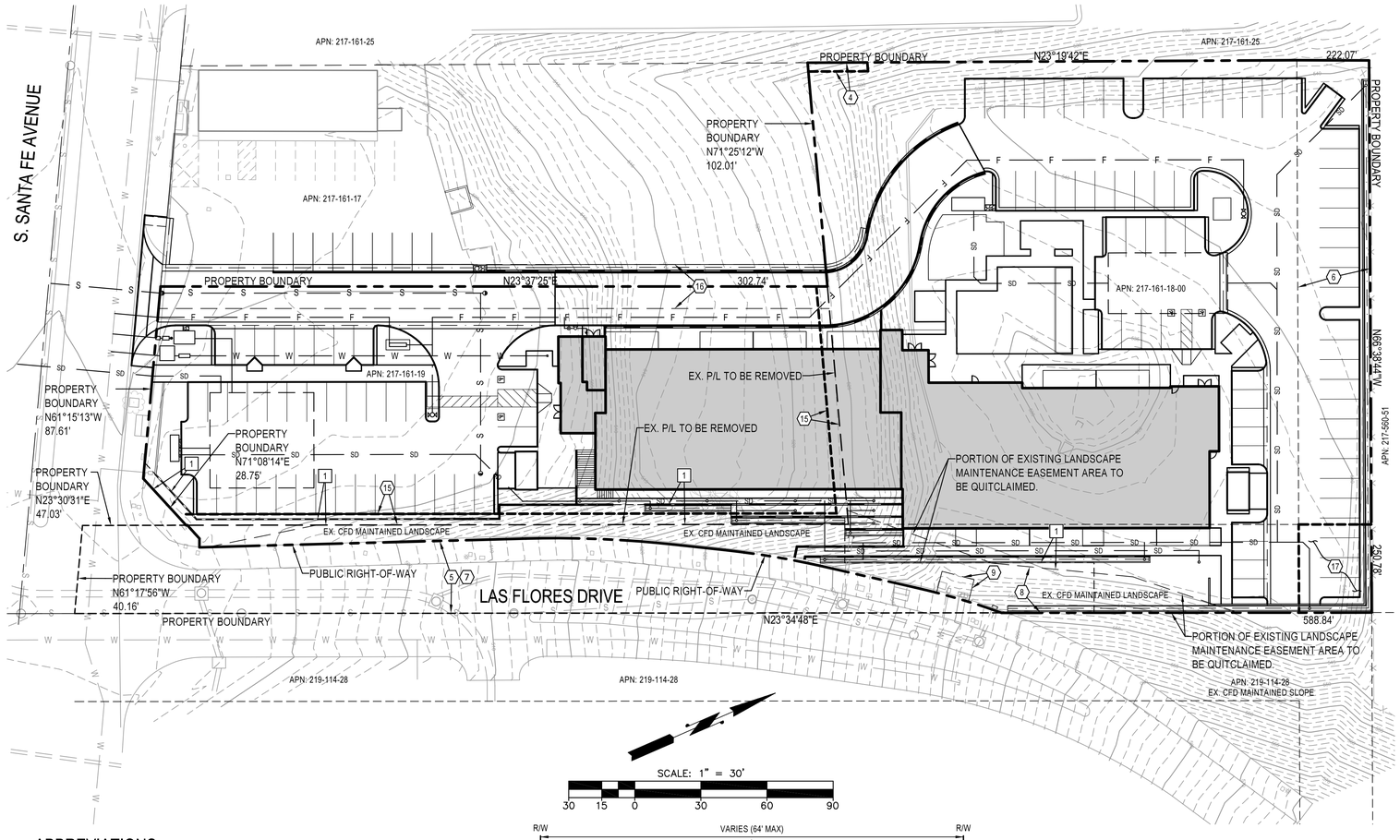
13 EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR PUBLIC STREET PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135 OF DEEDS. NOT PLOTTABLE.

14 EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINES, INGRESS AND EGRESS, AND ALL NECESSARY APPURTENANCES, RECORDED OCTOBER 24, 1925 IN BOOK 1136, PAGE 238 OF DEEDS. NOT PLOTTABLE.

15 EASEMENT GRANTED TO BARENY COLEMAN AND JEAN S. COLEMAN FOR PUBLIC UTILITIES, INGRESS AND EGRESS RECORDED OCTOBER 27, 1959 IN BOOK 7959, PAGE 126, OFFICIAL RECORDS TO BE QUITCLAIMED.

16 EASEMENT GRANTED TO FAIRMONT FOODS COMPANY FOR ROAD AND UTILITY PURPOSES, RECORDED JULY 5, 1973 AS DOC. NO. 73-184604, OFFICIAL RECORDS.

17 EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275, OFFICIAL RECORDS TO BE QUITCLAIMED. VACATION OF COUNTY HIGHWAY.

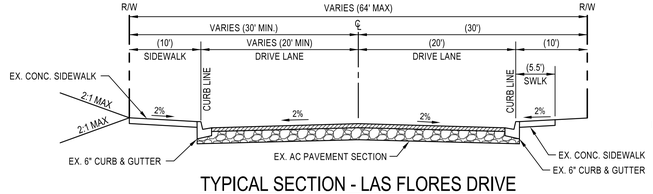


SCALE: 1" = 30'

30 15 0 30 60 90

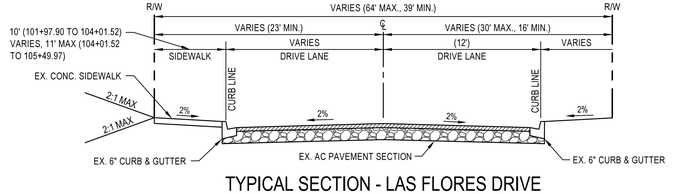
ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICAN WITH DISABILITIES ACT
BFD	BACKFLOW DEVICE
BLDG	BUILDING
BS	BOTTOM OF STAIRS
BW	BOTTOM OF WALL
CB	CATCH BASIN
CF	CURB FACE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COMM	COMMUNICATIONS
CONC	CONCRETE
DS	DOWNSPOUT
EG	EDGE OF GUTTER
ELEC	ELECTRICAL
EX	EXISTING
FF	FINISH FLOOR
FG	FINISHED GRADE
FL	FLOW LINE
FM	FORCE MAIN
FS	FINISHED SURFACE
GA	GUY ANCHOR
GB	GRADE BREAK
GFF	GARAGE FINISH FLOOR
GP	GUY POLE
GV	GAS VALVE
HP	HIGH POINT
HT	HEIGHT
INV	INVERT ELEVATION
MH	MANHOLE
MIN	MINIMUM
PA	PLANTER AREA
PBOX	PULL BOX
P/L	PROPERTY LINE
POC	POINT OF CONNECTION
POT	PATH OF TRAVEL
PP	POWER POLE
PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
R/W	RIGHT-OF-WAY
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SDCO	STORM DRAIN CLEANOUT
SDMH	STORM DRAIN MANHOLE
SL	STREET LIGHT
SMH	SEWER MANHOLE
TC	TOP OF CURB
TD	TOP OF DECK
TG	TOP OF GRATE
TS	TOP OF STAIRS
TW	TOP OF WALL
TYP	TYPICAL
WAR	WATER AIR RELEASE
WM	WATER METER
WV	WATER VALVE



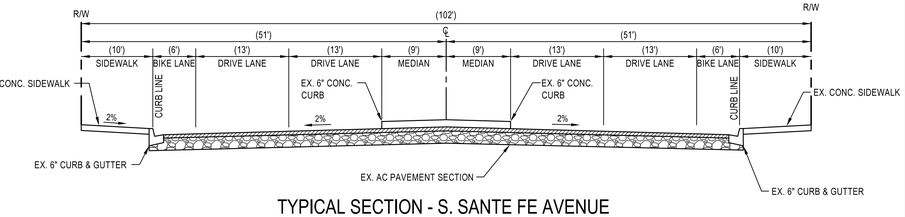
TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
UP TO STA. 101+97.90 (PER IP-4629)



TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
STA. 101+97.90 TO STA. 105+49.97 (PER IP-4629)



TYPICAL SECTION - S. SANTE FE AVENUE

SCALE: NTS

OWNER

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THESE PLANS AND THAT SAID PLANS SHOW OUR ENTIRE CONTIGUOUS OWNERSHIP (EXCLUDING SUBDIVISION LOTS). WE UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS OR RAILROADS RIGHTS-OF-WAY.

OWNER

SANTA FE FLORES LP
CONTACT: PAUL MAYER
P.O. BOX 903
RANCHO SANTA FE, CA 92067

ENGINEER OF WORK

WILLIAM J. SUITER RCE 68964

REGISTERED PROFESSIONAL ENGINEER — WILLIAM J. SUITER — No. RCE 68964 — EXP. 12-31-23 — Civil — STATE OF CALIFORNIA

LEGAL DESCRIPTION

PORTION OF LOT 4 IN BLOCK 95 OF RANCHO LOS VALLECITOS DE SAN MARCOS, IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP NO. 806, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, DECEMBER 21, 1895.

GENERAL NOTES:

1. APN: 217-161-18-00, 217-161-19-00
2. GROSS ACREAGE: 2.50 AC
3. GROSS ACREAGE WITHOUT LAS FLORES ROW: 2.23 AC
4. NET ACREAGE : 2.23 AC
5. NUMBER OF DWELLING UNITS: 50
6. EXISTING ZONING: COMMERCIAL (C) AND LIGHT INDUSTRIAL (LI)
   PROPOSED ZONING: RESIDENTIAL-3-10 (R-3-10)
7. EXISTING GENERAL PLAN: COMMERCIAL (C) AND LIGHT INDUSTRIAL (LI)
   PROPOSED GENERAL PLAN: MEDIUM HIGH DENSITY RESIDENTIAL (MHDR)
8. FINISH GRADES SHOWN HEREON ARE APPROXIMATE AND ARE SUBJECT TO CHANGE IN FINAL DESIGN.
9. PROPOSED DENSITY: 22.42 DU/AC
10. CUT AND FILL SLOPES NO STEEPER THAN 2:1
11. PUBLIC SERVICES AND DISTRICTS:
    - GAS & ELECTRIC: SAN DIEGO GAS AND ELECTRIC
    - TELEPHONE: AT&T
    - WATER: VISTA IRRIGATION DISTRICT
    - SEWER: BUENA SANITATION DISTRICT/ CITY OF VISTA
    - FIRE DISTRICT: CITY OF SAN MARCOS
    - SCHOOL DISTRICT: SAN MARCOS UNIFIED SCHOOL DISTRICT
12. PROPOSED SETBACKS: FRONT YARD = MINIMUM 15'
    SIDE YARD = MINIMUM 15'
    REAR YARD= MINIMUM 10'
13. SEE STORM WATER QUALITY MANAGMENT PLAN PREPARED BY: PASCO LARET SUITER & ASSOCIATES (DATED: APRIL 2022)
14. SEE PRELIMINARY DRAINAGE STUDY PREPARED BY: PASCO LARET SUITER & ASSOCIATES (DATED: APRIL 2022)
15. SEE PRELIMINARY GEOTECHNICAL EVALUATION PREPARED BY: GHOSTRIDER , INC. DATED: JULY 1, 2020 W.O. (PROJECT NO. 19-2118C)

PROJECT DESCRIPTION

A GENERAL PLAN AMENDMENT, REZONE AND LOT CONSOLIDATION PROPOSING A 50-UNIT MULTIFAMILY DEVELOPMENT WITH PARKING LOTS, ACCESS DRIVE, OUTDOOR GARDEN AREA, MISCELLANEOUS HARDSCAPE AND LANDSCAPING.

PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 949.661.6695 | www.plsaengineering.com

SAN MARCOS RESIDENCES

TITLE SHEET

PLSA JOB NO.3527
4-28-2022
SHEET 1 OF 3

SAVE DATE: 04/26/22 ~ PLOT DATE: 04/28/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 WATER-SOUTH SANTA FE AVE\CIVIL\DRAWING\DISCRETIONARY PLANS\3527-PRLM-GRAD-01-TITL.dwg

EXISTING COMMERCIAL BUILDING

S. SANTA FE AVENUE

LAS FLORES DRIVE

PROPERTY BOUNDARY

APN: 217-161-25

APN: 217-161-17

APN: 217-560-51

APN: 219-114-28

LOWER LEVEL BUILDING
LOWER 3RD FLOOR FF=533.00
LOWER 2ND FLOOR FF=523.00
LOWER 1ST FLOOR FF=513.00
LOWER 1ST FLOOR PAD=512.33

UPPER LEVEL BUILDING
UPPER 3RD FLOOR FF=553.00
UPPER 2ND FLOOR FF=543.00
UPPER 1ST FLOOR FF=533.00
UPPER 1ST FLOOR PAD=532.33

PRKG LEVEL
FF=500.00
P=499.33

SCALE: 1" = 20'

20 10 0 20 40 60

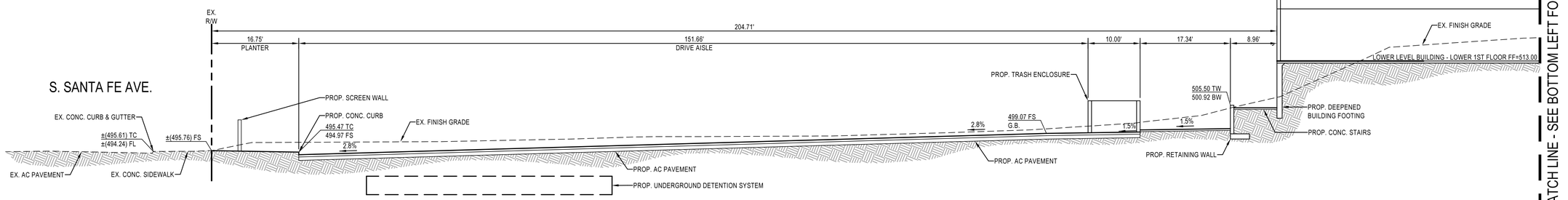
PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 949.661.6695 | www.plsaengineering.com

SAN MARCOS RESIDENCES

PRELIMINARY GRADING PLAN

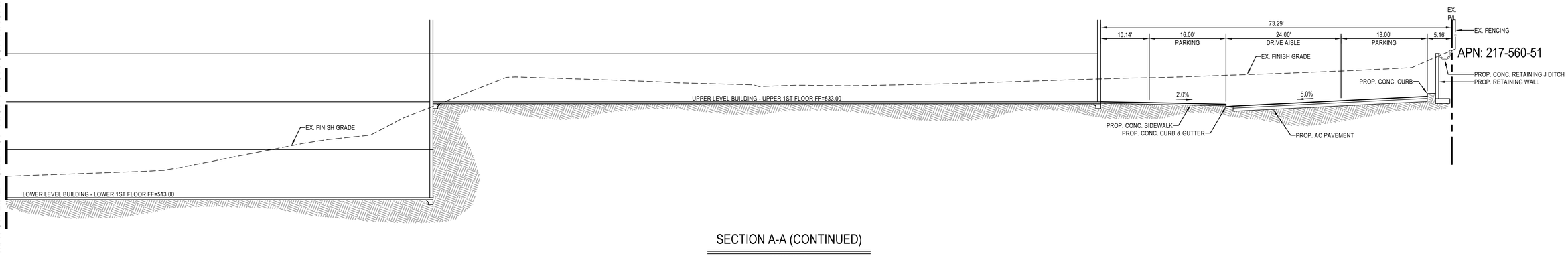
PLSA JOB NO.3527
4-28-2022
SHEET 2 OF 3

SAVE DATE: 04/26/22 ~ PLOT DATE: 04/26/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\DRAWING\DISCRETIONARY PLANS\3527-PRLM-GRAD-02-03.dwg



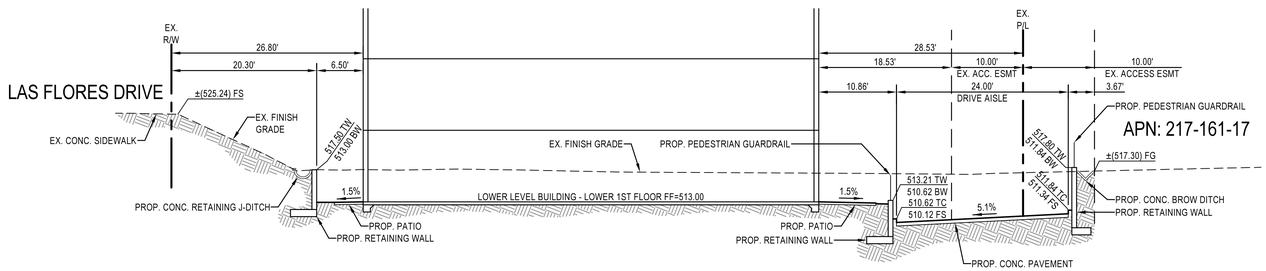
SECTION A-A

SCALE: 1"=10'



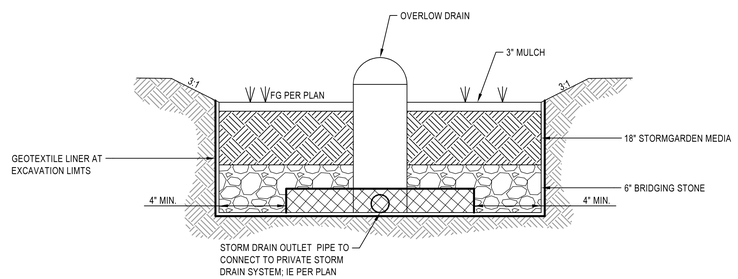
SECTION A-A (CONTINUED)

SCALE: 1"=10'



SECTION B-B

SCALE: 1"=10'



TYPICAL SECTION - STORMGARDEN BIOFILTRATION SYSTEM

SCALE: NOT TO SCALE

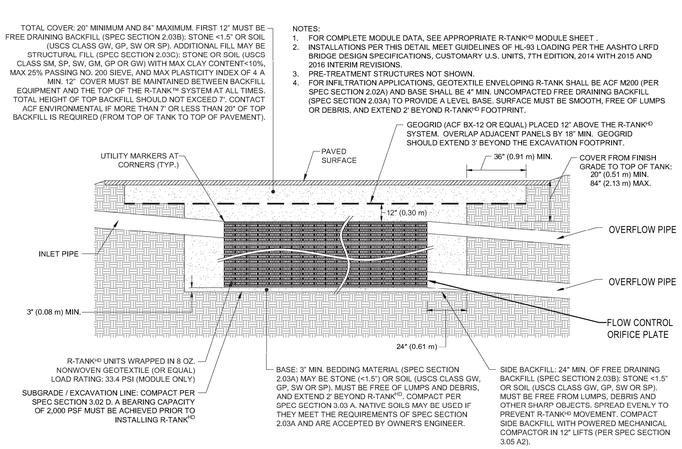
StormGarden Biofilttration System
San Marcos Residences
3/1/2022

DMA	BMP type	DMA AREA (SF)	Total DMA AREA (acres)	REQ flow for dma (cfs)	StormGarden Filter Bed Size (SF)	StormGarden System Flow Rate (cfs)
1	StormGarden Boxless BioFiltration	43,998	1.01		70	0.226
2	StormGarden Boxless BioFiltration	22,743	0.52		41	0.132
3	StormGarden Boxless BioFiltration	23,845	0.55		34	0.110
Totals					***145***	

NOTES:
1. StormGarden loading rate at 145"/HR is 1.45 GPM/SF of Filter Bed.
2. The StormGarden width and length can be customized to any size and shape conceivable because it is a boxless system and indpendent of a concrete form.

STORMGARDEN BIOFILTRATION SYSTEM SIZING TABLE

SCALE: NOT TO SCALE



TYPICAL SECTION - R-TANK STORMWATER DETENTION SYSTEM

SCALE: NOT TO SCALE

SAN MARCOS RESIDENCES

SITE SECTIONS & DETAILS

PASCO LARET SUITER & ASSOCIATES
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PLSA JOB NO.3527
4-28-2022
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