

**City of Santee**

**PRIORITY DEVELOPMENT PROJECT (PDP)**

**STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)**

**FOR**

**PROSPECT ESTATES – PHASE 2**

**TM2016-03, DR2016-04**

**PROSPECT AVENUE, NORTH OF ANLEE DRIVE  
SANTEE, CA 92071**

**ASSESSOR'S PARCEL NUMBER(S):**

**383-112-32 & 55**

**ENGINEER OF WORK:**

*10/5/18*



**JOEL A. WAYMIRE, R.C.E. 56258, EXP. 12-31-2018**

**PREPARED FOR:**

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**PDP SWQMP PREPARED BY:**

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**DATE OF SWQMP:**

October 5, 2018

**PLANS PREPARED BY:**

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## **TABLE OF CONTENTS**

**Page No.**

Acronym Sheet	1
PDP SWQMP Preparer's Certification Page	2
PDP SWQMP Project Owner's Certification Page	3
Submittal Record	4
Project Vicinity Map	5
FORM I-1 Applicability of Permanent, Post-Construction Storm Water BMP Requirements	6
FORM I-2 Project Type Determination Checklist (Standard Project or PDP)	8
FORM I-3B Site Information Checklist for PDPs	10
FORM I-4 Source Control BMP Checklist for All Development Projects	23
FORM I-5 Site Design BMP Checklist for All Development Projects	26
FORM I-6 Summary of PDP Structural BMPs	28
Attachment 1: Backup for PDP Pollutant Control BMPs	
Attachment 1a: DMA Exhibit	
Attachment 1b: Tabular Summary of DMAs and Design Capture Volume Calculations	
Attachment 1c: Harvest and Use Feasibility Screening (when applicable)	
Attachment 1d: Categorization of Infiltration Feasibility Condition (when applicable)	
Attachment 1e: Pollutant Control BMP Design Worksheets / Calculations	
Attachment 2: Backup for PDP Hydromodification Control Measures	
Attachment 2a: Hydromodification Management Exhibit	
Attachment 2b: Management of Critical Coarse Sediment Yield Areas	
Attachment 2c: Geomorphic Assessment of Receiving Channels	
Attachment 2d: Flow Control Facility Design	
Attachment 3: Structural BMP Maintenance Plan	
Attachment 3a: B Structural BMP Maintenance Thresholds and Actions	
Attachment 3b: Draft Maintenance Agreement (when applicable)	
Attachment 4: Copy of Plan Sheets Showing Permanent Storm Water BMPs	



## 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

# SWQMP PREPARER'S CERTIFICATION PAGE

**Project Name: Prospect Estates Phase 2 Residential Subdivision**  
**Permit Application Number: TM2016-03, DR2016-04**

## 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 Santee BMP Design Manual, which is a design manual for compliance with local City of Santee 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 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.

 RCE 56258 12/31/18

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

Joel Waymire  
Print Name

Polaris Development Consultants, Inc.  
Company

10/5/18  
Date

Engineer's Seal:



PDP SWQMP Template Date: February 2016  
PDP SWQMP Preparation Date: October 5, 2018

# SWQMP PROJECT OWNER'S CERTIFICATION PAGE

Project Name: Prospect Estates Phase 2 Residential Subdivision  
Permit Application Number: TM2016-03, DR2016-04

## PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for M. Grant Real Estate, Inc. by Polaris Development Consultants, Inc. The PDP SWQMP is intended to comply with the PDP requirements of the City of Santee BMP Design Manual, which is a design manual for compliance with local City of Santee 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

Michael Grant  
Print Name

M. Grant Real Estate, Inc.  
Company

12/19/17  
Date

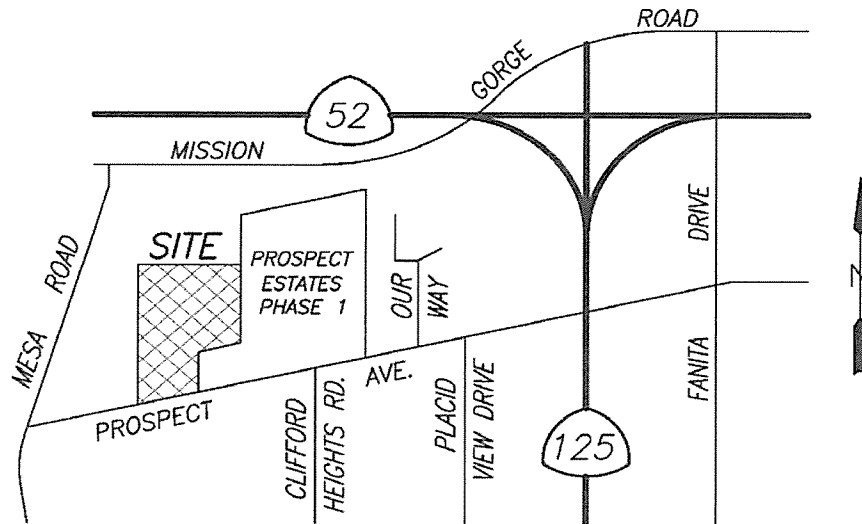
## SUBMITTAL RECORD

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	5/25/16	<input checked="" type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	Initial Submittal
2	9/15/16	<input checked="" type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	Revised BMP exhibit to show west side of Marrokal included
3	11/30/16	<input checked="" type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	Formatting revisions; text revisions; additional info for source control bmp's
4	6/7/17	<input checked="" type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	Added new area to project; revised calculations
5	7/27/17	<input checked="" type="checkbox"/> Preliminary Design	Revised units layouts
6	12/19/17	<input checked="" type="checkbox"/> Preliminary Design	Revise street and units
7	10/5/18	<input checked="" type="checkbox"/> Preliminary Design	Revise subdivision design

# PROJECT VICINITY MAP

Project Name: Prospect Estates Phase 2 Residential Subdivision  
Permit Application Number: TM2016-03, DR2016-04





<b>Applicability of Permanent, Post-Construction Storm Water BMP Requirements</b> (Storm Water Intake Form for all Development Permit Applications)		<b>Form I-1</b> Model BMP Design Manual [August 31, 2015]
<b>Project Identification</b>		
Project Name: <b>Prospect Estates Phase 2 Residential Subdivision</b>		
Permit Application Number: TM2016-03, DR2016-04		Date: 10-5-2018
Project Address: Prospect Avenue, north of Anlee Drive, Santee, CA 92071		
<b>Determination of Requirements</b>		
<p>The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short <u>summary</u> of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements.</p> <p>Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop". <b>Upon reaching a Stop, do not complete further Steps beyond the Stop.</b></p> <p>Refer to BMP Design Manual sections and/or separate forms referenced in each step below.</p>		
Step	Answer	Progression
<b>Step 1:</b> Is the project a "development project"? See Section 1.3 of the BMP Design Manual for guidance.	<input checked="" type="checkbox"/> Yes	Go to Step 2.
	<input type="checkbox"/> No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.
Discussion / justification if the project is <u>not</u> a "development project" (e.g., the project includes <i>only</i> interior remodels within an existing building):		
<b>Step 2:</b> Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, see Section 1.4 of the BMP Design Manual <i>in its entirety</i> for guidance, AND complete Form I-2, Project Type Determination.	<input type="checkbox"/> Standard Project	Stop. <u>Only</u> Standard Project requirements apply, including <u>Standard Project SWQMP</u> .
	<input checked="" type="checkbox"/> PDP	Standard and PDP requirements apply, including <u>PDP SWQMP</u> . Go to Step 3.
	<input type="checkbox"/> Exception to PDP definitions	Stop. <u>Standard Project</u> requirements apply, <u>and any additional requirements specific to the type of project</u> . Provide discussion and list any additional requirements below. Prepare <u>Standard Project SWQMP</u> .



**[Step 2 Continued from Page 1]** Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:

<b>Step 3 (PDPs only).</b> Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the BMP Design Manual for guidance.	<input type="checkbox"/> Yes	Consult the [City Engineer] to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	<input checked="" type="checkbox"/> No	BMP Design Manual PDP requirements apply. Go to Step 4.

Discussion / justification of prior lawful approval, and identify requirements (not required if prior lawful approval does not apply):

<b>Step 4 (PDPs only).</b> Do hydromodification control requirements apply? See Section 1.6 of the BMP Design Manual for guidance.	<input type="checkbox"/> Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to Step 5.
	<input checked="" type="checkbox"/> No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.

Discussion / justification if hydromodification control requirements do not apply:  
Exempt – empties into hardened system that empties into San Diego River.

<b>Step 5 (PDPs subject to hydromodification control requirements only).</b> 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.	<input type="checkbox"/> Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	<input type="checkbox"/> No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.



Priority Determination Form		Form I-2 Model BMP Design Manual [August 31, 2015]	
<b>Project Information</b>			
Project Name: <b>Prospect Estates Phase 2 Residential Subdivision</b>			
Permit Application Number: TM2016-03, DR2016-04		Date: 10-5-2018	
Project Address: Prospect Avenue, north of Anlee Drive, Santee, CA 92071			
<b>Project Type Determination: Standard Project or Priority Development Project (PDP)</b>			
The project is (select one): <input type="checkbox"/> New Development <input checked="" type="checkbox"/> Redevelopment			
The total proposed newly created or replaced impervious area is: <u>192,829</u> ft <sup>2</sup> ( <u>4.43</u> ) acres			
Is the project in any of the following categories, (a) through (f)?			
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(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: <ul style="list-style-type: none"> <li>(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).</li> <li>(ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater.</li> <li>(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.</li> <li>(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.</li> </ul>



Form I-2 Page 2, Form Template Date: August 31, 2015

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(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). <i>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.</i>
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(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. <i>Note: See BMP Design Manual Section 1.4.2 for additional guidance.</i>

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 not 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: 2,686 ft<sup>2</sup> (A)

The total proposed newly created or replaced impervious area is 192,829 ft<sup>2</sup> (B)

Percent impervious surface created or replaced (B/A)\*100: 7,179 %

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 Design Checklist  
For PDPs**

**Form I-3B (PDPs)  
Model BMP Design Manual  
[August 31, 2015]**

**Project Summary Information**

Project Name	<b>Prospect Estates Phase 2 Residential Subdivision</b>
Project Address	Prospect Avenue, north of Anlee Drive, Santee, CA 92071
Assessor's Parcel Number(s) (APN(s))	383-112-32 & 55
Permit Application Number	TM2016-01, DR2016-01
Project Hydrologic Unit	Select One: <input type="checkbox"/> Santa Margarita 902 <input type="checkbox"/> San Luis Rey 903 <input type="checkbox"/> Carlsbad 904 <input type="checkbox"/> San Dieguito 905 <input type="checkbox"/> Penasquitos 906 <input checked="" type="checkbox"/> San Diego 907 <input type="checkbox"/> Pueblo San Diego 908 <input type="checkbox"/> Sweetwater 909 <input type="checkbox"/> Otay 910 <input type="checkbox"/> Tijuana 911
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Lower San Diego River 907.12
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	<u>6.83</u> Acres ( <u>297,301</u> Square Feet)
Area to be Disturbed by the Project (Project Area)	<u>6.81</u> Acres ( <u>296,643</u> Square Feet)
Project Proposed Impervious Area (subset of Project Area)	<u>4.43</u> Acres ( <u>192,829</u> Square Feet)
Project Proposed Pervious Area (subset of Project Area)	<u>2.38</u> Acres ( <u>103,814</u> Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

**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:

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:

*The project site is 6.8 acres in size and is bounded on the north by vacant land (zoned residential), on the east by the Prospect Estates Phase 1 residential property, on the west by a mobile home development, and on the south by Prospect Avenue and residential uses. The site is mostly undeveloped with one existing house and some small out-buildings, and slopes from south to north at approximately a 5% grade. A portion of the site was partially graded and some storm drain inlets and cleanouts installed for the St. George Church project, approved in 2001.*

*The site slopes from the south to the north, with a minimum elevation of 340 MSL along the northerly property line to 372 MSL in the southeast corner. The entire site drains via surface flow to the northerly property line, where it enters the property on the north. The runoff continues flowing to the north via surface flow to Mission Gorge Road, where it enters the public storm drain system, which flows under Mission Gorge Road and Highway 52 and into the San Diego River.*

*As shown in Figure 2, the Existing Condition Drainage area contains one on-site basin of 6.82 acres, which generates 7.69 cfs of 100-year storm runoff (See Appendix 1 for hydrological calculations and Table 1 for a hydrology summary). This runoff flows across the ground to the north, where it exits the property to the north.*

*Also shown in Figure 2 are several off-site basins that contribute flow to the project site. Basin EX-A conveys 0.66 cfs of 100-year storm flow onto the site along the southerly boundary. Basin EX-B conveys 1.80 cfs of 100-year storm flow onto the site along the easterly boundary. Basin EX-C conveys 0.61 cfs of 100-year storm flow onto the site along the easterly boundary. Basin EX-D conveys 0.30 cfs of 100-year storm flow onto the site in the southeast corner.*

**Description of Proposed Site Development**

Project Description / Proposed Land Use and/or Activities:

*The project proposes to construct 38 attached multi-family homes, 15 detached single-family homes, a small private park, a biofiltration area in the northwest corner of the site, and three private streets.*

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

*The project proposes impervious surfaces that will include rooftops, driveways, street, sidewalks, and a playground.*

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

*The project proposes pervious surfaces that will include biofiltration areas, and landscaped areas.*

Does the project include grading and changes to site topography?

- Yes
- No

Description / Additional Information:

*The project proposes grading that will consist of approximately 20,000 cubic yards of cut and fill. The grading design proposes to keep the runoff discharge locations in the north, as in the existing condition.*



## 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::

*The Proposed Condition Drainage has been separated into 13 on-site drainage basins (see Figure 3). Basin A1 collects runoff from the southern portion of the project. This basin comprises 1.51 acres and generates 3.98 cfs of 100-year storm runoff. This runoff, together with the runoff from Basin EX-B, is collected in a new curb inlet and conveyed into the new private storm drain system in Street 'A', and ultimately discharges into the biofiltration basin in Lot 'A'.*

*Basin A2 collects runoff from the eastern portion of the site, totaling 0.78 acres. This basin generates 2.01 cfs of 100-year storm runoff which is collected in a new curb inlet and conveyed into the new private storm drain system in Street 'A'. The flow from this basin, together with the flow from Basins A1 and EX-B, is conveyed into the biofiltration area in Lot 'A'.*

*Basin A3 collects runoff from the central and western portion of the site and totals 0.77 acres. This basin generates 2.51 cfs of 100-year storm runoff that is captured in a new grated inlet and conveyed into the private storm drain system in Street 'C'. The storm drain system ultimately discharges into the biofiltration basin in Lot 'A'.*

*Basin A4 collects runoff from the central portion of the site, totaling 0.18 acres. This basin generates 0.38 cfs of 100-year storm runoff that is captured in a new grated inlet and conveyed into the private storm drain system in Street 'C', and ultimately discharges into the biofiltration basin in Lot 'A'.*

*Basin A5 collects runoff from the eastern portion of the site and totals 0.26 acres. This basin generates 0.46 cfs of 100-year storm runoff, and a new grated inlet captures this runoff and conveys it into the private storm drain system in Street 'C', and ultimately discharges into the biofiltration basin in Lot 'A'.*

*Basin A6 collects runoff from the northeasterly portion of the site and totals 0.54 acres. This basin generates 1.44 cfs of 100-year storm runoff that is captured in a new grated inlet in Street 'C'. The private storm drain system in Street 'C' conveys this runoff into the biofiltration basin in Lot 'A'.*

*Basin A7 collects runoff from the north-central portion of the site and totals 0.30 acres. This basin generates 0.85 cfs of 100-year storm runoff that is captured in a new grated inlet in Street 'C'. The private storm drain system in Street 'C' conveys this runoff into the biofiltration basin in Lot 'A'.*

*Basin A8 collects runoff from the northwesterly portion of the site and totals 0.23 acres. This basin generates 0.84 cfs of 100-year storm runoff that is captured in a new grated inlet in Street 'C'. The private storm drain system in Street 'C' conveys this runoff into the biofiltration basin in Lot 'A'.*

*Basin B1 collects runoff along the northerly and easterly boundaries of the site, totaling 0.40 acres. This basin generates 0.63 cfs of 100-year storm runoff and is conveyed in a new PCC brow ditch with the runoff from Basin EX-C. This ditch travels to the north and then west, and ultimately discharges into the biofiltration basin in Lot 'A'.*

*Basin C1 collects runoff from a small area along the east side of Marrokal Lane, totaling 0.10 acres. This basin generates 0.24 cfs of 100-year storm runoff, and collects this runoff in a new grated inlet. A private storm drain conveys this runoff into the biofiltration basin in Lot 'A'.*

*Basin D1 collects runoff from the west side of Marrokal Lane, and totals 0.37 acres. This basin generates 1.98 cfs of 100-year storm runoff, and directs this runoff into a new curb inlet at the northwest corner of the project. The flow is then conveyed in a new private storm drain that discharges in the biofiltration basin in Lot 'A'.*

*Basin D2 collects runoff from the east side of Marrokal Lane and the north side of Prospect Avenue, and totals 1.23 acres. This basin generates 2.94 cfs of 100-year storm runoff, and directs this runoff into a new curb inlet in Marrokal Lane west of Lot 'A'. The flow is then conveyed with the flow from Basin D1 into the biofiltration basin in Lot 'A'.*

*Basin E1 comprises the biofiltration area, and totals 0.13 acres. This basin generates 0.10 cfs of 100-year storm runoff, and together with the runoff from the other proposed condition basins, is captured in the underdrains within the biofiltration area.*

*Basin OFF-1 comprises the same area as Existing Condition Drainage Basin EX-A, but in the Proposed Condition is entirely impervious. This basin generates 0.90 cfs of 100-year storm runoff that flows in the northerly gutter of Prospect Avenue into Basin B1.*

*Basin OFF-2 comprises a similar area as Existing Condition Drainage Basin EX-D, but is a little larger due to the proposed inlet location. This basin generates 0.46 cfs of 100-year storm runoff that flows in the gutter into Basin B2.*

*As shown in Figure 3, the Proposed Condition Drainage conveys the project runoff into the biofiltration area in Lot 'A' in the northwest corner of the site. This biofiltration area will filter the runoff through the soil matrix and be collected in the underdrains. The grated inlet structure will collect the filtered runoff from the underdrains, and will also be utilized as an overflow in the event of system failure or flows above the 100-year storm. The runoff will be conveyed into the existing 36" storm drain in Marrokal Lane, which ties into the storm drain system in Mission Gorge Road, and ultimately empties into the San Diego River. See the Storm Water Quality Management Plan (SWQMP) for more information on the proposed storm water BMP's.*

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:

Project to have private roads that will require maintenance.



**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):

*The runoff from the project site will enter the public storm drain system in Marrokal Lane. This system discharges into the San Diego River and ultimately into 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:

<b>303(d) Impaired Water Body</b>	<b>Pollutant(s)/Stressor(s)</b>	<b>TMDLs / WQIP Highest Priority Pollutant</b>
San Diego River (lower)	Urban runoff	Bacteria & Nutrients
		Heavy metals
		Pathogens

**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):

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



**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):

*The runoff from the project site will enter the public storm drain system in Marrokal Lane, which connects into the system in Mission Gorge Road, which discharges into the San Diego River, an exempt system identified by the City of Santee. Thus this project is exempt from hydromodification management requirements.*

**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:

N/A

**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.

*N/A – project exempt from hydromodification management requirements.*

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)

**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.

*The City of Santee is requiring this project to widen the north side of Prospect Avenue by 10 feet and install a sidewalk, along the southerly property line.*

**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.



Source Control BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)		Form I-4 Model BMP Design Manual [August 31, 2015]	
<b>Project Identification</b>			
Project Name	Prospect Estates Phase 2 Residential Subdivision		
Permit Application Number	TM2016-03, DR2016-04		
<b>Source Control BMPs</b>			
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.			
<ul style="list-style-type: none"> <li>"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.</li> <li>"No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.</li> <li>"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.</li> </ul>			
<b>Source Control Requirement</b>		<b>Applied?</b>	
<b>SC-1</b> Prevention of Illicit Discharges into the MS4		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
Discussion / justification if SC-1 not implemented:			
<b>SC-2</b> Storm Drain Stenciling or Signage		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
Discussion / justification if SC-2 not implemented:			
<b>SC-3</b> Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal		<input type="checkbox"/> Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Discussion / justification if SC-3 not implemented: <i>No outdoor materials storage areas proposed with this project.</i>			
<b>SC-4</b> Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal		<input type="checkbox"/> Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Discussion / justification if SC-4 not implemented: <i>No outdoor work areas proposed with this project.</i>			



Source Control Requirement	Applied?		
<b>SC-5</b> Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SC-5 not implemented: <i>Trash bins shall be stored within the garages of the proposed units.</i>			
<b>SC-6</b> Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
<input type="checkbox"/> On-site storm drain inlets	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Interior floor drains and elevator shaft sump pumps	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Interior parking garages	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Need for future indoor & structural pest control	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Landscape/Outdoor Pesticide Use	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Pools, spas, ponds, decorative fountains, and other water features	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Food service	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Refuse areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Industrial processes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Outdoor storage of equipment or materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Vehicle and Equipment Cleaning	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Vehicle/Equipment Repair and Maintenance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Fuel Dispensing Areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Loading Docks	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Fire Sprinkler Test Water	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Miscellaneous Drain or Wash Water	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Plazas, sidewalks, and parking lots	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A



Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for all "No" answers shown above.

*The following features are not proposed with this project, and therefore justify a "No" answer in the previous table:*

- *Interior floor drains or elevator shafts*
- *Interior parking garages*
- *Food service*
- *Refuse areas*
- *Industrial processes*
- *Outdoor storage of equipment or materials*
- *Vehicle and equipment cleaning*
- *Vehicle and equipment repair and maintenance*
- *Fuel dispensing areas*
- *Loading docks*
- *Miscellaneous drain or wash water*



<b>Site Design BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)</b>	<b>Form I-5 Model BMP Design Manual [August 31, 2015]</b>
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Project Identification	
Project Name	Prospect Estates Phase 2 Residential Subdivision
Permit Application Number	TM2016-03, DR2016-04

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?		
<b>SD-1</b> Maintain Natural Drainage Pathways and Hydrologic Features	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Discussion / justification if SD-1 not implemented: <i>No existing natural drainage pathways to maintain on this site.</i>			
<b>SD-2</b> Conserve Natural Areas, Soils, and Vegetation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-2 not implemented: <i>Natural areas, soil and vegetation on-site will be conserved where practical, including in the northwest corner.</i>			
<b>SD-3</b> Minimize Impervious Area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-3 not implemented:			
<b>SD-4</b> Minimize Soil Compaction	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-4 not implemented:			
<b>SD-5</b> Impervious Area Dispersion	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-5 not implemented:			

Form I-5 Page 2 of 2, Form Template Date: August 31, 2015

Site Design Requirement	Applied?		
<b>SD-6</b> Runoff Collection	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-6 not implemented:			
<b>SD-7</b> Landscaping with Native or Drought Tolerant Species	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-7 not implemented:			
<b>SD-8</b> Harvesting and Using Precipitation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-8 not implemented: <i>Rain barrels will be provided by the builder to the homeowners so that runoff from the roof gutters can be captured and used for landscaping and other non-potable uses.</i>			





<b>Summary of PDP Structural BMPs</b>		Form I-6 (PDPs) Model BMP Design Manual [August 31, 2015]
<b>Project Identification</b>		
Project Name	Prospect Estates Phase 2 Residential Subdivision	
Permit Application Number	TM2016-03, DR2016-014	
<b>PDP Structural BMPs</b>		
<p>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).</p> <p>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).</p> <p>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).</p> <p>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.</p> <p><i>The project site contains Soil Type 'D', which does not infiltrate well, and the project soils engineer does not recommend infiltration in any amount (see Worksheet C.4-1 in Attachment 1). Thus infiltration BMP's were removed from consideration. The site drains to the north, so locating a BMP along the northerly property line would allow the proposed drainage system to mimic the existing drainage scheme. One biofiltration area is proposed for this site to treat and filter the street and on-site runoff. The proposed biofiltration area will provide pollutant control only, as the project is exempt from hydromodification flow control. It was sized using the Worksheet 0-1. DCV and Worksheet 0-1: Simple Sizing Method for Biofiltration BMPs.</i></p>		

**Structural BMP Summary Information**  
**(Copy this page as needed to provide information for each individual proposed structural BMP)**

Structural BMP ID No.                  BMP #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?  
 Project civil engineer – see at right.

The project civil engineer:  
 Joel Waymire – Polaris Development Consultants  
 2514 Jamacha Road, Suite 502-31  
 El Cajon, CA 92019  
 619-444-2923

Who will be the final owner of this BMP?

The project H.O.A.

Who will maintain this BMP into perpetuity?

The project H.O.A.

What is the funding mechanism for maintenance?

H.O.A. monthly assessments.



# 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.	<input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/> Included on DMA Exhibit in Attachment 1a <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> 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	<input checked="" type="checkbox"/> 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

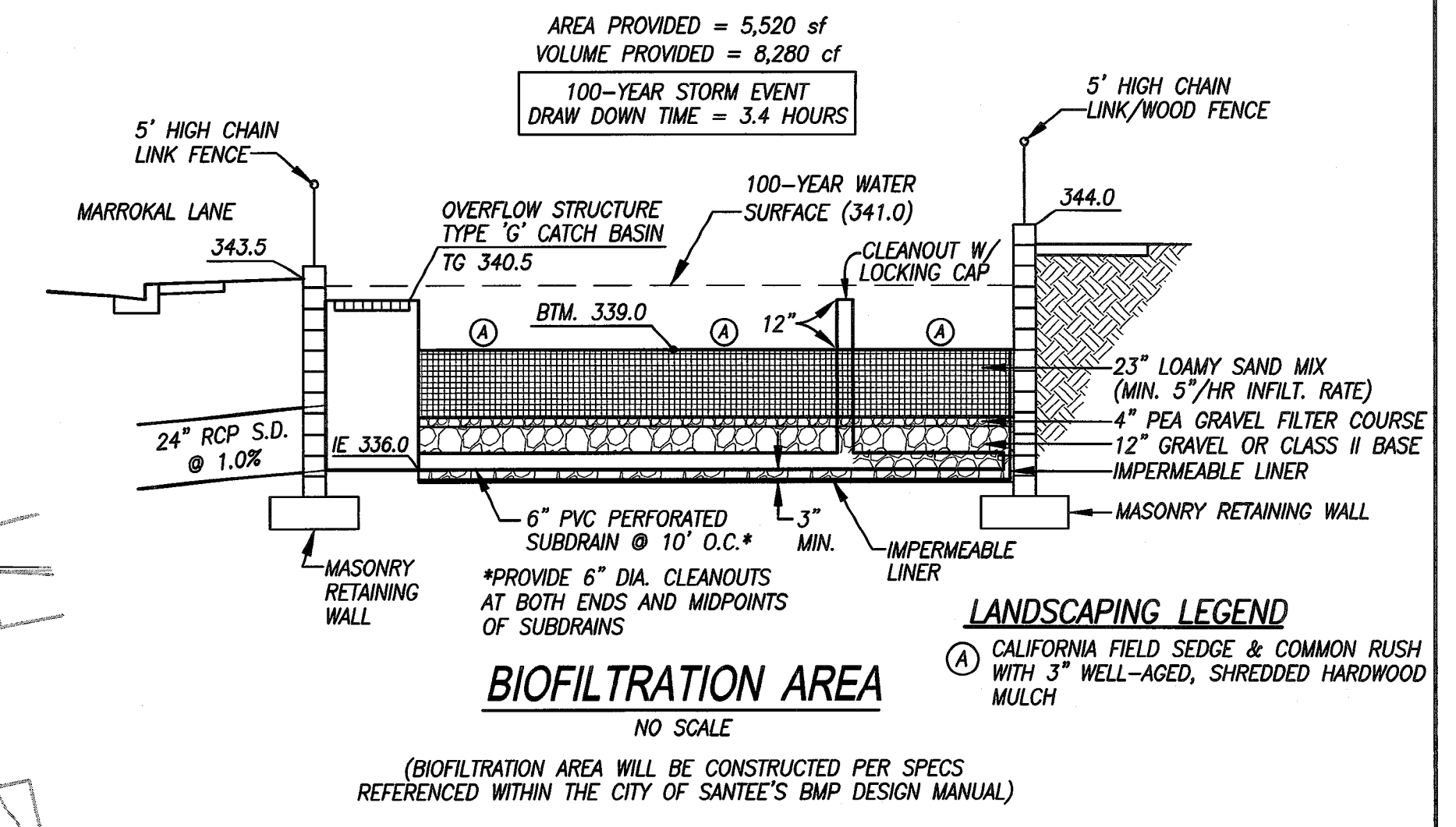
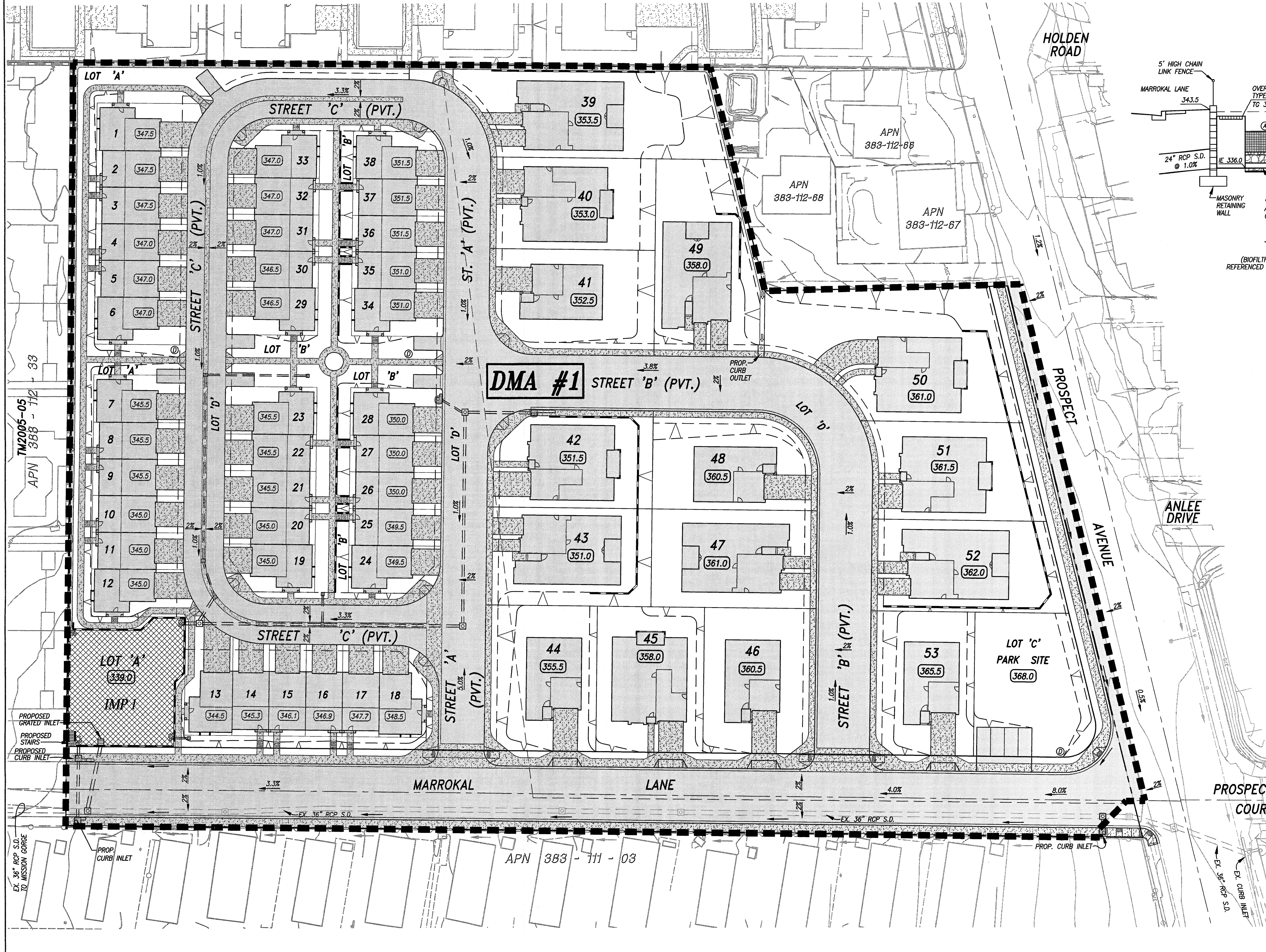
## PROSPECT ESTATES - PHASE 2

OCTOBER 5, 2018

PROSPECT ESTATES PHASE 1 - TM2015-01

### DMA - IMP TABLE

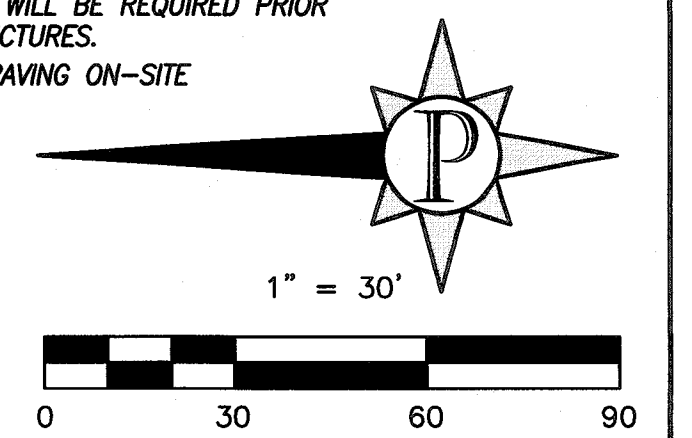
DMA NO.	DMA AREA	IMP. NO.	IMP. TYPE	IMP. AREA REQ'D.	IMP. AREA PROVIDED
1	296,643	1	BIOFILTRATION AREA	5,518 sf	5,520 sf



**LANDSCAPING LEGEND**  
 (A) CALIFORNIA FIELD SEDGE & COMMON RUSH WITH 3" WELL-AGED, SHREDDED HARDWOOD MULCH

- LEGEND**
- SUBDIVISION BOUNDARY
  - DMA LIMITS
  - EXISTING BUILDING
  - EXISTING CONTOUR
  - EXISTING FLOW DIRECTION
  - EXISTING STORM DRAIN
  - PROPOSED MASONRY WALL
  - PROPOSED STORM DRAIN
  - PROPOSED IMPERVIOUS SURFACE
  - PROPOSED BIOFILTRATION AREA
  - PROPOSED UNIT NUMBER
  - PROPOSED PAD ELEVATION
  - PROPOSED RIP RAP
  - PROPOSED FLOW DIRECTION
- POTENTIAL POLLUTANT SOURCES & BMP's**
- PROPOSED INLET STENCIL LOCATION
  - PROPOSED LANDSCAPE AREAS (ALL UNSCREENED AREAS ON-SITE)
  - PROPOSED SIDEWALKS & DRIVEWAYS
  - PROPOSED DOG STATION

- NOTES**
1. EXISTING PROJECT HYDROLOGIC SOIL GROUP: 'D'
  2. DEPTH TO GROUNDWATER: > 20 ft.
  3. CRITICAL COARSE SEDIMENT YIELD AREAS: NONE
  4. ALL PROPOSED STORM DRAIN INLETS SHALL COMPLY WITH FULL TRASH CAPTURE REQUIREMENTS. SEE FINAL ENGINEERING DRAWINGS FOR DETAILS.
  5. ALL PROPOSED STORM DRAIN INLETS SHALL CONTAIN A STENCIL STATING "NO DUMPING - DRAINS TO RIVER". SEE FINAL ENGINEERING DRAWINGS FOR DETAILS.
  6. EACH RESIDENTIAL UNIT TO BE PROVIDED WITH A SEWER CLEANOUT IN THE DRIVEWAY FOR DISCHARGING FIRE SPRINKLER TEST WATER.
  7. EACH SINGLE-FAMILY RESIDENTIAL UNIT TO BE PROVIDED WITH TWO RAIN BARRELS (50 GALLON MINIMUM SIZE) TO COLLECT ROOF RUNOFF FOR RE-USE.
  8. AN ASBESTOS AND LEAD SURVEY WILL BE REQUIRED PRIOR TO DEMOLITION OF EXISTING STRUCTURES.
  9. ALL EXISTING STRUCTURES AND PAVING ON-SITE TO BE REMOVED.



Planning \* Engineering \* Mapping  
**POLARIS**  
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Appendix B: Storm Water Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet 0-1. Harvest and Use Feasibility Screening

Harvest and Use Feasibility Screening		Worksheet B.3-1
<p>1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?</p> <p><input type="checkbox"/> Toilet and urinal flushing ← <i>NOT FEASIBLE WITH 53 SEPARATE OWNERS</i></p> <p><input checked="" type="checkbox"/> Landscape irrigation</p> <p><input type="checkbox"/> Other: _____</p>		
<p>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.</p> <p><i>0.46 AC x 390 g/AC = 179.4 g/36 hr</i></p> <p>[Provide a summary of calculations here] <i>179.4/7817 = 2.3%</i></p>		
<p>3. Calculate the DCV using worksheet B-2.1.</p> <p>[Provide a results here] <i>DCV = 7817</i></p>		
<p>3a. Is the 36-hour demand greater than or equal to the DCV?</p> <p>Yes / <b>No</b> ⇒</p> <p>↓</p>	<p>3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?</p> <p>Yes / <b>No</b> ⇒</p> <p>↓</p>	<p>3c. Is the 36-hour demand less than 0.25DCV?</p> <p><b>Yes</b></p> <p>↓</p>
<p>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.</p>	<p>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.</p>	<p>Harvest and use is considered to be infeasible.</p>

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

Categorization of Infiltration Feasibility Condition	Worksheet C.4-1		
<p><b><u>Part 1 - Full Infiltration Feasibility Screening Criteria</u></b></p> <p><b>Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?</b></p>			
Criteria	Screening Question	Yes	No
1	<p><b>Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.</p>		No
<p>Provide basis:</p> <p>The on-site soils generally consist of sandy lean to fat clay (CL to CH). These fine grained soils have a very low permeability (roughly 10<sup>-7</sup> cm/s or less), and would not permit infiltration at a rate of 0.5 inches per hour. In addition, recent infiltration testing performed at the site resulted in an average design infiltration rate of approximately 0.02 inches per hour.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
2	<p><b>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?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.</p>		No
<p>Provide basis:</p> <p>Site to the north is undeveloped. Residential development is planned (see attached Tentative Map). Partial infiltration could negatively impact the foundations of perimeter retaining walls or other improvements close to the proposed basin. It could also create an undesirable long term liability exposure to the developers/owners of the Prospect Estates II project.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			





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

Provide basis:

Partial infiltration is not likely to be possible if the bottom of the basin extends to the decomposed granite. Percent fines tests conducted on soils samples obtained at five and 10 feet have fines contents of about 20 percent. Hough (1957) and Hoek and Bray (1977), as reproduced in Hunt (1986), provide a correlation of permeability to soil and rock type respectively (attached). The correlation for "silty sand" estimates a permeability of 0.16 inches per hour. The correlation for "weathered granite" estimates a permeability of 0.14 inches per hour. A factor of safety of 2.0 and 3.0 would reduce the average estimated permeability to 0.07 to 0.05 inches per hour respectively, which is the lower bound of the range of infiltration stated in the comment above. We understand the City of Santee Stormwater Design Manual (Manual) recommends a maximum factor of safety of 2.0 for infiltration feasibility screening, but allows selection of a higher factor at the discretion of engineer. We recommend using the higher factor of safety because a potentially "impervious layer" is less than 5 feet from the bottom of the basin. The Manual considers a depth to an impervious layer of <5 feet below the bottom of the basin to be a "High Concern". Very dense (SPT blows/foot of 50 for six inches) decomposed granite was logged at a depth of about 15 feet (elevation of 332 feet, or 4 feet below invert level of infiltration basin). Recent infiltration testing resulted in an average design infiltration rate of approximately 0.02 inches per hour.

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	<b>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?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		No
---	---	--	----

Provide basis:

Site to the north is undeveloped. Residential development is planned (see attached Tentative Map). Partial infiltration could negatively impact the foundations of perimeter retaining walls or other improvements close to the proposed basin. It could also create an undesirable long term liability exposure to the developers/owners of the Prospect Estates II project.

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.



Appendix C:  
Geotechnical and Groundwater Investigation Requirements

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	Yes	No
7	<p><b>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)?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>	Yes	
<p>Provide basis: <b>Shallow groundwater is not present.</b></p> <p>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.</p>			
8	<p><b>Can infiltration be allowed without violating downstream water rights?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>	Yes	
<p>Provide basis: <b>Sources of surface waters are not nearby.</b></p> <p>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.</p>			
<b>Part 2 Result*</b>	<p>If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is <b>Partial Infiltration.</b></p> <p>If any answer from row 5-8 is no, then infiltration of any volume is considered to be <b>infeasible</b> within the drainage area. The feasibility screening category is <b>No Infiltration.</b></p>		NO

\*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

# BOREHOLE PERCOLATION TEST DATA SHEET

## Storm Water Infiltration

Project Name: <u>Prospect Estates II</u>	Date Drilled: <u>7/20/2017</u>	Borehole Radius (*r): <u>3 in.</u>
Project Number: <u>SD508</u>	Logged By: <u>C. Vonk</u>	Depth of Hole as Drilled: <u>10.0 ft</u>
Test Hole No: <u>I-1</u>	Date Tested: <u>7/21/2017</u>	Casing Stick-up: <u>0.0 ft</u>
Drilling Method: <u>Hollow Stem Auger</u>	Tested By: <u>C. Vonk</u>	Test Depth: <u>7.9' - 10'</u>

Reading Number	Time Interval (min.)	Total Depth of Hole (ft.)	Initial Depth of Water (ft.)	Final Depth of Water (ft.)	Change in Water Level (in.)	Average Head of Water (in.)	Unfactored Percolation Rate (in./min.)	Design Infiltration Rate* (in./hour)
	$\Delta t$				$\Delta H$	$H_{avg}$	$\Delta H/\Delta t$	$I_t / F.S.*$
Pre-Soak	1440	10.00	--	--	--	--	--	--
1	30	10.00	8.01	8.04	0.36	23.70	0.01	0.02
2	30	10.00	8.04	8.07	0.36	23.34	0.01	0.02
3	30	10.00	7.77	7.81	0.48	26.52	0.02	0.02
4	30	10.00	7.81	7.85	0.48	26.04	0.02	0.02
5	30	10.00	7.85	7.89	0.48	25.56	0.02	0.02
6	30	10.00	7.89	7.92	0.36	25.14	0.01	0.01
7	30	10.00	7.92	7.95	0.36	24.78	0.01	0.01
8	30	10.00	7.95	7.99	0.48	24.36	0.02	0.02
9	30	10.00	7.99	8.02	0.36	23.94	0.01	0.02
10	30	10.00	7.85	7.88	0.36	25.62	0.01	0.01
11	30	10.00	7.88	7.92	0.48	25.20	0.02	0.02
12	30	10.00	7.92	7.95	0.36	24.78	0.01	0.01

\*Results for 25 in. of head pressure. Factor of Safety of 2.75 was used to calculate final values.

**Stabilized Infiltration Rate\*: 0.02 inch/hour**



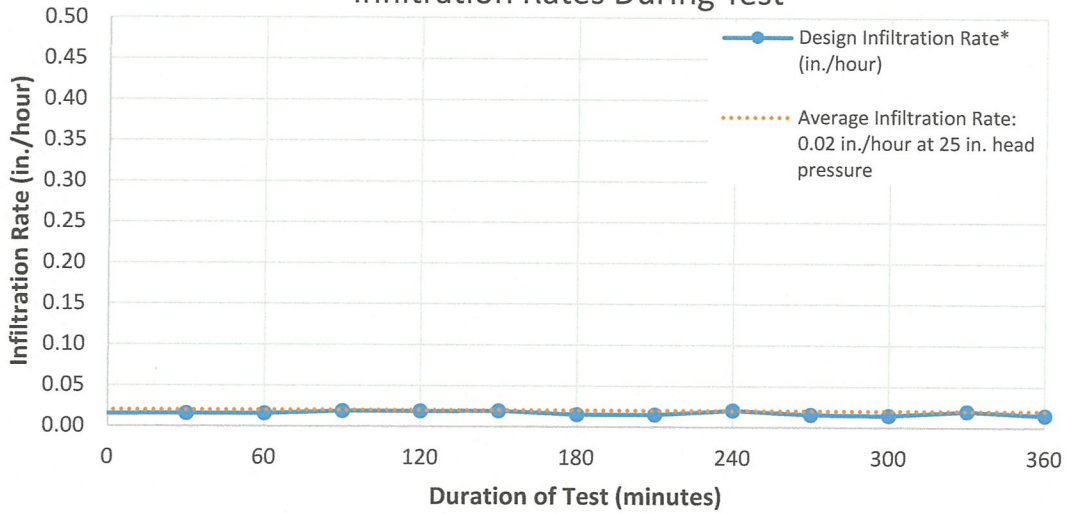
**GROUP DELTA**

I-1

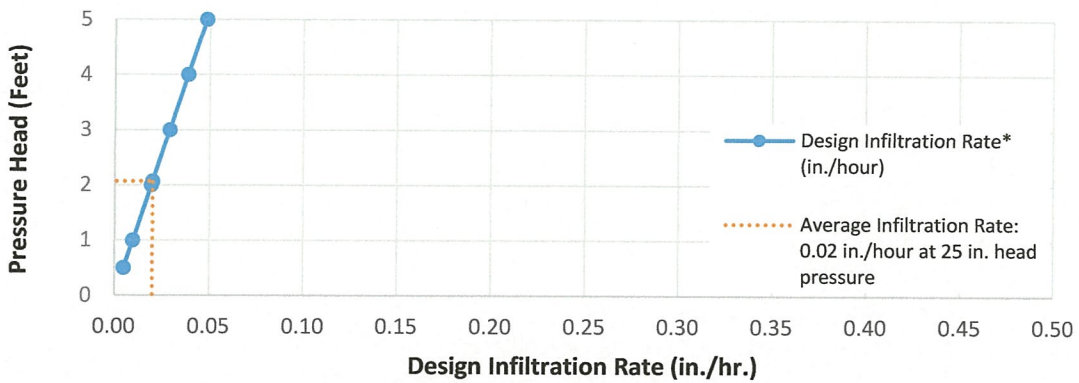
Project No. SD508  
Document No. 17-0150  
**FIGURE C-I-1.1**



Infiltration Rates During Test



Design Infiltration Rate vs. Pressure Head



Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1*		
Factor Category	Factor Description		Assigned Weight (w)	Factor Value (v)	Product (p) p = w * v
A	Suitability Assessment	Soil Assessment Methods	0.25	2	0.5
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	1	0.25
		Depth to groundwater/impervious layer	0.25	3	0.75
		Suitability Assessment Safety Factor, $S_A = \sum p$			
B	Design	Level of pretreatment / expected loads	0.5	1	0.5
		Redundancy / resiliency	0.25	1	0.25
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_D = \sum p$			
<b>Combined Safety Factor, <math>S_{tot} = S_A * S_D</math></b>					<b>2.75</b>

\*Reference: Model BMP Design Manual, San Diego Region (2016).



# BOREHOLE PERCOLATION TEST DATA SHEET

## Storm Water Infiltration

Project Name: Prospect Estates II

Date Drilled: 7/20/2017

Borehole Radius (\*r): 3 in.

Project Number: SD508

Logged By: C. Vonk

Depth of Hole as Drilled: 10.0 ft

Test Hole No: I-2

Date Tested: 7/21/2017

Casing Stick-up: 0.3 ft

Drilling Method: Hollow Stem Auger

Tested By: C. Vonk

Test Depth: 7.2' - 9.7'

Reading Number	Time Interval (min.)	Total Depth of Hole (ft.)	Initial Depth of Water (ft.)	Final Depth of Water (ft.)	Change in Water Level (in.)	Average Head of Water (in.)	Unfactored Percolation Rate (in./min.)	Design Infiltration Rate* (in./hour)
	$\Delta t$				$\Delta H$	$H_{avg}$	$\Delta H/\Delta t$	$I_t / F.S.*$
Pre-Soak	1440	9.67	--	--	--	--	--	--
1	30	9.67	7.21	7.25	0.48	29.28	0.02	0.02
2	30	9.67	7.25	7.29	0.48	28.80	0.02	0.02
3	30	9.67	7.03	7.07	0.48	31.44	0.02	0.02
4	30	9.67	7.07	7.11	0.48	30.96	0.02	0.02
5	30	9.67	7.11	7.16	0.60	30.42	0.02	0.02
6	30	9.67	7.16	7.21	0.60	29.82	0.02	0.02
7	30	9.67	7.21	7.25	0.48	29.28	0.02	0.02
8	30	9.67	7.25	7.29	0.48	28.80	0.02	0.02
9	30	9.67	7.29	7.33	0.48	28.32	0.02	0.02
10	30	9.67	7.33	7.36	0.36	27.90	0.01	0.01
11	30	9.67	7.36	7.40	0.48	27.48	0.02	0.02
12	30	9.67	7.15	7.19	0.48	30.00	0.02	0.02

\*Results for 30 in. of head pressure. Factor of Safety of 2.75 was used to calculate final values.

**Stabilized Infiltration Rate\*: 0.02 inch/hour**



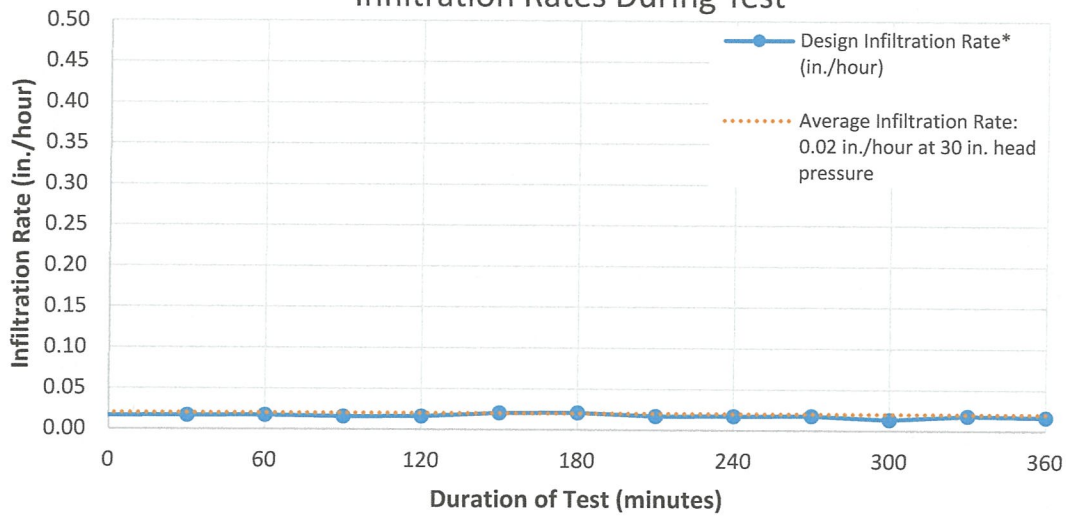
**GROUP DELTA**

I-2

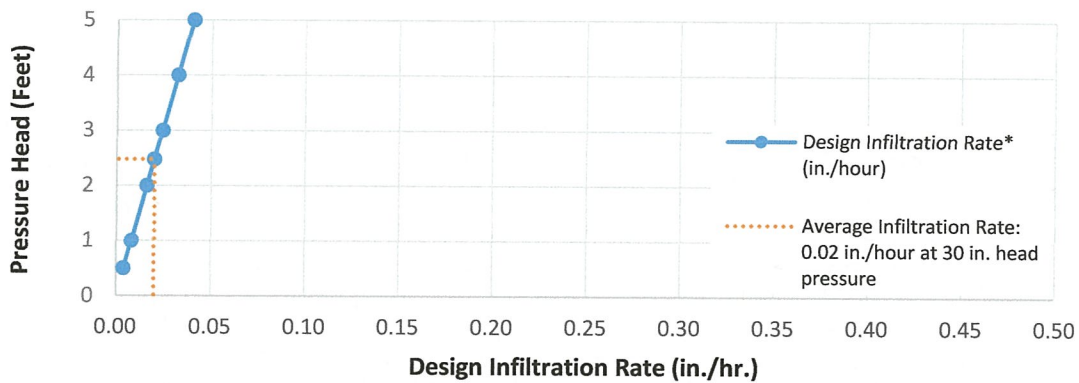
Project No. SD508  
Document No. 17-0150  
FIGURE C-I-2.1



Infiltration Rates During Test



Design Infiltration Rate vs. Pressure Head



Factor of Safety and Design Infiltration Rate Worksheet		Worksheet D.5-1*		
Factor Category	Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w * v
A	Suitability Assessment			
	Soil Assessment Methods	0.25	2	0.5
	Predominant soil texture	0.25	1	0.25
	Site soil variability	0.25	1	0.25
	Depth to groundwater/impervious layer	0.25	3	0.75
Suitability Assessment Safety Factor, $S_A = \Sigma p$				1.75
B	Design			
	Level of pretreatment / expected loads	0.5	1	0.5
	Redundancy / resiliency	0.25	1	0.25
	Compaction during construction	0.25	1	0.25
Design Safety Factor, $S_D = \Sigma p$				1
<b>Combined Safety Factor, <math>S_{tot} = S_A * S_D</math></b>				<b>2.75</b>

\*Reference: Model BMP Design Manual, San Diego Region (2016).







# STANDARD TEST METHOD FOR MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED MATERIALS (ASTM D5084)

C:\ANALYSIS\LAB\PEARM2

PROJECT: Alberhill Clay and Aggregate Quarry  
 CLIENT: Pacific Aggregates

TESTED BY: RHC SAMPLE: Olive #17  
 CHECKED BY: MAF DATE: 06/21/10

Document No. 16-0204

Project No. SD508

DESCRIPTION: Remolded dark yellowish brown sandy lean clay (CL) with permeability of  $2 \times (10^{-7})$  cm/s

FIGURE C-1.1

## MOISTURE AND DENSITY

- A) WET WEIGHT OF SAMPLE
- B) DRY WEIGHT OF SAMPLE
- C) MOISTURE CONTENT [(A - B) / B]
- D) WET DENSITY (A / J \* 62.4)
- E) DRY DENSITY [D / (1 + C)]

INITIAL	1	2	3	4	5	6	7	8	9	10
373.20	1.500	1.500	1.500	1.500						
329.80	1.300	1.300	1.300	1.300						
13.2	1.150	1.150	1.150	1.150						
119.0	44.40	44.10	43.90	44.30						
105.2	36.30	36.30	36.40	36.40						

FINAL	1	2	3	4	5	6	7	8	9	10
405.60 [G]	1.500	1.500	1.500	1.500						
329.80 [G]	1.300	1.300	1.300	1.300						
23.0 [PCF]	1.150	1.150	1.150	1.150						
129.4 [PCF]	44.40	44.10	43.90	44.30						
105.2 [PCF]	36.30	36.30	36.40	36.40						

## TEST PARAMETERS

- F) STANDPIPE AREAS
- G) SAMPLE DIAMETER
- H) SAMPLE AREA ( $\pi * G^2 / 4$ )
- I) INITIAL SAMPLE HEIGHT
- J) SAMPLE VOLUME (I \* H)

0.08 [CM <sup>2</sup> ]										
4.93 [CM]										
19.09 [CM <sup>2</sup> ]										
10.25 [CM]										
195.66 [CM <sup>3</sup> ]										

## HYDRAULIC CONDUCTIVITY

- K) CELL PRESSURE
- L) DRIVING PRESSURE (LEFT)
- M) BACK PRESSURE (RIGHT)
- N) INITIAL WATER LEVEL (LEFT)
- O) INITIAL WATER LEVEL (RIGHT)
- P) FINAL WATER LEVEL (LEFT)
- Q) FINAL WATER LEVEL (RIGHT)
- R) FINAL SAMPLE HEIGHT
- S) TEST DURATION
- T) PRESSURE HEAD [(L - M) \* 1000 / 1.0]
- U) WATER DROP ON LEFT (N - P)
- V) WATER RISE ON RIGHT (O - Q)
- W) INITIAL WATER HEAD (N - O)
- X) FINAL WATER HEAD (P - Q)
- Y) INITIAL TOTAL HEAD (T + W)
- Z) FINAL TOTAL HEAD (T + X)
- $\alpha$ ) OUTFLOW TO INFLOW RATIO (U / V)

	1	2	3	4	5	6	7	8	9	10
[KG/CM <sup>2</sup> ]	1.500	1.500	1.500	1.500						
[KG/CM <sup>2</sup> ]	1.300	1.300	1.300	1.300						
[KG/CM <sup>2</sup> ]	1.150	1.150	1.150	1.150						
[CM]	44.40	44.10	43.90	44.30						
[CM]	36.30	36.30	36.40	36.40						
[CM]	34.50	38.40	38.60	39.40						
[CM]	44.50	41.60	41.30	41.00						
[CM]	10.26	10.26	10.26	10.26						
[S]	11400	6660	6300	5700						
[CM]	150.00	150.00	150.00	150.00						
[CM]	9.90	5.70	5.30	4.90						
[CM]	-8.20	-5.30	-4.90	-4.60						
[CM]	8.10	7.80	7.50	7.90						
[CM]	-10.00	-3.20	-2.70	-1.60						
[CM]	158.10	157.80	157.50	157.90						
[CM]	140.00	146.80	147.30	148.40						
[CM]	1.21	1.08	1.08	1.07						

PERMEABILITY (F \* R) / (2 \* H \* S) \* LN (Y / Z)

2.3E-07	2.3E-07	2.3E-07	2.3E-07	2.3E-07						
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# STANDARD TEST METHOD FOR MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED MATERIALS (ASTM D5084)

C:\ANALYSIS\LAB\FEARM2

PROJECT: Vinje & Middleton TESTED BY: RHC SAMPLE: TP-4 @ 4' Document No. 16-0204  
 CLIENT: 1382-001-00 CHECKED BY: MAF DATE: 05/01/09 Project No. SD508  
 DESCRIPTION: Remolded reddish brown sandy clay (CL) with permeability of 2 \* (10<sup>-8</sup>) cm/s. **FIGURE C-1.2**

## MOISTURE AND DENSITY

- A) WET WEIGHT OF SAMPLE
- B) DRY WEIGHT OF SAMPLE
- C) MOISTURE CONTENT [(A - B) / B]
- D) WET DENSITY (A / J \* 62.4)
- E) DRY DENSITY [D / (1 + C)]

INITIAL	FINAL
403.56	406.54 [G]
358.80	358.80 [G]
12.5	13.3
128.8	129.8 [PCF]
114.5	114.5 [PCF]

## TEST PARAMETERS

- F) STANDPIPE AREAS
- G) SAMPLE DIAMETER
- H) SAMPLE AREA ( $\pi * G^2 / 4$ )
- I) INITIAL SAMPLE HEIGHT
- J) SAMPLE VOLUME (I \* H)

0.08 [CM <sup>2</sup> ]
4.93 [CM]
19.09 [CM <sup>2</sup> ]
10.24 [CM]
195.47 [CM <sup>3</sup> ]

## HYDRAULIC CONDUCTIVITY

- K) CELL PRESSURE
- L) DRIVING PRESSURE (LEFT)
- M) BACK PRESSURE (RIGHT)
- N) INITIAL WATER LEVEL (LEFT)
- O) INITIAL WATER LEVEL (RIGHT)
- P) FINAL WATER LEVEL (LEFT)
- Q) FINAL WATER LEVEL (RIGHT)
- R) FINAL SAMPLE HEIGHT
- S) TEST DURATION
- T) PRESSURE HEAD [(L - M) \* 1000 / 1.0]
- U) WATER DROP ON LEFT (N - P)
- V) WATER RISE ON RIGHT (O - Q)
- W) INITIAL WATER HEAD (N - O)
- X) FINAL WATER HEAD (P - Q)
- Y) INITIAL TOTAL HEAD (T + W)
- Z) FINAL TOTAL HEAD (T + X)
- α) OUTFLOW TO INFLOW RATIO (U / V)

	1	2	3	4	5	6	7	8	9	10
K)	3.000	3.500	3.500	3.500	3.500					
L)	2.800	3.300	3.300	3.300	3.300					
M)	2.500	3.000	3.000	3.000	3.000					
N)	36.70	36.20	36.20	36.20	36.60					
O)	34.50	34.80	34.90	34.90	34.90					
P)	32.40	34.50	26.70	32.60	32.60					
Q)	35.70	36.20	43.80	38.90	38.90					
R)	10.22	10.22	10.22	10.22	10.22					
S)	12780	11880	61980	20760	20760					
T)	300.00	300.00	300.00	300.00	300.00					
U)	4.30	1.70	9.50	4.00	4.00					
V)	-1.20	-1.40	-8.90	-4.00	-4.00					
W)	2.20	1.40	1.30	1.70	1.70					
X)	-3.30	-1.70	-17.10	-6.30	-6.30					
Y)	302.20	301.40	301.30	301.70	301.70					
Z)	296.70	298.30	282.90	293.70	293.70					
α)	3.58	1.21	1.07	1.00	1.00					

PERMEABILITY (F \* R) / (2 \* H \* S) \* LN (Y / Z) [CM/S]

3.0E-08	1.8E-08	2.2E-08	2.7E-08
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# STANDARD TEST METHOD FOR MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED MATERIALS (ASTM D5084)

C:\ANALYSIS\LAB\PEARM2

PROJECT: Vinje & Middleton      TESTED BY: RHC      SAMPLE: TP-8 @ 3'      Document No. 16-0204  
 CLIENT: 1382-001-00      CHECKED BY: MAF      DATE: 05/07/09      Project No. SD508  
 DESCRIPTION: Remolded dark gray sandy clay (CL) with permeability of  $4 \times (10^{-7})$  cm/s.      **FIGURE C-1.3**

## MOISTURE AND DENSITY

- A) WET WEIGHT OF SAMPLE
- B) DRY WEIGHT OF SAMPLE
- C) MOISTURE CONTENT [(A - B) / B]
- D) WET DENSITY (A / J \* 62.4)
- E) DRY DENSITY [D / (1 + C)]

INITIAL	1	2	3	4	5	6	7	8	9	10
	347.89	3.000	3.000	3.000	3.000				0.08	[CM <sup>2</sup> ]
	280.33	2.810	2.808	2.808	2.808				4.93	[CM]
	24.1	2.612	2.608	2.608	2.608				19.09	[CM <sup>2</sup> ]
	111.5	61.30	61.30	61.30	61.40				10.20	[CM]
	89.8	49.90	50.30	50.40	50.40				194.71	[CM <sup>3</sup> ]

FINAL	1	2	3	4	5	6	7	8	9	10
	374.10	3.000	3.000	3.000	3.000					
	280.33	2.810	2.808	2.808	2.808					
	33.4	2.612	2.608	2.608	2.608					
	119.9	61.30	61.30	61.30	61.40					
	89.8	49.90	50.30	50.40	50.40					

## TEST PARAMETERS

- F) STANDPIPE AREAS
- G) SAMPLE DIAMETER
- H) SAMPLE AREA ( $\pi * G^2 / 4$ )
- I) INITIAL SAMPLE HEIGHT
- J) SAMPLE VOLUME (I \* H)

## HYDRAULIC CONDUCTIVITY

- K) CELL PRESSURE
- L) DRIVING PRESSURE (LEFT)
- M) BACK PRESSURE (RIGHT)
- N) INITIAL WATER LEVEL (LEFT)
- O) INITIAL WATER LEVEL (RIGHT)
- P) FINAL WATER LEVEL (LEFT)
- Q) FINAL WATER LEVEL (RIGHT)
- R) FINAL SAMPLE HEIGHT
- S) TEST DURATION
- T) PRESSURE HEAD [(L - M) \* 1000 / 1.0]
- U) WATER DROP ON LEFT (N - P)
- V) WATER RISE ON RIGHT (O - Q)
- W) INITIAL WATER HEAD (N - O)
- X) FINAL WATER HEAD (P - Q)
- Y) INITIAL TOTAL HEAD (T + W)
- Z) FINAL TOTAL HEAD (T + X)
- α) OUTFLOW TO INFLOW RATIO (U / V)

	1	2	3	4	5	6	7	8	9	10	
	3.000	3.000	3.000	3.000	3.000						[KG/CM <sup>2</sup> ]
	2.805	2.810	2.808	2.808	2.808						[KG/CM <sup>2</sup> ]
	2.607	2.612	2.608	2.608	2.608						[KG/CM <sup>2</sup> ]
	61.50	61.30	61.30	61.30	61.40						[CM]
	49.80	49.90	50.30	50.30	50.40						[CM]
	52.70	52.00	53.30	53.30	46.80						[CM]
	57.80	59.30	58.60	64.30	64.30						[CM]
	10.39	10.43	10.43	10.43	10.43						[CM]
	3720	4473	4320	7920	7920						[S]
	198.00	198.00	200.00	200.00	200.00						[CM]
	8.80	9.30	8.00	14.60	14.60						[CM]
	-8.00	-9.40	-8.30	-13.90	-13.90						[CM]
	11.70	11.40	11.00	11.00	11.00						[CM]
	-5.10	-7.30	-5.30	-17.50	-17.50						[CM]
	209.70	209.40	211.00	211.00	211.00						[CM]
	192.90	190.70	194.70	182.50	182.50						[CM]
	1.10	0.99	0.96	1.05	1.05						[CM/S]

PERMEABILITY (F \* R) / (2 \* H \* S) \* LN (Y / Z)      4.8E-07      4.5E-07      4.0E-07      4.0E-07      [CM/S]

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

Worksheet 0-1. DCV

Design Capture Volume		Worksheet B-2.1		
1	85 <sup>th</sup> percentile 24-hr storm depth from Figure B.1-1	d=	0.51	inches
2	Area tributary to BMP (s)	A=	6.81	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.62	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction *	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) - TCV - RCV	DCV=	7,817	cubic-feet

\* RAIN BARRELS TO BE PROPOSED, BUT NO CREDIT INCLUDED



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

**Worksheet 0-1: Simple Sizing Method for Biofiltration BMPs**

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	7,817	cubic-feet
<b>Partial Retention</b>			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0	in/hr.
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	-	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4/ Line 5]	-	inches
7	Assumed surface area of the biofiltration BMP	-	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP $[(\text{Line 4} + (\text{Line 12} \times \text{Line 8}))/12] \times \text{Line 7}$	-	cubic-feet
10	DCV that requires biofiltration [Line 1 – Line 9]	7,817	cubic-feet
<b>BMP Parameters</b>			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	12	inches
12	Media Thickness [18 inches minimum]	23	inches
13	Aggregate Storage above underdrain invert (12 inches typical) – use 0 inches for sizing if the aggregate is not over the entire bottom surface area	12	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr.
<b>Baseline Calculations</b>			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [ Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	21.4	inches
19	Total Depth Treated [Line 17 + Line 18]	50.4	inches
<b>Option 1 – Biofilter 1.5 times the DCV</b>			
20	Required biofiltered volume [1.5 x Line 10]	11,726	cubic-feet
21	Required Footprint [Line 20/ Line 19] x 12	2,792	sq-ft
<b>Option 2 - Store 0.75 of remaining DCV in pores and ponding</b>			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	-	cubic-feet
23	Required Footprint [Line 22/ Line 18] x 12	-	sq-ft
<b>Footprint of the BMP</b>			
24	Area draining to the BMP	296,643	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.62	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	5,518	sq-ft
25	Footprint of the BMP = Maximum(Minimum(Line 21, Line 23), Line 26)	5,520	sq-ft

**Note:** Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)



### A.1.9 Simple Method

#### Stepwise Instructions:

1. Compute DCV using Worksheet B.4-1
2. Estimate design infiltration rate using Worksheet D.5-1
3. Design BMP(s) to ensure that the DCV is fully retained (i.e., no surface discharge during the design event) and the stored effective depth draws down in no longer than 36 hours.

#### Worksheet 0-1: Simple Sizing Method for Infiltration BMPs

Simple Sizing Method for Infiltration BMPs		Worksheet B.4-1		
1	DCV (Worksheet B-2.1)	DCV=	7817	cubic-feet
2	Estimated design infiltration rate (Worksheet D.5-1)	$K_{design}$ =	5.0*	in/hr
3	Available BMP surface area	$A_{BMP}$ =	5,520	sq-ft
4	Average effective depth in the BMP footprint ( $DCV/A_{BMP}$ )	$D_{avg}$ =	1.42	feet
5	Drawdown time, T ( $D_{avg} * 12 / K_{design}$ )	T=	3.4	hours
6	Provide alternative calculation of drawdown time, if needed.			

#### Notes:

- Drawdown time must be less than 36 hours. This criterion was set to achieve average annual capture of 80% to account for back to back storms (See rationale in Section B.4.3). In order to use a different drawdown time, BMPs should be sized using the percent capture method (Section B.4.2).
- The average effective depth calculation should account for any aggregate/media in the BMP. For example, 4 feet of stone at a porosity of 0.4 would equate to 1.6 feet of effective depth.
- This method may overestimate drawdown time for BMPs that drain through both the bottom and walls of the system. BMP specific calculations of drawdown time may be provided that account for BMP-specific geometry.

\* 5.0 in/hr is the minimum infiltration rate for the soil matrix in the biofiltration area. So the drawdown time calculated above is a minimum conservative value.

## E.6 SD-8 Rain Barrels



Photo Credit: San Diego Low Impact Development Design Manual

### Description

Rain barrels are containers that can capture rooftop runoff and store it for future use. With controlled timing and volume release, the captured rainwater can be used for irrigation or alternative grey water between storm events, thereby reducing runoff volumes and associated pollutants to downstream waterbodies. Rain barrels tend to be smaller systems, less than 100 gallons. Treatment can be achieved when rain barrels are used as part of a treatment train along with other BMPs that use captured flows in applications that do not result in discharges into the storm drain system. Rooftops are the ideal tributary areas for rain barrels.

### Design Adaptations for Project Goals

**Site design BMP to reduce effective impervious area and DCV.** Barrels can be used as a site design feature to reduce the effective impervious area of the site by removing roof runoff from the site discharge. This can reduce the DCV and flow control requirements for the site.

### Important Considerations

**Maintenance:** Rain barrels require regular monitoring and cleaning to ensure that they do not become clogged with leaves or other debris.

**Economics:** Rain barrels have low installation costs.

**Limitations:** Due to San Diego's arid climate, some rain barrels may fill only a few times each year.

### Typical Rain Barrel Components

Storage container, barrel or tank for holding captured flows
Inlet and associated valves and piping
Outlet and associated valves and piping
Overflow outlet
Optional pump
Optional first flush diverters
Optional roof, supports, foundation, level indicator, and other accessories

### Conceptual Design and Sizing Approach for Site Design

1. Determine the areas where rain barrels can be used in the site design to capture roof runoff to reduce the DCV. Rain barrels reduce the effective impervious area of the site by removing roof runoff from the site discharge.
2. Calculate the DCV per Appendix B.2, taking into account reduced runoff from permeable pavement areas.



## BF-1 Biofiltration



Location: 43<sup>rd</sup> Street and Logan Avenue, San Diego, California

### MS4 Permit Category

Biofiltration

### Manual Category

Biofiltration

### Applicable Performance Standard

Pollutant Control

Flow Control

### Primary Benefits

Treatment

Volume Reduction (Incidental)

Peak Flow Attenuation (Optional)

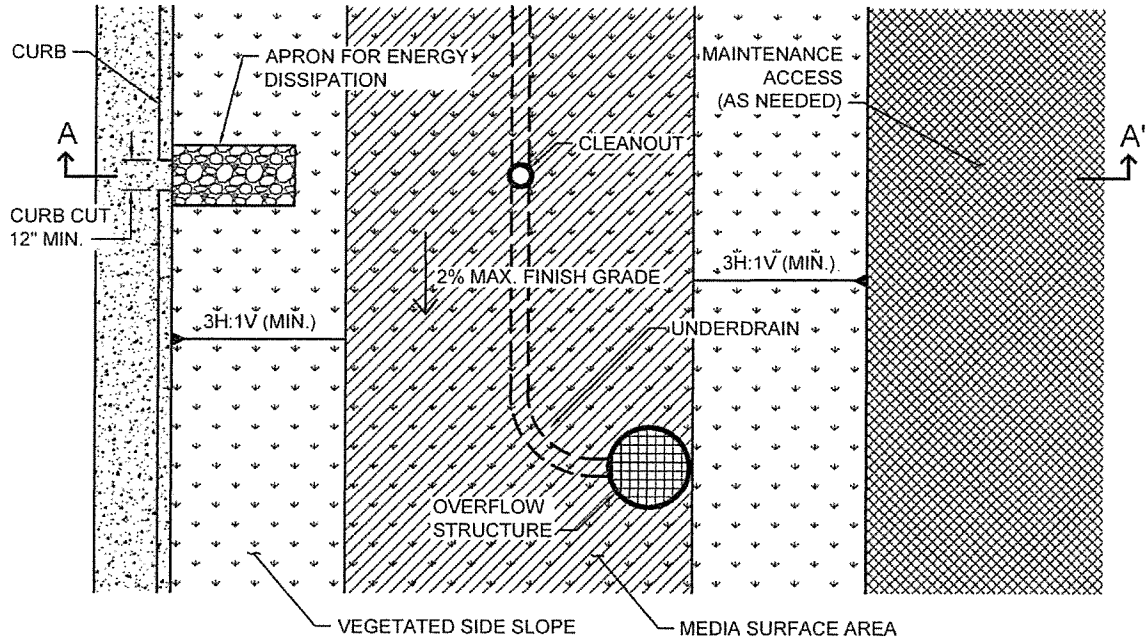
### Description

Biofiltration (Bioretention with underdrain) facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Bioretention with underdrain facilities are commonly incorporated into the site within parking lot landscaping, along roadsides, and in open spaces. Because these types of facilities have limited or no infiltration, they are typically designed to provide enough hydraulic head to move flows through the underdrain connection to the storm drain system. Treatment is achieved through filtration, sedimentation, sorption, biochemical processes and plant uptake.

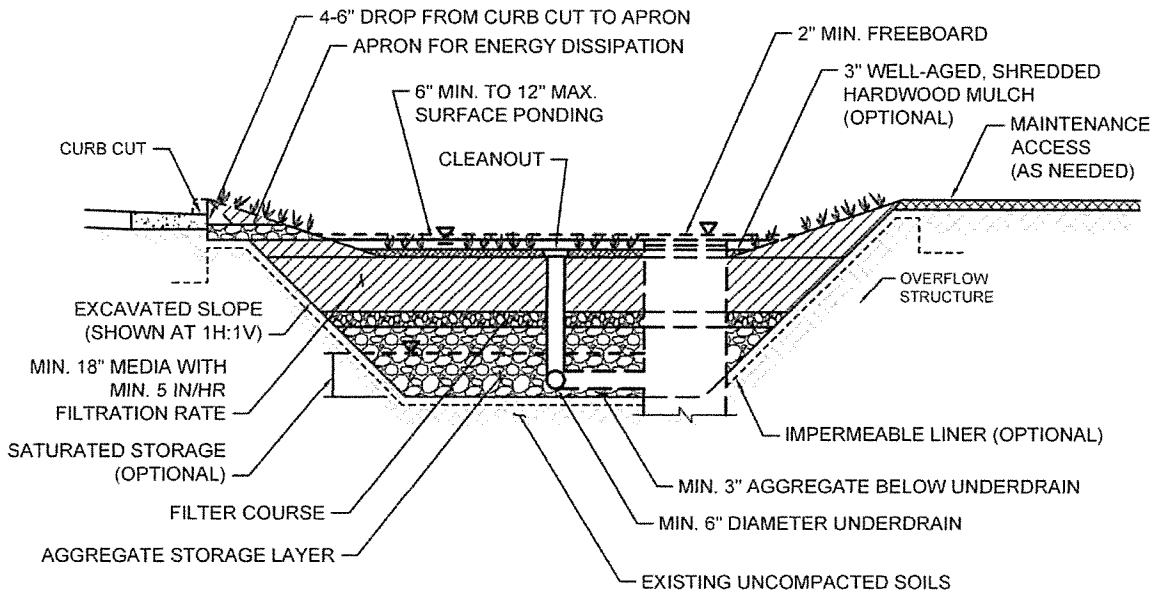
Typical bioretention with underdrain components include:

- Inflow distribution mechanisms (e.g, perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Shallow surface ponding for captured flows
- Side slope and basin bottom vegetation selected based on expected climate and ponding depth
- Non-floating mulch layer (Optional)
- Media layer (planting mix or engineered media) capable of supporting vegetation growth
- Filter course layer consisting of aggregate to prevent the migration of fines into uncompacted native soils or the aggregate storage layer
- Aggregate storage layer with underdrain(s)

- Impermeable liner or uncompacted native soils at the bottom of the facility
- Overflow structure



**PLAN**  
NOT TO SCALE



**SECTION A-A'**  
NOT TO SCALE

Typical plan and Section view of a Biofiltration BMP

**Design Adaptations for Project Goals**

**Biofiltration Treatment BMP for storm water pollutant control.** The system is lined or un-lined to provide incidental infiltration, and an underdrain is provided at the bottom to carry away filtered runoff. This configuration is considered to provide biofiltration treatment via flow through the media layer. Storage provided above the underdrain within surface ponding, media, and aggregate storage is considered included in the biofiltration treatment volume. Saturated storage within the aggregate storage layer can be added to this design by raising the underdrain above the bottom of the aggregate storage layer or via an internal weir structure designed to maintain a specific water level elevation.

**Integrated storm water flow control and pollutant control configuration.** The system can be designed to provide flow rate and duration control by primarily providing increased surface ponding and/or having a deeper aggregate storage layer above the underdrain. This will allow for significant detention storage, which can be controlled via inclusion of an outlet structure at the downstream end of the underdrain.

**Design Criteria and Considerations**

Bioretention with underdrain must meet the following design criteria. Deviations from the below criteria may be approved at the discretion of the [City Engineer] if it is determined to be appropriate:

<i>Siting and Design</i>	<i>Intent/Rationale</i>
<input type="checkbox"/> Placement observes geotechnical recommendations regarding potential hazards (e.g., slope stability, landslides, liquefaction zones) and setbacks (e.g., slopes, foundations, utilities).	Must not negatively impact existing site geotechnical concerns.
<input type="checkbox"/> An impermeable liner or other hydraulic restriction layer is included if site constraints indicate that infiltration or lateral flows should not be allowed.	Lining prevents storm water from impacting groundwater and/or sensitive environmental or geotechnical features. Incidental infiltration, when allowable, can aid in pollutant removal and groundwater recharge.



<i>Siting and Design</i>	<i>Intent/Rationale</i>
<input type="checkbox"/> Contributing tributary area shall be $\leq 5$ acres ( $\leq 1$ acre preferred).	<p>Bigger BMPs may require additional design features for proper performance.</p> <p>Contributing tributary area greater than 5 acres may be allowed at the discretion of the City Engineer if the following conditions are met: 1) incorporate design features (e.g. flow spreaders) to minimizing short circuiting of flows in the BMP and 2) incorporate additional design features requested by the City Engineer for proper performance of the regional BMP.</p>
<input type="checkbox"/> Finish grade of the facility is $\leq 2\%$ .	<p>Flatter surfaces reduce erosion and channelization within the facility.</p>
<i>Surface Ponding</i>	
<input type="checkbox"/> Surface ponding is limited to a 24-hour drawdown time.	<p>Surface ponding limited to 24 hour for plant health.</p>
<input type="checkbox"/> Surface ponding depth is $\geq 6$ and $\leq 12$ inches.	<p>Surface ponding capacity lowers subsurface storage requirements. Deep surface ponding raises safety concerns.</p> <p>Surface ponding depth greater than 12 inches (for additional pollutant control or surface outlet structures or flow-control orifices) may be allowed at the discretion of the [City Engineer] if the following conditions are met: 1) surface ponding depth drawdown time is less than 24 hours; and 2) safety issues and fencing requirements are considered (typically ponding greater than 18" will require a fence and/or flatter side slopes) and 3) potential for elevated clogging risk is considered.</p>
<input type="checkbox"/> A minimum of 2 inches of freeboard is provided.	<p>Freeboard provides room for head over overflow structures and minimizes risk of uncontrolled surface discharge.</p>

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*Siting and Design* *Intent/Rationale*

---

- |   |   |
|---|---|
| <input type="checkbox"/> Side slopes are stabilized with vegetation and are = 3H:1V or shallower. | Gentler side slopes are safer, less prone to erosion, able to establish vegetation more quickly and easier to maintain. |
|---|---|

---

*Vegetation*

---

- |   |  |
|---|--|
| <input type="checkbox"/> Plantings are suitable for the climate and expected ponding depth. A plant list to aid in selection can be found in Appendix E.20. | Plants suited to the climate and ponding depth are more likely to survive. |
|---|--|

- |   |   |
|---|---|
| <input type="checkbox"/> An irrigation system with a connection to water supply should be provided as needed. | Seasonal irrigation might be needed to keep plants healthy. |
|---|---|

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*Mulch (Mandatory)*

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- |   |  |
|---|--|
| <input type="checkbox"/> A minimum of 3 inches of well-aged, shredded hardwood mulch that has been stockpiled or stored for at least 12 months is provided. | Mulch will suppress weeds and maintain moisture for plant growth. Aging mulch kills pathogens and weed seeds and allows the beneficial microbes to multiply. |
|---|--|

---

*Media Layer*

---

- |  |  |
|--|--|
| <input type="checkbox"/> Media maintains a minimum filtration rate of 5 in/hr over lifetime of facility. An initial filtration rate of 8 to 12 in/hr is recommended to allow for clogging over time; the initial filtration rate should not exceed 12 inches per hour. | A filtration rate of at least 5 inches per hour allows soil to drain between events. The initial rate should be higher than long term target rate to account for clogging over time. However an excessively high initial rate can have a negative impact on treatment performance, therefore an upper limit is needed. |
|--|--|
-

<i>Siting and Design</i>	<i>Intent/Rationale</i>
<p>Media is a minimum 18 inches deep, meeting either of these two media specifications:</p> <p>City of San Diego Low Impact Development Design Manual (page B-18) (July 2011, unless superseded by more recent edition) <b>or</b> County of San Diego Low Impact Development Handbook: Appendix G -Bioretention Soil Specification (June 2014, unless superseded by more recent edition).</p> <p>Alternatively, for proprietary designs and custom media mixes not meeting the media specifications contained in the City or County LID Manual, the media meets the pollutant treatment performance criteria in Section F.1.</p>	<p>A deep media layer provides additional filtration and supports plants with deeper roots.</p> <p>Standard specifications shall be followed.</p> <p>For non-standard or proprietary designs, compliance with F.1 ensures that adequate treatment performance will be provided.</p>
<p><input type="checkbox"/> Media surface area is 3% of contributing area times adjusted runoff factor or greater.</p>	<p>Greater surface area to tributary area ratios: a) maximizes volume retention as required by the MS4 Permit and b) decrease loading rates per square foot and therefore increase longevity.</p> <p>Adjusted runoff factor is to account for site design BMPs implemented upstream of the BMP (such as rain barrels, impervious area dispersion, etc.). Refer to Appendix B.2 guidance.</p> <p>Use Worksheet B.5-1 Line 26 to estimate the minimum surface area required per this criteria.</p>
<p><input type="checkbox"/> Where receiving waters are impaired or have a TMDL for nutrients, the system is designed with nutrient sensitive media design (see fact sheet BF-2).</p>	<p>Potential for pollutant export is partly a function of media composition; media design must minimize potential for export of nutrients, particularly where receiving waters are impaired for nutrients.</p>
<b><i>Filter Course Layer</i></b>	
<p><input type="checkbox"/> A filter course is used to prevent migration of fines through layers of the facility. Filter fabric is not used.</p>	<p>Migration of media can cause clogging of the aggregate storage layer void spaces or subgrade. Filter fabric is more likely to clog.</p>

<i>Siting and Design</i>	<i>Intent/Rationale</i>
<input type="checkbox"/> Filter course is washed and free of fines.	Washing aggregate will help eliminate fines that could clog the facility and impede infiltration.
<input type="checkbox"/> Filter course calculations assessing suitability for particle migration prevention have been completed.	Gradation relationship between layers can evaluate factors (e.g., bridging, permeability, and uniformity) to determine if particle sizing is appropriate or if an intermediate layer is needed.
<b><i>Aggregate Storage Layer</i></b>	
<input type="checkbox"/> Class 2 Permeable per Caltrans specification 68-1.025 is recommended for the storage layer. Washed, open-graded crushed rock may be used, however a 4-6 inch washed pea gravel filter course layer at the top of the crushed rock is required.	Washing aggregate will help eliminate fines that could clog the aggregate storage layer void spaces or subgrade.
<input type="checkbox"/> The depth of aggregate provided (12-inch typical) and storage layer configuration is adequate for providing conveyance for underdrain flows to the outlet structure.	Proper storage layer configuration and underdrain placement will minimize facility drawdown time.
<b><i>Inflow, Underdrain, and Outflow Structures</i></b>	
<input type="checkbox"/> Inflow, underdrains and outflow structures are accessible for inspection and maintenance.	Maintenance will prevent clogging and ensure proper operation of the flow control structures.
<input type="checkbox"/> Inflow velocities are limited to 3 ft/s or less or use energy dissipation methods. (e.g., riprap, level spreader) for concentrated inflows.	High inflow velocities can cause erosion, scour and/or channeling.
<input type="checkbox"/> Curb cut inlets are at least 12 inches wide, have a 4-6 inch reveal (drop) and an apron and energy dissipation as needed.	Inlets must not restrict flow and apron prevents blockage from vegetation as it grows in. Energy dissipation prevents erosion.
<input type="checkbox"/> Underdrain outlet elevation should be a minimum of 3 inches above the bottom elevation of the aggregate storage layer.	A minimal separation from subgrade or the liner lessens the risk of fines entering the underdrain and can improve hydraulic performance by allowing perforations to remain unblocked.
<input type="checkbox"/> Minimum underdrain diameter is 6 inches.	Smaller diameter underdrains are prone to clogging.



<i>Siting and Design</i>	<i>Intent/Rationale</i>
<input type="checkbox"/> Underdrains are made of slotted, PVC pipe conforming to ASTM D 3034 or equivalent or corrugated, HDPE pipe conforming to AASHTO 252M or equivalent.	Slotted underdrains provide greater intake capacity, clog resistant drainage, and reduced entrance velocity into the pipe, thereby reducing the chances of solids migration.
<input type="checkbox"/> An underdrain cleanout with a minimum 6-inch diameter and lockable cap is placed every 250 to 300 feet as required based on underdrain length.	Properly spaced cleanouts will facilitate underdrain maintenance.
<input type="checkbox"/> Overflow is safely conveyed to a downstream storm drain system or discharge point. Size overflow structure to pass 100-year peak flow for on-line infiltration basins and water quality peak flow for off-line basins.	Planning for overflow lessens the risk of property damage due to flooding.

**Conceptual Design and Sizing Approach for Storm Water Pollutant Control Only**

To design bioretention with underdrain for storm water pollutant control only (no flow control required), the following steps should be taken:

1. Verify that siting and design criteria have been met, including placement requirements, contributing tributary area, maximum side and finish grade slopes, and the recommended media surface area tributary ratio.
2. Calculate the DCV per Appendix B based on expected site design runoff for tributary areas.
3. Use the sizing worksheet presented in Appendix B.5 to size biofiltration BMPs.

**Conceptual Design and Sizing Approach when Storm Water Flow Control is Applicable**

Control of flow rates and/or durations will typically require significant surface ponding and/or aggregate storage volumes, and therefore the following steps should be taken prior to determination of storm water pollutant control design. Pre-development and allowable post-project flow rates and durations should be determined as discussed in Chapter 6 of the manual.

1. Verify that siting and design criteria have been met, including placement requirements, contributing tributary area, maximum side and finish grade slopes, and the recommended media surface area tributary ratio.

## Appendix E: BMP Design Fact Sheets

2. Iteratively determine the facility footprint area, surface ponding and/or aggregate storage layer depth required to provide detention storage to reduce flow rates and durations to allowable limits. Flow rates and durations can be controlled from detention storage by altering outlet structure orifice size(s) and/or water control levels. Multi-level orifices can be used within an outlet structure to control the full range of flows.
3. If bioretention with underdrain cannot fully provide the flow rate and duration control required by this manual, an upstream or downstream structure with significant storage volume such as an underground vault can be used to provide remaining controls.
4. After bioretention with underdrain has been designed to meet flow control requirements, calculations must be completed to verify if storm water pollutant control requirements to treat the DCV have been met.





## 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)	<input type="checkbox"/> 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.	<input type="checkbox"/> Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required)  Optional analyses for Critical Coarse Sediment Yield Area Determination <input type="checkbox"/> 6.2.1 Verification of Geomorphic Landscape Units Onsite <input type="checkbox"/> 6.2.2 Downstream Systems Sensitivity to Coarse Sediment <input type="checkbox"/> 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.	<input type="checkbox"/> Not performed <input type="checkbox"/> Included <input type="checkbox"/> 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	<input type="checkbox"/> Included <input type="checkbox"/> Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	<input type="checkbox"/> Included <input type="checkbox"/> Not required because BMPs will drain in less than 96 hours

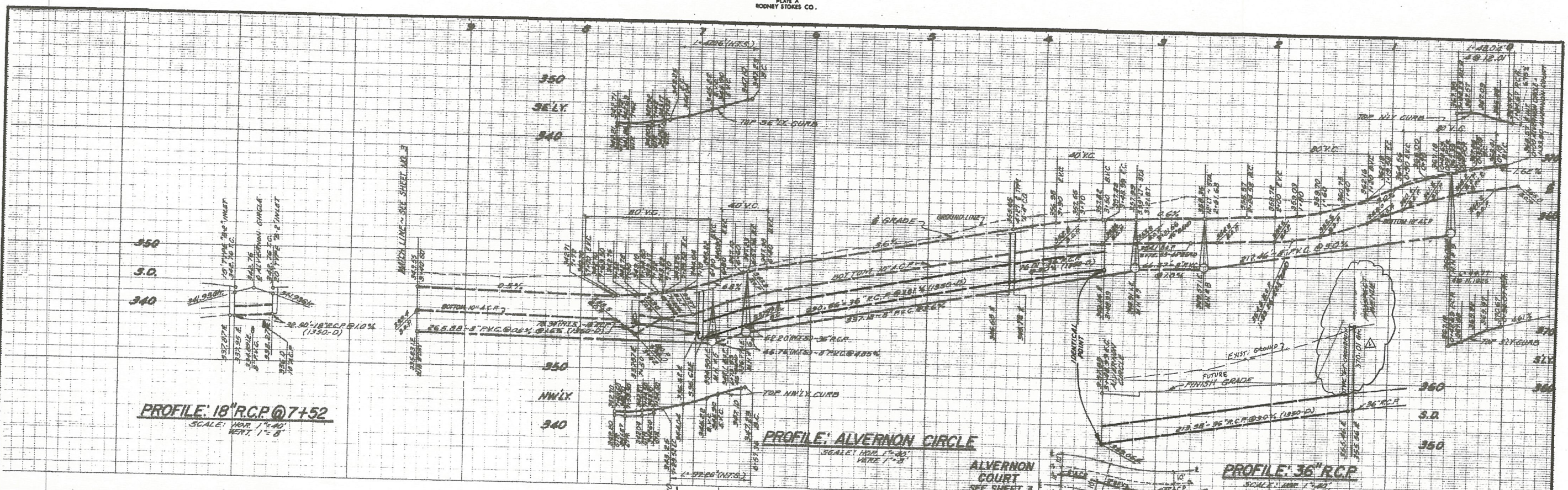
***Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:***

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)

N/A



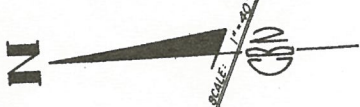


**PROFILE: 18" R.C.P. @ 7+52**  
 SCALE: HOR. 1"=40'  
 VERT. 1"=8'

**PROFILE: ALVERNON CIRCLE**  
 SCALE: HOR. 1"=40'  
 VERT. 1"=8'

**PROFILE: 36" R.C.P.**  
 SCALE: HOR. 1"=40'  
 VERT. 1"=8'

SEWER & WATER LATERAL DATA TABLE									
LOT NO.	INVELEV. MAIN	DROP TO MAIN	SEWER LENGTH @ R.	INVELEV. SEWER @ R.	CB.ELEV. SEWER @ R.	DEPTH @ R.	CB.ELEV. WATER	REMARKS	
1	366.2	0.3	2.6	361.5	372.5	0.5	371.38	SEWER WATER SERVICE TO EXISTING	
2	366.9	"	2.6	368.2	374.2	5'	374.40		
3	368.6	"	2.6	371.6	376.6	5'	376.30		
4	370.9	"	2.6	374.5	379.5	5'	379.78		
5	372.7	"	2.6	376.8	381.8	5'	381.62		
6	374.6	"	2.6	379.1	384.1	5'	384.43		
7	375.4	"	2.6	380.1	385.1	5'	384.81		
8	377.2	"	2.6	382.1	387.1	5'	387.30		
9	377.7	"	2.6	382.6	387.6	5'	387.35		
10	379.4	"	2.5	384.2	389.2	5'	389.42	SEWER LAT. IN DRIVE	
11	379.9	"	1.8	385.1	390.1	5'	389.90		
12	379.9	"	2.7	386.2	391.2	5'	391.33	SEWER LAT. IN DRIVE TO EXIST. RANGE	
13	379.9	"	4.4	386.2	391.2	5'	391.33		
14	379.9	0.3	4.7	386.0	391.0	5'	391.23		
15	379.9	"	6.6	384.4	389.6	5'	389.40	SEWER LAT. IN DRIVE	
16	378.1	"	7.0	383.9	388.9	5'	389.16		
17	375.9	"	3.1	380.5	385.5	5'	385.52		
18	372.8	"	2.6	376.9	381.9	5'	382.24		
19	370.7	"	2.6	374.2	379.2	5'	378.96		
20	368.5	"	2.6	371.4	376.4	5'	375.73		
21	366.8	"	2.6	369.0	374.0	5'	373.77		
22			4.2	368.9	373.9	5'	373.77		
23			369.0	374.0	5'	374.42	CONNET LATERALS TO EXISTING LATERALS		



THESE PLANS ARE TO BE USED FOR THE CONSTRUCTION OF STORM DRAINS ONLY.

CAST IN PLACE, (C.I.P.) CONCRETE PIPE MAY BE USED AS AN APPROVED ALTERNATE FOR THE 30" R.C.P. AND 42" R.C.P. SHOWN ON PLANS. C.I.P. PIPE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE CITY OF SANTEE STANDARDS AND SPECIFICATIONS. MINIMUM 2700D AND MINIMUM SLOPE OF 1.0%. THE USE OF CAST IN PLACE CONCRETE PIPE REQUIRES A LETTER FROM THE SOILS ENGINEER THAT ALL OF THE FOLLOWING CONDITIONS CAN BE SATISFIED.

1. Ground water table is below pipe grade.
2. The material in which the pipe is to be constructed is stable and unyielding when saturated.
3. Sidewalls on the trench will stand vertically at full height without sheeting during construction.
4. Where constructed in fills, such fills shall be compacted to 90% compaction.

FOR OFFSITE SEWER, WATER & STORM DRAIN TO MISSION GORGE ROAD SEE SHEET NO. 4

DRAINAGE EASEMENT  
 Doc. No. 83-091912  
 DATE: 3-23-83

DRAINAGE EASEMENT  
 Doc. No. 83-091912  
 DATE: 3-23-83

CITY APPROVED CHANGES			
No.	Description	Approved By	Date
1	Revised Inlet to Catchbasin	CMS	4-3-84

BENCH MARK  
 Description: BRASS DISC MARKED "EC190"  
 Location: N.W. CURB RETURN, MISSION GORGE ROAD AND CARLTON HILLS BLVD  
 Record From: COUNTY OF SAN DIEGO  
 Elev: 389.501 Datum: U.S.G.S.

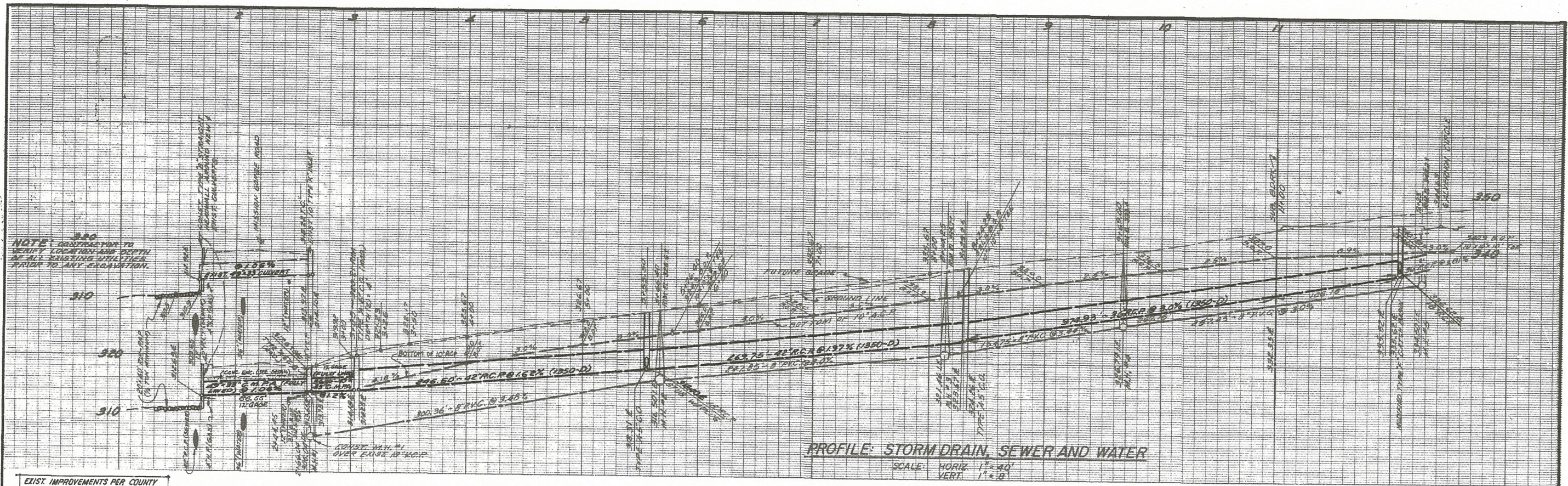
PRIVATE CONTRACT

SHEET 3	CITY OF SANTEE DEPARTMENT OF PUBLIC SERVICES	4 SHEETS
PLANS FOR THE IMPROVEMENT OF OFFSITE STORM DRAIN IN CITY OF SANTEE TRACT NO. 4222		
Recommended for Approval	CITY ENGINEER JOHN P. SULLIVAN	Subdivision Engineer
Engineer of Work	R. P. Bultehuis	Checked by T.M. R.S.D.
Date: Jan 20, 1982	RCE 13765	Approval date: 42221

CONSTRUCTION CHANGE

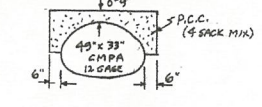
FILE NO.



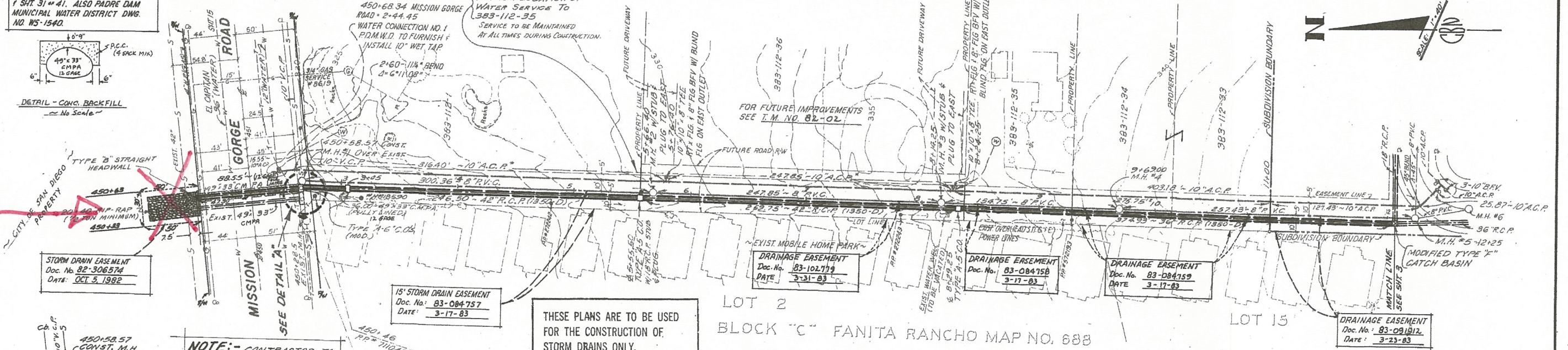


SEE CALTRANS DWS. FOR CONTINUATION

EXIST. IMPROVEMENTS PER COUNTY OF SAN DIEGO RS 6275, SHT. 8 & 41 1 SHT. 31 & 41. ALSO PADRE DAM MUNICIPAL WATER DISTRICT DWG. NO. WS-1540.



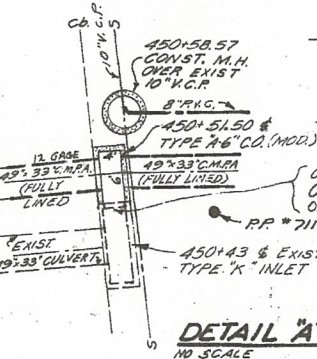
DETAIL - CONC. BACKFILL  
 No Scale



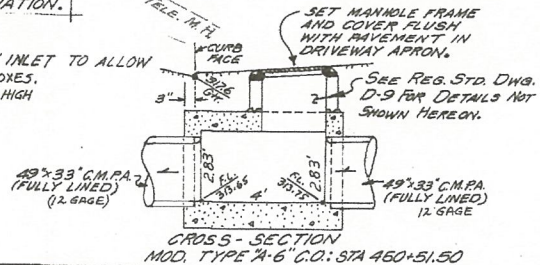
NOTE: - CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO ANY EXCAVATION.

THESE PLANS ARE TO BE USED FOR THE CONSTRUCTION OF STORM DRAINS ONLY.

\* WATER MAIN FROM STA 2+44.36 TO STA 1+10.00 TO BE CONSTRUCTED BY P.D.M.W.D. SEE LETTER DATED NOV 17, 1981.



DETAIL "A"  
 NO SCALE



CROSS-SECTION MOD. TYPE "A-6" C.O. STA 450+51.50

CAST IN PLACE, (C.I.P.) CONCRETE PIPE MAY BE USED AS AN APPROVED ALTERNATE FOR THE 36\"/>

1. Ground water table is below pipe grade.
2. The material in which the pipe is to be constructed is stable and unyielding when saturated.
3. Sidewalls of the trench will stand vertically at full height without sheeting during construction.
4. Where constructed in fills, such fills shall be compacted to 90% compaction.

COUNTY APPROVED CHANGES		
No.	Description	Approved By

PLANS PREPARED BY  
**CRAIG, BULTHUIS & NOTHOM**  
 Civil Engineering • Land Surveying 897-8874  
 2811 Adams Ave. • San Diego, California 92118

BENCH MARK  
 Description: BRASS DISC MARKED "E.C.190"  
 Location: N.W. CURB RETURN, MISSION GORGE ROAD AND CARLTON HILLS BOULEVARD  
 Record From: COUNTY OF SAN DIEGO  
 Elev: 328.901 Datum: U.S.G.S.

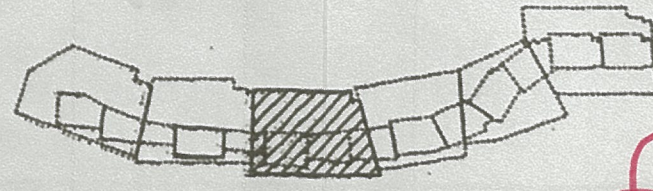
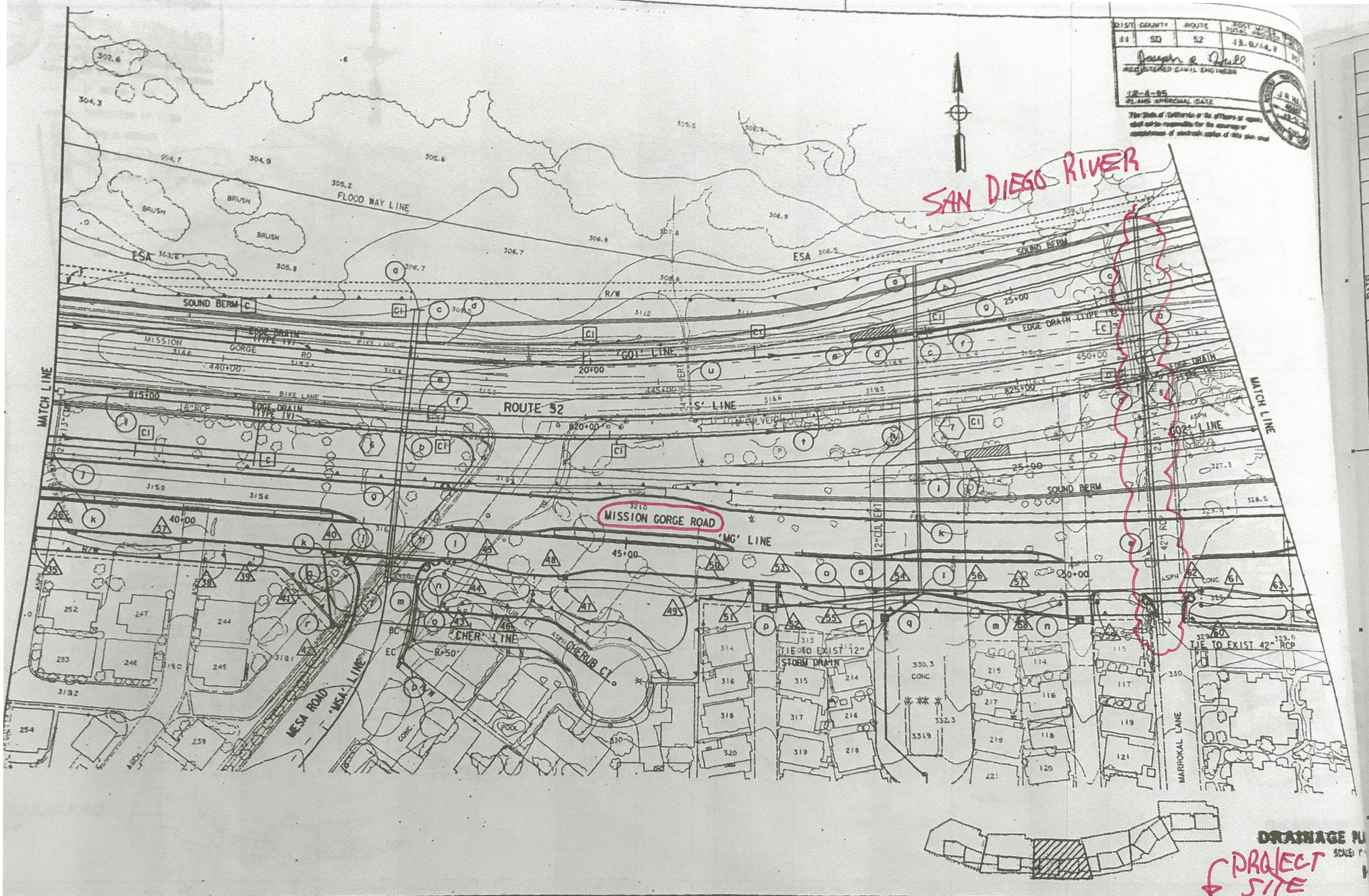
PRIVATE CONTRACT	
SHEET 4	CITY OF SANTEE DEPARTMENT OF PUBLIC SERVICES
PLANS FOR THE IMPROVEMENT OF OFFSITE STORM DRAIN IN CITY OF SANTEE TRACT NO. 4222	
Recommended for Approval	Subdivision Engineer
Engineer of Work	Checked by
Jan 20, 1982 RCE 13745	R.S.D. Approval date
T.M. 4222-1	



PROJECT NO.	SD	ROUTE	52
DATE	12.9/14.7		
DESIGNED BY	Joseph A. Hull		
CHECKED BY	REGISTERED CIVIL ENGINEER		
DATE	12-4-95		
PLANS APPROVAL DATE			

The State of California or the officers or agents thereof shall not be responsible for the accuracy or completeness of electronic copies of this plan set.

**SAN DIEGO RIVER**



**DRAINAGE PLAN**  
**PROJECT SITE**

FROM ASSIGNED PLANS  
 ORIGINAL SCALE IS IN INCHES

USERNAME => lanord  
 DSN FILE => /usr/lanord/P33/bd1041103.d

CU 11275

EA 01011

CALCULATED/DATE REVISIONS BY



PROJECT ENGINEER  
**H D KHUU**

CALCULATED/DESIGNED BY	DATE	REVISOR
CHECKED BY	DATE	DATE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	52	13.9/14.7	81	338

*Joseph P. Hull*  
 REGISTERED CIVIL ENGINEER  
 12-4-95  
 PLANS APPROVAL DATE



The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ET TOTAL SHEET 3 338  
 J.R. HULL  
 64  
 0-97  
 CALIFORNIA

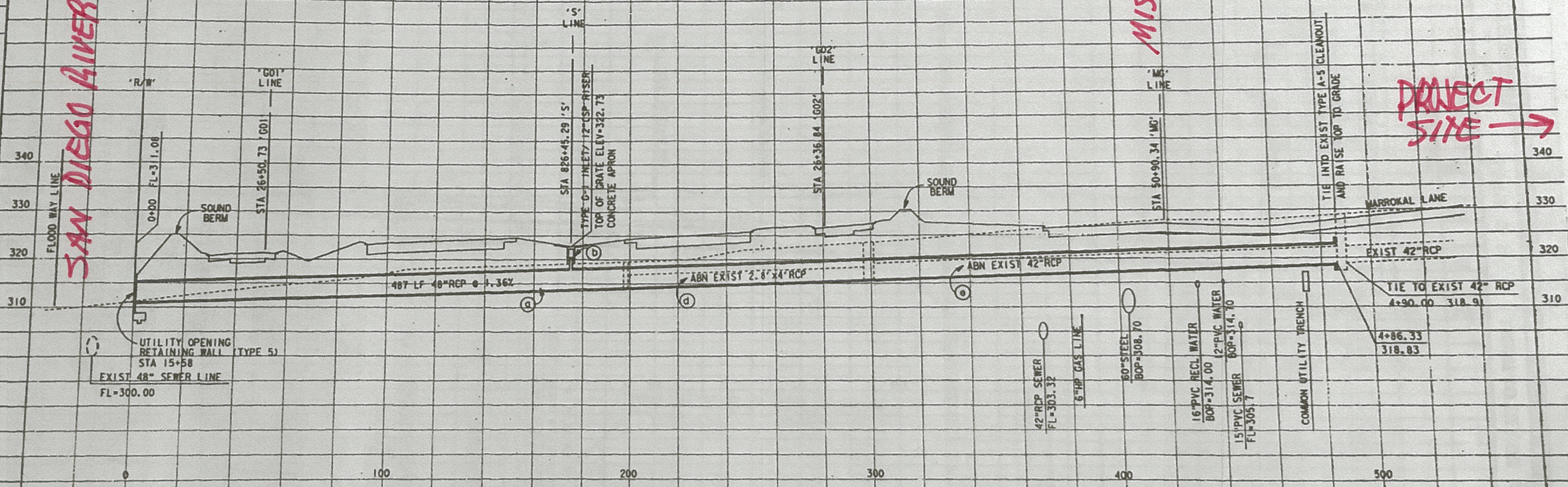
**DRAINAGE SYSTEM** (8)  
 STA 826+45.29 'S' LINE

- (A) 487 LF - 48" RCP W/ CONCRETE COLLAR
- (B) TYPE G-1 INLET (D-73) H=3'  
 2 LF - 2" CSP RISER W/ RISER SAFETY CAGE (D93B)  
 CONCRETE APRON (DEPRESSION=0)
- (C) ABANDON CULVERT (90 LF DBL 2.8' x 4' RCP)
- (D) ABANDON CULVERT (94 LF 2.8' x 4' RCP)
- (E) ABANDON CULVERT (190 LF 42" RCP)

MISSION GORGE ROAD

SAN DIEGO RIVER

PROJECT SITE →



**DRAINAGE PROFILES** (8)

HORIZ SCALE: 1" = 20'  
 VERT SCALE: 1" = 10'  
**D-14**

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1' 2' 3'

USERNAME => richard  
 DGN FILE => /usr/richard/P13/b01041114.

CU 11276

EA 010411







**ATTACHMENT 3**  
**Structural BMP Maintenance Information**

*This is the cover sheet for Attachment 3.*

**Indicate which Items are Included behind this cover sheet:**

<b>Attachment Sequence</b>	<b>Contents</b>	<b>Checklist</b>
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	<input checked="" type="checkbox"/> Included  See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	<input checked="" type="checkbox"/> Included <input type="checkbox"/> 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).

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



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

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

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



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

... Then Your SWQMP shall consider These Source Control BMPs			
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
<p><input type="checkbox"/> H. Industrial processes.</p> <p><input checked="" type="checkbox"/> Not Applicable</p> <p><input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)</p> <p><input checked="" type="checkbox"/> Not Applicable</p>	<p><input type="checkbox"/> Show process area.</p> <p><input type="checkbox"/> Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or runoff from area and protected from wind dispersal.</p> <p><input type="checkbox"/> Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.</p> <p><input type="checkbox"/> Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.</p>	<p><input type="checkbox"/> If industrial processes are to be located onsite, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."</p> <p><input type="checkbox"/> Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.</p> <p>Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for:</p> <ul style="list-style-type: none"> <li>▪ Hazardous Waste Generation</li> <li>▪ Hazardous Materials Release Response and Inventory</li> <li>▪ California Accidental Release Prevention Program</li> <li>▪ Aboveground Storage Tank</li> <li>▪ Uniform Fire Code Article 80 Section 103(b) &amp; (c) 1991</li> <li>▪ Underground Storage Tank</li> </ul>	<p><input type="checkbox"/> See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>.</p> <p><input type="checkbox"/> See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials" in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>.</p>



If These Sources Will Be on the Project Site ... Then Your SWQMP shall consider These Source Control BMPs			
1	2	3	4
Potential Sources of Runoff Pollutants	Permanent Controls—Show on Drawings	Permanent Controls—List in Table and Narrative	Operational BMPs—Include in Table and Narrative
<p><input type="checkbox"/> J. Vehicle and Equipment Cleaning</p> <p><input checked="" type="checkbox"/> Not Applicable</p>	<p><input type="checkbox"/> Show on drawings as appropriate:</p> <p>(1) Commercial/industrial facilities having vehicle /equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.</p> <p>(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited onsite and hoses are provided with an automatic shut-off to discourage such use).</p> <p>(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.</p> <p>(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.</p>	<p><input type="checkbox"/> If a car wash area is not provided, describe measures taken to discourage onsite car washing and explain how these will be enforced.</p>	<p>Describe operational measures to implement the following (if applicable):</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Wastewater from vehicle and equipment washing operations shall not be discharged to the storm drain system.</li> <li><input type="checkbox"/> Car dealerships and similar may rinse cars with water only.</li> <li><input type="checkbox"/> See Fact Sheet SC-21, “Vehicle and Equipment Cleaning,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> </ul>



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

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

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



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



... Then Your SWQMP shall consider These Source Control BMPs			
1 If These Sources Will Be on the Project Site ...	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> N. Fire Sprinkler Test Water</li> <li><input type="checkbox"/> Not Applicable</li> </ul>	<p>ALL LOTS TO HAVE SEWER CLEANOUT IN DRIVEWAY FOR DISPOSAL OF TEST WATER</p>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.</li> </ul>	<p>See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>.</p>
<ul style="list-style-type: none"> <li><input type="checkbox"/> O. Miscellaneous Drain or Wash Water</li> <li><input type="checkbox"/> Boiler drain lines</li> <li><input checked="" type="checkbox"/> Condensate drain lines</li> <li><input checked="" type="checkbox"/> Rooftop equipment</li> <li><input type="checkbox"/> Drainage sumps</li> <li><input checked="" type="checkbox"/> Roofing, gutters, and trim</li> <li><input type="checkbox"/> Not Applicable</li> </ul>		<ul style="list-style-type: none"> <li><input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.</li> <li><input checked="" type="checkbox"/> Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.</li> <li><input checked="" type="checkbox"/> Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment.</li> <li><input type="checkbox"/> Any drainage sumps onsite shall feature a sediment sump to reduce the quantity of sediment in pumped water.</li> <li><input checked="" type="checkbox"/> Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.</li> </ul>	

If These Sources Will Be on the Project Site ... Then Your SWQMP shall consider These Source Control BMPs			
1	2	3	4
Potential Sources of Runoff Pollutants	Permanent Controls—Show on Drawings	Permanent Controls—List in Table and Narrative	Operational BMPs—Include in Table and Narrative
<input checked="" type="checkbox"/> P. Plazas, sidewalks, and parking lots. <input type="checkbox"/> Not Applicable			<input checked="" type="checkbox"/> Plazas, sidewalks, and parking lots shall be swept regularly to prevent the accumulation of litter and debris.  Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.



TABLE 7-2. Maintenance Indicators and Actions for Vegetated BMPs

Typical Maintenance Indicator(s) for Vegetated BMPs	Maintenance Actions
Accumulation of sediment (sedimentation), litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans, without the use of chemical applications.
Overgrown vegetation	Mow or trim as appropriate, but not less than the design height of the vegetation per original plans (e.g. a vegetated swale may require a minimum vegetation height).
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as retiling the soil, replacing or amending the soil media, adding erosion control BMPs, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. <b>If the issue is not corrected by restoring the BMP to the original plan and grade, the City Engineer shall be contacted prior to any additional repairs or reconstruction. Any modifications to the existing approved SWQMP must be reviewed and approved by the City in advance.</b>
Standing water in vegetated swales	Take appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, loosening or replacing top soil to allow for better infiltration, or minor re-grading for proper drainage. If the issue is not corrected by restoring the BMP to the original plan and grade, the City Engineer shall be contacted prior to any additional repairs or reconstruction. Any modifications to the existing approved SWQMP must be reviewed and approved by the City in advance.
Standing water in bioretention, biofiltration with partial retention, or biofiltration areas, or flow-through planter boxes for longer than 96 hours following a storm event*	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains (where applicable), or repairing/replacing clogged or compacted soils.
Obstructed inlet or outlet structure	Clear obstructions and properly dispose of materials.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.
*These BMPs typically include a surface ponding layer as part of their function which may take no longer than 96 hours to drain following a storm event.	



**MAINTENANCE FOR SOURCE CONTROL BMP'S**

**A. STORM DRAIN INLETS**

Storm drain inlets within the project site should be inspected on a monthly basis during the rainy season, and after large storms the entire year. The inspection should ensure that the inlet opening is clear and free of obstructions, that the outlet pipe is clear and free of obstructions, and that the inlet bottom is clean and free of trash and debris.

The structural integrity of the inlet structure should be checked twice a year to ensure that the structure is whole, free of cracks, and not missing any components.

The inlet stencils should be checked twice a year to ensure that the stencil is present and legible, and when necessary, the stencil should be repainted.

Any repair work or replacement of the storm drain inlets should be documented and a copy kept in the SWQMP.

**B. PRIVATE STREETS, SIDEWALKS & PARKING LOTS**

The private streets, sidewalks, and parking lots should be inspected monthly throughout the year and after large storms to ensure that they do not contain trash, debris, or contaminants that could end up in the storm drain system. The City of Santee requires that streets, sidewalks and parking lots be swept at least once a year to remove dust, debris, oil, grease stains and residues. Additional sweeping may be necessary if dust, debris, or contaminants are present. The collected dust and debris should be disposed of in a trash receptacle.

The structural integrity of the private streets, sidewalks and parking lots should be inspected per the installer and manufacturer's recommendations. These are typically located in the project CC&R/HOA documents.

**C. LANDSCAPE & IRRIGATION (INCLUDING STREET TREES)**

The common area landscaping and irrigation located on Lots 'A', 'B' and 'C' should be inspected weekly during their normal maintenance work and after large storm events. Items to inspect and correct include: accumulation of sediment, litter or debris; poor vegetation establishment; overgrown vegetation; broken tree limbs; erosion due to concentrated irrigation flow; overspray of irrigation onto impervious surfaces; erosion due to concentrated storm water runoff; standing water; presence of unwanted pests; and dead vegetation.

In addition to the common area landscaping and irrigation, the private homeowner lot landscaping and irrigation should also be inspected and corrected as described above.

**D. FIRE SPRINKLER TEST WATER**

The homes within the project site are equipped with fire sprinklers for fire protection. Fire sprinkler manufacturers/installers typically require that the homeowner discharge the fire sprinkler water once a year to keep the fire sprinkler water fresh. This should be done by attaching a garden hose to the fire sprinkler outlet hose bib and discharging the water from the hose into the sewer cleanout provided in the garage or on the driveway of the house lot. This water should not be discharged into the storm drain system.

**RECORDING REQUESTED BY:**

City of Santee, CA

**AFTER RECORDING MAIL TO:**

City Clerk  
City of Santee  
10601 Magnolia Avenue  
Santee, CA 92071-1266

ABOVE SPACE FOR RECORDER'S USE

**AGREEMENT TO PERFORM STORM WATER  
FACILITIES MAINTENANCE**

NO RECORDATION FEE REQUIRED; THIS DOCUMENT IS  
EXEMPT FROM RECORDING FEES PURSUANT  
TO CALIFORNIA GOVERNMENT CODE SECTIONS 6103 AND 27383

DOCUMENTARY TRANSFER TAX DUE \$ 0

Assessor's Parcel No. \_\_\_\_\_ Project No. \_\_\_\_\_

This AGREEMENT for the maintenance and repair of certain Storm Water Management Facilities is entered into between \_\_\_\_\_ (hereinafter referred to as "Owner") and the City of Santee (hereinafter referred to as "City") for the benefit of the City, the successors in interest to the City, and the public generally.

**RECITALS**

A. Owner is the owner of certain real property located in the City of Santee, California, more particularly described in **Exhibit "A"** hereto (hereinafter referred to as the "Property"), and has proposed that the Property be developed as \_\_\_\_\_ (insert brief description of type of project, e.g., "a 100 unit residential



subdivision”) \_\_\_\_\_ in accordance with applications for Tentative Map No. \_\_\_\_\_, Development Review No. \_\_\_\_\_, Conditional Use Permit No. \_\_\_\_\_, Grading Permit No. \_\_\_\_\_ which are on file with the City. This Agreement is required as a condition of approval for such development as set forth in Resolution Nos. \_\_\_\_\_.

B. In accordance with the City of Santee’s Storm Water Management and Discharge Control Ordinance, (Santee Municipal Code, Chapter 13.42), the City of Santee Subdivision Ordinance, the City of Santee Zoning Ordinance, the City of Santee Grading Ordinance and/or other ordinances or regulations of the City which regulate land development and urban runoff, Owner has prepared and submitted to the City, a site specific Storm Water Quality Management Plan (hereinafter the SWQMP), prepared by \_\_\_\_\_ and dated \_\_\_\_\_ which is on file with the City’s Department of Development Services. The SWQMP proposes that storm water runoff from the Property be treated by the use of various storm water management facilities which are identified in the SWQMP as “Best Management Practices” or “BMP’s”:

The precise location and extent of the BMP’s are described and shown in the SWQMP. The SWQMP specifies the frequency, manner, and standards by which the BMP’s must be repaired and maintained in order to retain their effectiveness, as set forth in the Operation and Maintenance Section included in the SWMP.

C. The information contained in the SWQMP and the Owner’s representation that the BMP’s will be maintained pursuant to the SWQMP have been relied upon by City in approving Owner’s development applications. It is the purpose of this Agreement to assure that the BMP’s are maintained in perpetuity, by creating obligations which are enforceable against the Owner and the Owner’s successors in interest in the Property. It is intended that these obligations be enforceable notwithstanding other provisions related to BMP maintenance which are provided by law.

## AGREEMENT

NOW, THEREFORE, for consideration of City’s approval of the above development applications and the mutual covenants set forth herein, IT IS HEREBY AGREED AS FOLLOWS:

1. **Maintenance of Storm Water Management Facilities.** Owner agrees, for itself and its successors in interest, to all or any portion of the Property, to comply in all respects with the requirements of the Storm Water Management

and Discharge Control Ordinance and the SWQMP with regard to the maintenance of all BMP's as designated in the SWQMP, and in particular agrees to perform, at its sole cost, expense and liability, the following "Maintenance Activities": all inspections, cleaning, repairs, servicing, maintenance and other actions specified in the SWQMP, with respect to all of the BMP's listed at Recital "B" above, at the times and in the manner specified in the SWQMP as it currently exists or may be amended or modified as provided herein. Owner shall initiate, perform and complete all Maintenance Activities at the required time, without request or demand from City or any other agency. Owner further agrees that "Maintenance Activities" shall include replacement or modification of the BMP's in the event that the BMP fails to provide the necessary water quality treatment, it is found that the BMP was not installed correctly, or in the event that the BMP is not functioning as intended. Replacement shall be with an identical type, size and model of BMP, except that:

(a) The City Engineer may authorize substitution of an alternative BMP if he or she determines that it will function as good or better than the failed BMP. The City requires that proposed modifications be submitted for review and approval prior to making any changes in the field, and that the Storm Water Quality Management Plan be revised or amended and resubmitted for approval; and

(b) Pursuant to Section 13.42.070 of the Storm Water Management and Discharge Control Ordinance, any discharge that would result in or contribute to a violation of the City's NPDES Permit and any amendment, revision or re-issuance thereof, either separately considered or when combined with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the owner(s) causing or responsible for the discharge. Owner agrees that if the BMP, in the judgment of the Director of Development Services indicates that the BMP in use is inappropriate or inadequate to the circumstances and has or may result in a violation of water quality standards, the BMP must be modified or replaced with an upgraded BMP to prevent any actual or potential violation.

## **2. Annual Inspection and Certification by Owner**

Owner agrees to provide documentation of BMP maintenance as required for the City to ensure that all storm water BMPs are properly maintained and are functioning as intended, in compliance with the site specific Storm Water Quality Management Plan. Owner shall provide annual certification that BMPs have been properly maintained for the time period of *September 1 to August 31, each year. This documentation is due to the City prior to September 15th of each year.* Structural BMPs for which annual certification is required includes, but is not limited to: drainage inserts; detention basins; hydrodynamic separators; swales; filters;

bioretention facilities; and Low Impact Development Integrated Management Practices (LID IMPs).

3. **Notices.** Owner further agrees that it shall, prior to transferring ownership of any land on which any of the above BMP's are located, and also prior to transferring ownership of any such BMP, provide clear written notice of the above maintenance obligations associated with that BMP to the transferee. The Storm Water Quality Management Plan and all associated records must also be provided to all subsequent owners upon transfer of property title.

4. **City's Right to Perform Maintenance.** It is agreed that City shall have the right, but not the obligation, to elect to perform any or all of the Maintenance Activities if, in the City's sole judgment, Owner has failed to perform the same. It is recognized and understood that the City makes no representation that it intends to or will perform any of the Maintenance Activities, and any election by the City to perform any of the Maintenance Activities, shall in no way relieve Owner of its continuing maintenance obligations under this agreement. If the City elects to perform any of the Maintenance Activities, it is understood that the City shall be deemed to be acting as the agent of the Owner and said work shall be without warranty or representation by City as to safety or effectiveness, shall be deemed to be accepted by Owner "as is", and shall be covered by Owner's indemnity provisions below.

If the City performs any of the Maintenance Activities, after City has served written notice to the Owner to perform the same, and the Owner has failed to do so within a reasonable time stated in the City's written notice, then Owner shall pay all of the City's costs incurred in performing the Maintenance Activities within sixty days of receipt of an invoice for those costs.

5. **Right of Entry and Inspection by City.** Owner hereby grants to City a perpetual right of entry over, under and across Owner's Property, for purposes of accessing the BMP's and performing inspection of the BMP's or any of the Maintenance Activities related to maintenance of the BMP's. City shall have the right, at any time and without prior notice to Owner, to enter upon any part of said area as may be necessary or convenient for such purposes. Owner shall at all times maintain the Property so as to make the City's access clear and unobstructed. City is required to perform periodic inspection of Structural BMPs. Owner agrees to pay reasonable fees levied by the City on Owners of BMPs for the costs of managing the BMP inspection and maintenance tracking program.

6. **Administration of Agreement for City.** City hereby designates its Department of Development Services with responsibility and authority to administer this Agreement on behalf of City. Any notice or communication related to the



implementation of this Agreement desired or required to be delivered to City shall be addressed to:

Director of Development Services  
City of Santee  
10601 Magnolia Avenue  
Santee, CA 92071

The City Engineer is also granted authority to enter into appropriate amendments to this Agreement on behalf of City, provided that the amendment is consistent with the purposes of this Agreement as set forth above.

7. **Defense and Indemnity.** City shall not be liable for, and Owner and its successors in interest shall defend and indemnify City and the employees and agents of City, against any and all claims, demands, liability, judgments, awards, fines, mechanic's liens or other liens, labor disputes, losses, damages, expenses, charges or costs of any kind or character, including attorneys' fees and court costs (hereinafter collectively referred to as "CLAIMS"), related to this Agreement and arising either directly or indirectly from any act, error, omission or negligence of Owner, Owner's successors, or their contractors, licensees, agents, servants or employees, including, without limitation, claims caused by the concurrent negligent act, error or omission, whether active or passive of City. Owner shall have no obligation, however, to defend or indemnify City from a claim if it is determined by a court of competent jurisdiction that such claim was caused by the sole negligence or willful misconduct of City. Nothing in this Agreement, in the City's approval of the subdivision or other applications or plans and specifications, or inspection of the work, is intended to acknowledge responsibility for any such matter, and City shall have absolutely no responsibility or liability therefore unless otherwise provided by applicable law.

8. **Common Interest Developments.** If the Property is developed as a "Common Interest Development" as defined in Civil Code section 1351(c) which will include membership in or ownership of an "Association" as defined in Civil Code section 1351(a), then the following provisions of this Paragraph 7 shall apply during such time as the Property is encumbered by a "Declaration" as defined in Civil Code section 1351(h), and the Common Area, as "Common Area" is defined in Civil Code section 1351(b), of the Property is managed and controlled by the Association:

(a) The Association, through its Board of Directors, shall assume full responsibility to perform the MAINTENANCE ACTIVITIES pursuant to this Agreement, and shall undertake all actions and efforts necessary to accomplish the MAINTENANCE ACTIVITIES, including but not limited to,

levying regular or special assessments against each member of the Association sufficient to provide funding for the MAINTENANCE ACTIVITIES, conducting a vote of the membership related to such assessments if required by law. In the event insufficient votes have been obtained to authorize an assessment, the Association shall seek authority from a court of competent jurisdiction for a reduced percentage of affirmative votes necessary to authorize the assessment, re-conducting the vote of the membership in order to obtain the votes necessary to authorize an assessment, and the Association shall take all action authorized by the Declaration or California law to collect delinquent assessments, including but not limited to, the recording and foreclosure of assessment liens.

(b) No provision of the Declaration, nor any other governing document of the Association or grant of authority to its members, shall grant or recognize a right of any member or other person to alter, improve, maintain or repair any of the Property in any manner which would impair the functioning of the BMP's to manage drainage or storm water runoff as described in the SWQMP. In the event of any conflict between the terms of this Agreement and the Declaration or other Association governing documents, the provisions of this Agreement shall prevail.

9. **Agreement Binds Successors and Runs With the Property.** It is understood and agreed that the terms, covenants and conditions herein contained shall constitute covenants running with the land and shall be binding upon the heirs, executors, administrators, successors and assigns of Owner and City, shall be deemed to be for the benefit of all persons owning any interest in the Property (including the interest of City or its successors in the easement granted herein). It is the intent of the parties hereto that this Agreement shall be recorded and shall be binding upon all persons purchasing or otherwise acquiring all or any lot, unit or other portion of the Property, who shall be deemed to have consented to and become bound by all the provisions hereof.

10. **Owner's Continuing Responsibilities Where Work Commenced or Permit Obtained.** Notwithstanding any other provision of this Agreement, no transfer or conveyance of the Property or any portion thereof shall in any way relieve Owner of or otherwise affect Owner's responsibilities for installation or maintenance of BMP's which may have arisen under the ordinances or regulations of City referred to in Recital B above, or other federal, state or local laws, on account of Owner having obtained a permit which creates such obligations or having commenced grading, construction or other land disturbance work.

11. **Amendment and Release.** The terms of this Agreement may be modified only by a written amendment approved and signed by the Director of

Development Services and by the Owner or Owner's successor(s) in interest. This Agreement may be terminated and Owner and the Property released from the covenants set forth herein, by a Release which City may execute if it determines that another mechanism will assure the ongoing maintenance of the BMP's or that it is no longer necessary to assure such maintenance.

12. **Agreement is Intended to Supplement Not Supercede.** This Agreement is intended to supplement and not supercede the requirements of the Chapter 13.42 of the Santee Municipal Code – Storm Water Management and Discharge Control. The requirements listed herein are in addition to the requirements set forth in the Code including Civil Actions and Enforcement Powers established under the Code.

13. **Governing Law and Severability.** This Agreement shall be governed by the laws of the State of California. Venue in any action related to this Agreement shall be in the Superior Court of the State of California, County of San Diego, East County Division. In the event that any of the provisions of this Agreement are held to be unenforceable or invalid by any court of competent jurisdiction, the validity, and enforceability of the remaining provisions shall not be affected thereby.



**IN WITNESS WHEREOF**, the parties have executed this Agreement on the \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_.

CITY OF SANTEE:

By: \_\_\_\_\_  
Melanie Kush  
Acting Director of Development Services

OWNERS:

By: \_\_\_\_\_  
(sign here)  
\_\_\_\_\_  
(print name here)  
\_\_\_\_\_  
(title of signatory)

By: \_\_\_\_\_  
(sign here)  
\_\_\_\_\_  
(print name here)  
\_\_\_\_\_  
(title of signatory)

(All OWNERS must sign)

(Proper notary acknowledgment of execution by OWNER must be attached.)

(President or vice-president **and** secretary or assistant secretary must sign for corporations. If only one officer signs, the corporation must attach a resolution certified by the secretary or assistant secretary under corporate seal empowering that officer to bind the corporation.)

**CITY OF SANTEE  
CERTIFICATE OF ACCEPTANCE  
FOR  
AGREEMENT TO PERFORM STORM WATER FACILITIES MAINTENANCE**

This AGREEMENT by and between the City of Santee, a municipal corporation, and \_\_\_\_\_ is accepted for recording by the undersigned officers on behalf of the City of Santee pursuant to authority granted by Resolution No. 148-89 of the Santee City Council adopted on August 9, 1989.

Date: \_\_\_\_\_

By: \_\_\_\_\_  
Melanie Kush  
Acting Director of Development Services

CITY CLERK'S OFFICE:

STATE OF CALIFORNIA    )  
COUNTY OF SAN DIEGO   ) ss.  
CITY OF SANTEE            )

On \_\_\_\_\_, before me, Patsy Bell, CMC, City Clerk, personally appeared Melanie Kush, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity as Development Services Director, and that by his signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument on behalf of the City of Santee.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

\_\_\_\_\_  
Patsy Bell  
CMC, City Clerk

Exhibit "A"





## ATTACHMENT 4

### Copy of Plan Sheets Showing 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.

(N/A)