

STORM WATER MANAGEMENT PLAN



GOLF GREEN ESTATES MARCH 2012

Prepared For: San Luis Rey Downs Enterprises, LLC

Prepared By: Fuscoe Engineering, Inc.

Job Number: 02518-002-02



Major Stormwater Management Plan
(Major SWMP)
For
TM 5489 Golf Green Estates

Preparation/Revision Date:
March 2012

Prepared for:

San Luis Rey Downs Enterprises LLC
5772 Camino Del Rey
Bonsall, CA 92003

Prepared by:

Fuscoe Engineering, Inc.
6390 Greenwich Drive, Suite 170
San Diego, CA 92122
858.554.1500

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan have been prepared under the direction of the following Registered Civil Engineer and meet the requirements of Regional Water Quality Control Board Order R9-2007-0001 and subsequent amendments.

Robert A. Chase, P.E., RCE #41903

Date

The Major Stormwater Management Plan (Major SWMP) must be completed in its entirety and accompany applications to the County for a permit or approval associated with certain types of development projects. To determine whether your project is required to submit a Major or Minor SWMP, please reference the County's Stormwater Intake Form for Development Projects.

Project Name:	Golf Green Estates
Project Location:	Camino Del Rey and Old River Rd. Unincorporated San Diego County, CA
Permit Number (Land Development Projects):	
Work Authorization Number (CIP only):	
Applicant:	San Luis Rey Downs Enterprises, LLC
Applicant's Address:	5772 Camino Del Rey, Bonsall, CA
Plan Prepared By (<i>Leave blank if same as applicant</i>):	Fuscoe Engineering, Inc.
Preparer's Address:	6390 Greenwich Dr. #170, San Diego, CA
Date:	September 2011

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9926) requires all applications for a permit or approval associated with a Land Disturbance Activity to be accompanied by a Storm Water Management Plan (SWMP) (section 67.806.b). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority development project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Stages	Does the SWMP need revisions?		If YES, Provide Revision Date	County Reviewer
	YES	NO		

Instructions for a Major SWMP can be downloaded at <http://www.sdcounty.ca.gov/dpw/watersheds/susmp/susmp.html>

Completion of the following checklists and attachments will fulfill the requirements of a Major SWMP for the project listed above.

STEP 1

PRIORITY DEVELOPMENT PROJECT DETERMINATION

TABLE 1: IS THE PROJECT IN ANY OF THESE CATEGORIES?

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	A	Housing subdivisions of 10 or more dwelling units. Examples: single-family homes, multi-family homes, condominiums, and apartments.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	B	Commercial—greater than one acre. Any development other than heavy industry or residential. Examples: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; municipal facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; airfields; and other light industrial facilities.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	C	Heavy industry—greater than one acre. Examples: manufacturing plants, food processing plants, metal working facilities, printing plants, and fleet storage areas (bus, truck, etc.).
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	D	Automotive repair shops. A facility categorized in any one of Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, or 7536-7539.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	E	Restaurants. Any facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirements and hydromodification requirements.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	F	Hillside development greater than 5,000 square feet. Any development that creates 5,000 square feet of impervious surface and is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	G	Environmentally Sensitive Areas (ESAs). All development located within or directly adjacent to or discharging directly to an ESA (where discharges from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	H	Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff.
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	I	Street, roads, highways, and freeways. Any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	J	Retail Gasoline Outlets (RGOs) that are: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

To use the table, review each definition A through K. If any of the definitions match, the project is a Priority Development Project. Note some thresholds are defined by square footage of impervious area created; others by the total area of the development. Please see special requirements for previously developed sites and project exemptions on page 6 of the County SUSMP.

STEP 2

PROJECT STORMWATER QUALITY DETERMINATION

Total Project Site Area 29.6 Acres (Acres or ft²)

Estimated amount of disturbed acreage: 29.7 Acres

(If > 1 acre, you must also provide a WDID number from the SWRCB) WDID: _____
WDID# Will be provided after the NOI has been submitted closer to the start date of construction.

Complete A through C and the calculations below to determine the amount of impervious surface on your project before and after construction.

- A. Total size of project site: 29.6 Acres (Acres or ft²)
- B. Total impervious area (including roof tops) before construction 29.6 Acres
- C. Total impervious area (including roof tops) after construction 11.1 Acres

Calculate percent impervious before construction: $B/A = 3\%$

Calculate percent impervious after construction: $C/A = 38\%$

Please provide detailed descriptions regarding the following questions:

TABLE 2: PROJECT SPECIFIC STORMWATER ANALYSIS

1.	Please provide a brief description of the project.
<p>This Major Storm Water Management Plan (SWMP) pertains to the residential development called Golf Green Estates, TM 5489 in the County of San Diego. Golf Green Estates is a 29.6 acre residential development consisting of 94 units including access roads, circulation roads, and utilities. The site is located in Bonsall, California southeast of highway 76, between Golf Club Drive and Mission Road (east and west limits) and between Old River Road and Camino Del Rey (south and north limits). The site sits on a hill between the San Luis Rey Downs golf course and Bonsall Elementary School. The golf course is bordered by the San Luis Rey River on the west side of the course and Moosa Canyon Creek on the east side. See Attachment A for Project Location Map. See Attachment B for locations of project drainage basins and subbasins.</p>	
2.	Describe the current and proposed zoning and land use designation.
<p>The site is currently zoned for residential development. The land use codes are all RS7 except for one parcel which is RV7. No changes to the existing zoning is proposed.</p>	
3.	Describe the pre-project and post-project topography of the project. (Show on Plan)
<p>The Project site is located on a hill between the San Luis Rey Downs golf course and Bonsall Elementary School. The site wraps around the school and is split into a west and an east half by Old River Road which runs north and south.</p>	
4.	Describe the soil classification, permeability, erodibility, and depth to groundwater for LID and Treatment BMP consideration. (Show on Plan) If infiltration BMPs are proposed, a Geotechnical Engineer must certify infiltration BMPs in Attachment E.
<p>The project site is located within the Bonsall quadrangle map. Based on the US Department of Agriculture's Soil Survey of San Diego County (1973), the site is comprised of four types of soil – Fallbrook sandy loam (FaD2), 9-15% slopes, eroded, Placentia sandy loam (PeD2), 9-15% slopes, eroded, Placentia sandy loam (PeC2), 5-9% slopes, eroded, and Tujunga Sand (TuB), 0-5% slopes. All soil types (with the exception of Tujunga Sand, type A) are in the C and D hydrologic group. All have a severe rating for erodibility, and have slight limitations for conversion from brush to grass.</p>	
5.	Describe if contaminated or hazardous soils are within the project area. (Show on Plan)
<p>Based on the review of the available documents, Fuscoe Engineering is not aware of any significant quantities of toxic materials known to have been treated, stored, disposed, spilled or leaked out of this construction site. The San Luis Rey Downs, LLC is not aware of any significant quantities of toxic materials known to have been treated, stored, disposed, spilled or leaked out of this construction site.</p>	
6.	Describe the existing site drainage and natural hydrologic features. (Show on Plan).
<p>The proposed project is 29.6 acres in size, with 94 lots slotted for development. This proposed development will be constructing a building on an existing golf course, undeveloped land. An existing 22.44 acre school will remain in the center of the</p>	

development. There are no existing underground storm drain systems within the Golf Green Estates project area. Runoff reaches Moosa Canyon Creek and San Luis Rey River by sheet flow through natural swales across the golf course. There are three main drainage basins. Basin 100 is tributary to the north of San Luis Rey River and is 12 acres. Basins 200 is tributary to the east at Moosa Canyon Creek and is 47.7 acres. Basin 300 is tributary to the west at San Luis Rey River and is 6.5 acres. These tributary areas correspond to the main drainage areas within the project boundary. Larger watersheds, including offsite areas, were used for hydrology/hydrologic study. The existing peak flow rate for each of the basins (including offsite areas) is shown in the pre and post-development flow comparison table located in this section. A detailed description of the existing site hydrology can be found in the Drainage Study titled "Hydrology Study for Golf Green Estates", prepared by Fuscoe Engineering, 2009.

The existing site does not practice any source control BMPs or treatment control BMPs. The only existing treatment is infiltration through the existing natural swale within the existing golf course.

According to the Regional Water Quality Control Board's (RWQCB) San Diego Hydrologic Basin Planning Area Map, the project is located in the Bonsall Hydrologic Subarea within the Lower San Luis Hydrologic Area within the San Luis Rey Hydrologic Unit (903.12).

7.	Describe site features and conditions that constrain, or provide opportunities for stormwater control, such as LID features.
----	--

The site is surrounded on the perimeter by the San Luis Rey Downs golf course. The golf course is owned by the same party that is proposing the project, and permission to grade will be given in order to construct bioswales on the golf course property. On the east side of the project, a five foot wide bio swale has been proposed, while on the west side of the project, a ten foot wide bio swale is proposed. The side slopes are planned to be turf and have been designed with 5:1 side slopes so that they can be easily mowed as part of the regular golf course maintenance.

8.	Is this project within the environmentally sensitive areas as defined on the maps in Appendix A of the <i>County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects</i> ?
----	---

No

9.	Is this an emergency project? If yes, please provide a description below.
----	---

No

CHANNELS & DRAINAGES

Complete the following checklist to determine if the project includes work in channels.

TABLE 3: CHANNEL& DRAINAGE ANALYSIS

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project include work in channels?	✓			If YES go to 2 If NO go to 13.
2.	Will the project increase velocity or volume of downstream flow?	✓			If YES go to 6.
3.	Will the project discharge to unlined channels?	✓			If YES go to 6.
4.	Will the project increase potential sediment load of downstream flow?		✓		If YES go to 6.
5.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?		✓		If YES go to 8.
6.	Review channel lining materials and design for stream bank erosion.			✓	Continue to 7.
7.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.	✓			Continue to 8.
8.	Include, where appropriate, energy dissipation devices at culverts.	✓			Continue to 9.
9.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	✓			Continue to 10.
10.	Include, if appropriate, detention facilities to reduce peak discharges.			✓	Continue to 11.
11.	"Hardening" natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.	✓			Continue to 12.
12.	Provide other design principles that are comparable and equally effective.			✓	Continue to 13.
13.	End				

TEMPORARY CONSTRUCTION BMPS

Please check the construction BMPs that may be implemented during construction of the project. The applicant will be responsible for the placement and maintenance of the BMPs incorporated into the final project design.

- ✓ Silt Fence
- ✓ Fiber Rolls
- ✓ Street Sweeping and Vacuuming
- ✓ Storm Drain Inlet Protection
- ✓ Stockpile Management
- ✓ Solid Waste Management
- ✓ Stabilized Construction Entrance/Exit
- ✓ Dewatering Operations
- ✓ Vehicle and Equipment Maintenance
- ✓ Desilting Basin
- ✓ Gravel Bag Berm
- ✓ Sandbag Barrier
- ✓ Material Delivery and Storage
- ✓ Spill Prevention and Control
- ✓ Concrete Waste Management
- ✓ Water Conservation Practices
- ✓ Paving and Grinding Operations
- ✓ Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.

EXCEPTIONAL THREAT TO WATER QUALITY DETERMINATION

Complete the checklist below to determine if a proposed project will pose an “exceptional threat to water quality,” and therefore require Advanced Treatment Best Management Practices during the construction phase.

TABLE 4: EXCEPTIONAL THREAT TO WATER QUALITY DETERMINATION

No.	CRITERIA	YES	NO	INFORMATION
1.	Is all or part of the proposed project site within 200 feet of waters named on the Clean Water Act (CWA) Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity? Current 303d list may be obtained from the following site: http://www.swrcb.ca.gov/tmdl/docs/303dlists2006/approved/r9_06_303d_reqtdls.pdf		✓	If YES, continue to 2. If NO, go to 5.
2.	Will the project disturb more than 5 acres, including all phases of the development?			If YES, continue to 3. If NO, go to 5.
3.	Will the project disturb slopes that are steeper than 4:1 (horizontal: vertical) with at least 10 feet of relief, and that drain toward the 303(d) listed receiving water for sedimentation and/or turbidity?			If YES, continue to 4. If NO, go to 5.
4.	Will the project disturb soils with a predominance of USDA-NRCS Erosion factors k_f greater than or equal to 0.4?			If YES, continue to 6. If NO, go to 5.
5.	Project is not required to use Advanced Treatment BMPs.			Document for Project Files by referencing this checklist.
6.	Project poses an “exceptional threat to water quality” and is required to use Advanced Treatment BMPs.			Advanced Treatment BMPs must be consistent with WPO section 67.811(b)(20)(D) performance criteria

Exemption potentially available for projects that require advanced treatment: Project proponent may perform a Revised Universal Soil Loss Equation, Version 2 (RUSLE 2), Modified Universal Soil Loss Equation (MUSLE), or similar analysis that demonstrates (to the County official’s satisfaction) that advanced treatment is not required.

STEP 3

HYDROMODIFICATION DETERMINATION

The following questions provide a guide to collecting information relevant to hydromodification management plan (HMP) issues. If the project is exempt from the HMP criteria, please provide the supporting documentation in Attachment H. Please reference the full descriptions of the HMP exemptions located in Figure 1-1 of the County SUSMP.

TABLE 5: HYDROMODIFICATION DETERMINATION

	QUESTIONS	YES	NO	Information
1.	Will the project reduce the pre-project impervious area and are the unmitigated post-project outflows (outflows without detention routing) to each outlet location less as compared to the pre-project condition?		✓	If NO, continue to 2. If YES, go to 7.
2.	Would the project site discharge runoff directly to an exempt receiving water, such as the Pacific Ocean, San Diego Bay, an exempt reservoir, or a tidally-influenced area?		✓	If NO, continue to 3. If YES, go to 7.
3.	Would the project site discharge to a stabilized conveyance system, which has the capacity for the ultimate Q_{10} , and extends to the Pacific Ocean, San Diego Bay, a tidally-influenced area, an exempt river reach or reservoir?		✓	If NO, continue to 4. If YES, go to 7.
4.	Does the contributing watershed area to which the project discharges have an impervious area percentage greater than 70 percent?		✓	If NO, continue to 5. If YES, go to 7.
5.	Is this an urban infill project which discharges to an existing hardened or rehabilitated conveyance system that extends beyond the "domain of analysis," where the potential for cumulative impacts in the watershed are low, and the ultimate receiving channel has a "Low" susceptibility to erosion as defined in the SCCWRP channel assessment tool?		✓	If NO, continue to 6. If YES, go to 7.
6.	Project is required to manage hydromodification impacts.	✓		Reference Appendix G "Hydromodification Management Plan" of the County SUSMP.
7.	Project is not required to manage hydromodification impacts.			Hydromodification Exempt. Keep on file.

STEP 4

POLLUTANTS OF CONCERN DETERMINATION

WATERSHED

Please check the watershed(s) for the project.

<input type="checkbox"/> San Juan 901	<input type="checkbox"/> Santa Margarita 902	<input checked="" type="checkbox"/> San Luis Rey 903	<input type="checkbox"/> Carlsbad 904
<input type="checkbox"/> San Dieguito 905	<input type="checkbox"/> Penasquitos 906	<input type="checkbox"/> San Diego 907	<input type="checkbox"/> Sweetwater 909
<input type="checkbox"/> Otay 910	<input type="checkbox"/> Tijuana 911	<input type="checkbox"/> Whitewater 719*	<input type="checkbox"/> Clark 720*
<input type="checkbox"/> West Salton 721*	<input type="checkbox"/> Anza Borrego 722*	<input type="checkbox"/> Imperial 723*	

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

*Projects located fully within these watersheds require only a Minor SWMP.

HYDROLOGIC SUB-AREA NAME AND BASIN NUMBER(S)

Basin Number	Sub-Area Name
903.12	Bonsall Hydrologic Subarea

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

SURFACE WATERS that each project discharge point proposes to discharge to.

SURFACE WATERS (river, creek, stream, etc.)	Hydrologic Unit Basin Number	Impairment(s) listed [303(d) listed waters or waters with established TMDLs]. List the impairments identified in Table 7 .	Distance to Project
Moosa Creek	903.13	None	Within project.
San Luis Rey River	903.12	None	

http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_req_tmdls.pdf

GROUND WATERS

Ground Waters	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
None																

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

+ Excepted from Municipal

● Existing Beneficial Use

○ Potential Beneficial Use

PROJECT ANTICIPATED AND POTENTIAL POLLUTANTS

Using Table 6, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

TABLE 6: ANTICIPATED AND POTENTIAL POLLUTANTS GENERATED BY LAND USE TYPE

<i>PDP Categories</i>	<i>General Pollutant Categories</i>								
	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	p ⁽¹⁾	p ⁽²⁾	P	X
Commercial Development 1 acre or greater	p ⁽¹⁾	p ⁽¹⁾		p ⁽²⁾	X	p ⁽⁵⁾	X	p ⁽³⁾	p ⁽⁵⁾
Heavy industry /industrial development	X		X	X	X	X	X		
Automotive Repair Shops			X	X ⁽⁴⁾⁽⁵⁾	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft ²	X	X			X	X	X		X
Parking Lots	p ⁽¹⁾	p ⁽¹⁾	X		X	p ⁽¹⁾	X		p ⁽¹⁾
Retail Gasoline Outlets			X	X	X	X	X		
Streets, Highways & Freeways	X	p ⁽¹⁾	X	X ⁽⁴⁾	X	p ⁽⁵⁾	X		

X = anticipated
P = potential
(1) A potential pollutant if landscaping exists on-site.
(2) A potential pollutant if the project includes uncovered parking areas.
(3) A potential pollutant if land use involves food or animal waste products.
(4) Including petroleum hydrocarbons.
(5) Including solvents.

PROJECT POLLUTANTS OF CONCERN SUMMARY TABLE

Please summarize the identified project pollutants-of-concern by checking the appropriate boxes in the table below and list any surface water impairments identified. Pollutants anticipated to be generated by the project, which are also causing impairment of receiving waters, shall be considered the primary pollutants of concern. For projects where no primary pollutants of concern exist, those pollutants identified as anticipated shall be considered secondary pollutants of concern.

TABLE 7: PROJECT POLLUTANTS OF CONCERN

Pollutant Category	Anticipated (X)	Potential (P)	Surface Water Impairments
Sediments	X		Tracking by vehicles, displaced by wind and equipment, and/or eroded by water.
Nutrients	X		Nitrogen and phosphorous runoff from fertilizers and/or eroded soils.
Heavy Metals	X		Metals from fuels, adhesives, paints, and other coatings.
Organic Compounds	X		Carbon-based, from pesticides, solvents, and hydrocarbons.
Trash & Debris	X		Trash and debris left on site and/or blown by wind.
Oxygen Demanding Substances	X		Biodegradable organic matter from solid waste.
Oil & Grease	X		Leaking vehicles and/or equipment.
Bacteria & Viruses	X		
Pesticides	X		

STEP 5

LID AND SITE DESIGN STRATEGIES

Each numbered item below is a Low Impact Development (LID) requirement of the WPO. Please check the box(s) under each number that best describes the LID BMP(s) and Site Design Strategies selected for this project. LID BMPs selected on this table will be typically represented as a self-retaining area, self-treating area, pervious pavement and greenroof, which, should be delineated in the Drainage Management Area map in Attachment C.

TABLE 8: LID AND SITE DESIGN

1.	Conserve natural Areas, Soils, and Vegetation
	<input checked="" type="checkbox"/> Preserve well draining soils (Type A or B)
	<input checked="" type="checkbox"/> Preserve Significant Trees
	<input checked="" type="checkbox"/> Preserve critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions
	<input checked="" type="checkbox"/> Other. Description: All natural vegetation and habitats within the floodway will be preserved.
2.	Minimize Disturbance to Natural Drainages
	<input checked="" type="checkbox"/> Set-back development envelope from drainages
	<input checked="" type="checkbox"/> Restrict heavy construction equipment access to planned green/open space areas
	<input type="checkbox"/> Other. Description:
3.	Minimize and Disconnect Impervious Surfaces (see 5)
	<input checked="" type="checkbox"/> Clustered Lot Design
	<input checked="" type="checkbox"/> Items checked in 5?
	<input checked="" type="checkbox"/> Other. Description: The number of residential street cul-de-sacs has been minimized and landscaped areas have been incorporated to reduce their impervious cover. Vegetated swales and extended detention (water quality) basins, are proposed onsite. In total, the project proposes minimal DCIAs, and has a significant amount of water quality features designed to minimize "hard piping" to storm drain.
4.	Minimize Soil Compaction
	<input checked="" type="checkbox"/> Restrict heavy construction equipment access to planned green/open space areas
	<input checked="" type="checkbox"/> Re-till soils compacted by construction vehicles/equipment
	<input checked="" type="checkbox"/> Collect & re-use upper soil layers of development site containing organic Materials
	<input type="checkbox"/> Other. Description:
5.	Drain Runoff from Impervious Surfaces to Pervious Areas
	<u>LID Street & Road Design</u>
	<input type="checkbox"/> Curb-cuts to landscaping
	<input checked="" type="checkbox"/> Rural Swales
	<input type="checkbox"/> Concave Median
	<input type="checkbox"/> Cul-de-sac Landscaping Design
	<input type="checkbox"/> Other. Description:

<u>LID Parking Lot Design</u>	
<input type="checkbox"/>	Permeable Pavements
<input type="checkbox"/>	Curb-cuts to landscaping
<input checked="" type="checkbox"/>	Other. Description: At this time permeable pavements are not proposed for the project site. While curb cut did not fit the overall site goals, streets are designed to drain into swales to allow for infiltration.
<u>LID Driveway, Sidewalk, Bike-path Design</u>	
<input type="checkbox"/>	Permeable Pavements
<input checked="" type="checkbox"/>	Pitch pavements toward landscaping
<input checked="" type="checkbox"/>	Other. Description: At this time permeable pavements are not proposed for the project site. All applicable hardscape areas will be drained toward landscaping or vegetated swale areas where feasible.
<u>LID Building Design</u>	
<input type="checkbox"/>	Cisterns & Rain Barrels
<input type="checkbox"/>	Downspout to swale
<input type="checkbox"/>	Vegetated Roofs
<input checked="" type="checkbox"/>	Other. Description: Not Used. Site will convey runoff toward site design vegetated swales, and extended water quality detention basins for treatment. The site will contain a significant amount of sheet flow from impervious through pervious areas, and will retain some of its natural sheet flow characteristics
<u>LID Landscaping Design</u>	
<input type="checkbox"/>	Soil Amendments
<input type="checkbox"/>	Reuse of Native Soils
<input type="checkbox"/>	Smart Irrigation Systems
<input type="checkbox"/>	Street Trees
<input checked="" type="checkbox"/>	Other. Description: Preliminarily, smart irrigation will be used onsite to minimize the amount of overspray from landscaped areas. In addition flow reducing technology designed to stop water pressure in case of a break in an irrigation line will be employed onsite. The use of features such as smart trees etc, are not known at this time. Upon final engineering and upon the submittal of the final Storm Water Management Plan, the inclusion of these features will be detailed.
6.	Minimize erosion from slopes
<input checked="" type="checkbox"/>	Disturb existing slopes only when necessary
<input type="checkbox"/>	Minimize cut and fill areas to reduce slope lengths
<input type="checkbox"/>	Incorporate retaining walls to reduce steepness of slopes or to shorten slopes
<input checked="" type="checkbox"/>	Provide benches or terraces on high cut and fill slopes to reduce concentration of flows
<input type="checkbox"/>	Rounding and shaping slopes to reduce concentrated flow
<input checked="" type="checkbox"/>	Collect concentrated flows in stabilized drains and channels
<input type="checkbox"/>	Other. Description:

STEP 6

SOURCE CONTROL

Please complete the checklist on the following pages to determine Source Control BMPs. Below is instruction on how to use the checklist. (Also see instructions on page 60 of the *SUSMP*)

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies and list in Table 9.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your Source Control Exhibit in Attachment B.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs into Table 9.
4. Use the format in Table 9 below to summarize the project Source Control BMPs. Incorporate all identified Source Control BMPs in your Source Control Exhibit in Attachment B.

TABLE 9: PROJECT SOURCE CONTROL BMPS

<i>Potential source of runoff pollutants</i>	<i>Permanent source control BMPs</i>	<i>Operational source control BMPs</i>
A. On-site storm drain inlets	Mark inlets with the words "No Dumping! Flows to Bay."	Maintain and periodically repaint or replace inlet markings.
		Provide stormwater pollution prevention information to new site owners.
		Include the following note on the Improvement Plans, "Owner shall not allow anyone to discharge anything to storm drain or to store or deposit materials so as to create a potential discharge to storm drains."
D2. Landscape / Outdoor Pesticide Use	Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.	Maintain landscaping using minimum or no pesticides
	Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.	See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
	Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.	Provide IPM information to new owners, lessees and operators
	Consider using pest-resistant plants, especially adjacent to hardscape.	
	To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	
P. Plazas, sidewalks and parking lots		Plazas, sidewalks, and parking lots shall be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.

Describe your specific Source Control BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting Source Control BMPs or substituting alternatives.

PROVIDE STORM DRAIN STENCILING AND SIGNAGE

All Storm Drain Stenciling will read: "No Dumping- I Live Downstream" or equivalent message as desired by the County of San Diego.

Sign and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.

DESIGN OUTDOOR MATERIAL STORAGE AREAS TO REDUCE POLLUTION INTRODUCTION

This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.

DESIGN TRASH STORAGE AREAS TO REDUCE POLLUTION INTRODUCTION

No trash storage areas are planned, however any future or temporary trash areas shall have a roof or awning to minimize direct precipitation within the secondary containment area. Also, trash areas must be paved with an impervious surface or walled.

USE EFFICIENT IRRIGATION SYSTEMS AND LANDSCAPE DESIGN

Efficient irrigation systems consisting of smart timers will be used onsite to minimize the amount of overspray from landscaped areas. In addition flow reducing technology designed to stop water pressure in case of a break in an irrigation line will be employed onsite.

Landscaping design which uses as much native landscaping as possible will be used, as well as drought tolerant plant species.

PRIVATE ROADS

The proposed project will utilize a curb/swale system: Street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter, as specified in the San Diego County SUSMP.

RESIDENTIAL DRIVEWAYS

The project site proposes to drain surface water from driveways and streets to curb, periodic swale inlets drain to vegetated swale/biofilters before discharging to the storm drain system, or use systems which are considered equally effective

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input checked="" type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Locations of inlets.	<input checked="" type="checkbox"/> Mark all inlets with the words “No Dumping! Flows to Bay” or similar where feasible.	<input checked="" type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input checked="" type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com <input checked="" 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.”
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps		<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 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 type="checkbox"/> Note building design features that discourage entry of pests.	<input type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<p>✓ D2. Landscape/ Outdoor Pesticide Use</p> <p><u>Note: Should be consistent with project landscape plan (if applicable).</u></p>	<p><input type="checkbox"/> Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.</p> <p><input type="checkbox"/> Show self-retaining landscape areas, if any.</p> <p>✓ Show stormwater treatment facilities.</p>	<p>State that final landscape plans will accomplish all of the following:</p> <p>✓ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.</p> <p>✓ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.</p> <p>✓ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.</p> <p>✓ Consider using pest-resistant plants, especially adjacent to hardscape.</p> <p>✓ To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.</p>	<p>✓ Maintain landscaping using minimum or no pesticides.</p> <p>✓ See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p> <p>✓ Provide IPM information to new owners, lessees and operators.</p>

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input checked="" type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features.	<input checked="" type="checkbox"/> Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	<input checked="" 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.	<input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<input type="checkbox"/> F. Food service NONE	<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. <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.	<input type="checkbox"/> Describe the location and features of the designated cleaning area. <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	<input type="checkbox"/>

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input type="checkbox"/> G. Refuse areas HOMES WILL HAVE THEIR OWN. NO DUMPSTERS.	<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. <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. <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.	<input type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans. <input type="checkbox"/> State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	<input type="checkbox"/> State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, “Waste Handling and Disposal” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<input type="checkbox"/> H. Industrial processes. NONE.	<input type="checkbox"/> Show process area.	<input type="checkbox"/> If industrial processes are to be located on site, state: “All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.”	<input type="checkbox"/> See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<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.) NONE.	<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 run-off from area. <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. <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.	<input type="checkbox"/> Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for: <ul style="list-style-type: none"> ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank 	<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 www.cabmphandbooks.com

<p><input type="checkbox"/> J. Vehicle and Equipment Cleaning NONE.</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 on-site 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 on-site car washing and explain how these will be enforced.</p>	<p>Describe operational measures to implement the following (if applicable):</p> <p><input type="checkbox"/> Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.</p> <p><input type="checkbox"/> Car dealerships and similar may rinse cars with water only.</p> <p><input type="checkbox"/> See Fact Sheet SC-21, "Vehicle and Equipment Cleaning," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p>
--	---	---	---

<p><input type="checkbox"/> k. Vehicle/Equipment Repair and Maintenance</p> <p>NONE.</p>	<p><input type="checkbox"/> Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.</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 SUSMP 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>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>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>
---	---	--	---

<p><input type="checkbox"/> L. Fuel Dispensing Areas NONE.</p>	<p><input type="checkbox"/> Fueling areas¹ shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.</p> <p><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 area¹.] The canopy [or cover] shall not drain onto the fueling area.</p>		<p><input type="checkbox"/> The property owner shall dry sweep the fueling area routinely.</p> <p><input type="checkbox"/> See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p>
---	---	--	--

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.

<input type="checkbox"/> M. Loading Docks NONE.	<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 stormwater away from the loading area. Water from loading dock areas should be drained to the sanitary sewer where feasible. Direct connections to storm drains from depressed loading docks are prohibited. <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.		<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 www.cabmphandbooks.com
<input type="checkbox"/> N. Fire Sprinkler Test Water NONE.		<input type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.	<input type="checkbox"/> See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

<p>O. Miscellaneous Drain or Wash Water</p> <ul style="list-style-type: none"> ✓ Boiler drain lines ✓ Condensate drain lines ✓ Rooftop equipment ✓ Drainage sumps ✓ Roofing, gutters, and trim. 		<ul style="list-style-type: none"> ✓ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ✓ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ✓ Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ✓ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. ✓ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. 	
<p><input type="checkbox"/> P. Plazas, sidewalks, and parking lots.</p> <p>Sidewalks will be in the public right of way.</p>			<p><input 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 containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.</p>

STEP 7

LID AND TREATMENT CONTROL SELECTION

A treatment control BMP and/or LID IMP must be selected to treat the project pollutants of concern identified in Table 7 "Project Pollutants of Concern". A treatment control facility with a high or medium pollutant removal efficiency for the project's most significant pollutant of concern shall be selected. It is recommended to use the design procedure in Chapter 4 of the SUSMP to meet NPDES permit LID requirements, treatment requirements, and flow control requirements. If your project does not utilize this approach, the project will need to demonstrate compliance with LID, treatment and hydromodification flow control requirements. Review Chapter 2 "Selection of Stormwater Treatment Facilities" in the SUSMP to assist in determining the appropriate treatment facility for your project.

Will this project be utilizing the unified LID design procedure as described in Chapter 4 of the Local SUSMP? <i>(If yes, please document in Attachment D following the steps in Chapter 4 of the County SUSMP)</i>
Yes
If this project is not utilizing the unified LID design procedure, please describe how the alternative treatment facilities will comply with applicable LID criteria, stormwater treatment criteria, and hydromodification management criteria.

- Indicate the project pollutants of concern (POCs) from Table 7 in Column 2 below.

TABLE 10: GROUPING OF POTENTIAL POLLUTANTS of Concern (POCs) by fate during stormwater treatment

Pollutant	Check Project Specific POCs	Coarse Sediment and Trash	Pollutants that tend to associate with fine particles during treatment	Pollutants that tend to be dissolved following treatment
Sediment	X	X	X	
Nutrients	X		X	X
Heavy Metals	X		X	
Organic Compounds	X		X	
Trash & Debris	X	X		
Oxygen Demanding	X		X	
Bacteria	X		X	
Oil & Grease	X		X	
Pesticides	X		X	

- Indicate the treatment facility(s) chosen for this project in the following table.

TABLE 11: GROUPS OF POLLUTANTS and relative effectiveness of treatment facilities

Pollutants of Concern	Bioretention Facilities (LID)	Settling Basins (Dry Ponds)	Wet Ponds and Constructed Wetlands	Infiltration Devices (LID)	Media Filters	Higher-rate biofilters	Higher-rate media filters	Trash Racks & Hydro-dynamic Devices	Vegetated Swales
Coarse Sediment and Trash	High	High	High	High	High	High	High	High	High
Pollutants that tend to associate with fine particles during treatment	High	High	High	High	High	Medium	Medium	Low	Medium
Pollutants that tend to be dissolved following treatment	Medium	Low	Medium	High	Low	Low	Low	Low	Low

- Please check the box(s) that best describes the Treatment Control BMP(s) and/or LID IMP selected for this project. Please check if the treatment facility is designed for water quality or hydromodification flow control.

TABLE 12: PROJECT LID AND TC-BMPS

LID and TC-BMP Type	Water Quality Treatment Only	Hydromodification Flow Control
Bioretention Facilities (LID)		
<input checked="" type="checkbox"/> Bioretention area		✓
<input type="checkbox"/> Flow-through Planter		
<input type="checkbox"/> Cistern with Bioretention		
Settling Basins (Dry Ponds)		
<input checked="" type="checkbox"/> Extended/dry detention basin with grass/vegetated lining		✓
<input type="checkbox"/> Extended/dry detention basin with impervious lining		
Infiltration Devices (LID)		
<input type="checkbox"/> Infiltration basin		
<input type="checkbox"/> Infiltration trench		
<input type="checkbox"/> Other		
Wet Ponds and Constructed Wetlands		
<input type="checkbox"/> Wet pond/basin (permanent pool)		
<input type="checkbox"/> Constructed wetland		
Vegetated Swales (LID⁽¹⁾)		
<input checked="" type="checkbox"/> Vegetated Swale	✓	
Media Filters		
<input type="checkbox"/> Austin Sand Filter		
<input type="checkbox"/> Delaware Sand Filter		
<input type="checkbox"/> Multi-Chambered Treatment Train (MCTT)		
Higher-rate Biofilters		
<input type="checkbox"/> Tree-pit-style unit		
<input type="checkbox"/> Other		
Higher-rate Media Filters		
<input type="checkbox"/> Vault-based filtration unit with replaceable cartridges		
<input type="checkbox"/> Other		
Hydrodynamic Separator Systems		
<input type="checkbox"/> Swirl Concentrator		
<input type="checkbox"/> Cyclone Separator		
Trash Racks		
<input type="checkbox"/> Catch Basin Insert		
<input type="checkbox"/> Catch Basin Insert w/ Hydrocarbon boom		
<input type="checkbox"/> Other		

⁽¹⁾ Must be designed per SUSMP “Vegetated Swales” design criteria for water quality treatment credit (p. 65).

For design guidelines and calculations refer to Chapter 4 “Low Impact Development Design Guide” in the SUSMP. Please show all calculations and design sheets for all treatment control BMPs proposed in Attachment D.

- Create a Construction Plan SWMP Checklist for your project.

Instructions on how to fill out table

1. Number and list each measure or BMP you have specified in your SWMP in Columns 1 and Maintenance Category in Column 3 of the table. Leave Column 2 blank.
2. When you submit construction plans, duplicate the table (by photocopy or electronically). Now fill in Column 2, identifying the plan sheets where the BMPs are shown. List all plan sheets on which the BMP appears. **This table must be shown on the front sheet of the grading and improvement plans.**

Stormwater Treatment Control BMPs and LID BMPs			
Description / Type	Sheet	Maintenance Category	Revisions
Vegetated Swale		Special Maintenance District Maintained (County of San Diego)	
Extended Detention Basin		Special Maintenance District Maintained (County of San Diego)	

BMP's approved as part of Stormwater Management Plan (SWMP) dated xx/xx/xx on file with DPW. Any changes to the above BMP's will require SWMP revision and Plan Change approvals.

- Please describe why the chosen treatment control BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a **feasibility analysis** that demonstrates utilization of a treatment control BMP with a high or medium removal efficiency ranking is infeasible.

Treatment Control BMP 1: Vegetated Swales

The proposed biofilter are sized a Manning's roughness coefficient of 0.25 (in accordance with CASQA TC-30) for sheet flow through dense grass and side slopes of 4:1 (H:V), the anticipated normal depth of flow and associated velocity (computed using the Bentley Flomaster computer software package) are shown in the table below. Please note we are considering the vegetated swale in Basin 200-A not as a Treatment control BMP, but as a LID feature.

Treatment Control BMP 2: Extended Detention Basin

The extended detention basin provided onsite within sub-basin area 200-A is designed and sized to provide water quality benefits to the project site through means of settling, uptake, and sorption to vegetative material. The extended detention basin receives flows from the development areas located in the eastern portion of the project site.

The water quality volumes for these drainage areas have been calculated using the one of the accepted methods outlined in the San Diego County SUSMP (Urban Runoff Quality Management WEF Manual of Practice No 28). Swale residence times for the LID Site Design BMPs are also provides in the table below for convenience.

Analysis of detention storage routing for peak flow attenuation is treated in the Drainage Study. The following discussion pertains to sizing the basins for water quality purposes per the numeric sizing criteria given by the SUSMP and Municipal Permit.

The water quality / detention basins are volume-based BMPs. According to the SUSMP, Port of San Diego, and Cities in San Diego County, one option for the sizing of volume-based BMPs is that they shall be designed to mitigate the volume of runoff produced from a 24-hour 85th percentile storm event, determined as the maximized capture urban runoff volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ ASCE Manual of Practice No. 87, (1998). It shall be noted that the 85th percentile storm event is different for various parts of the County. According to the San Diego County 85th Percentile Isopluvials map, the 85th percentile storm event for the project site is 0.77 inches.

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality treatment volume or flow values for the selected project Treatment BMP(s). Guidelines for design calculations are located in Chapter 4 of the

County SUSMP. Label outfalls on the BMP map. The Water Quality peak rate of discharge flow (Q_{WQ}) and the Water Quality storage volume (V_{WQ}) is dependent on the type of treatment BMP selected for the project.

Outfall	Tributary Area (acres)	Q_{WQ} (cfs)	V_{WQ} (ft ³)
Northern Bioswale	10.8	1.6	0.24
Eastern Bioswale	26.5	3.1	0.34
Western Bioswale	9.6	1.1	0.21
Southern Bioswale	3.4	0.4	0.18

Note: Our site receives runoff from the upstream school site. The additional offsite runoff was included in our Water Quality calculations to be on the conservative side.

Please provide the sizing design calculations for each Drainage Management Area in Attachment D. Guidelines for design calculations are located in Chapter 4 of the County SUSMP. To assist in these calculations a BMP sizing calculator is available for use at the following location: http://www.projectcleanwater.org/html/wg_susmp.html

STEP 8

OPERATION AND MAINTENANCE

- Please check the box that best describes the maintenance mechanism(s) for this project.

TABLE 13: PROJECT BMP CATEGORY

CATEGORY	SELECTED		BMP Description
	YES	NO	
First			Extended Drainage Basin Vegetated Swale
Second ¹			
Third ²	✓		
Fourth			

Note:

1. A maintenance notification will be required.
2. A recorded maintenance agreement and access easement will be required.
3. The project will be required to establish or be included in a watershed specific Community Facility District (CFD) for long-term maintenance.
4. The developer would be required to dedicate the BMP (and the property on which it is located and any necessary access) to the County.

- Please list all individual LID and Treatment Control BMPs (TC-BMPs) incorporated into the project. Please ensure the “BMP Identifier” is consistent with the legend in Attachment C “Drainage Management Area Exhibit”. Please attach the record plan sheets upon completion of project and amend the Major SWMP where appropriate. For each type of LID or TC-BMP provide an inspection sheet in Attachment F “Maintenance Plan”.

TABLE 14: PROJECT SPECIFIC LID AND TC-BMPs

BMP Identifier*: (Identifier to match TC-BMPs on TC-BMP Table.)	Type	Record Plan Page for TC-BMP	BMP Pollutant of Concern Efficiency (H,M,L)
	Extended Drainage Basin		High- Coarse Sediment & Trash. High - Pollutants that tend to associate with fine particles during treatment. High - Pollutants that tend to be dissolved following treatment.
	Vegetated Swale		High- Coarse Sediment & Trash. Medium - Pollutants that tend to associate with fine particles during treatment. Low- Pollutants that tend to be dissolved following treatment.

* For location of BMPs, see approved Record Plan dated _____, plan _____ sheet _____.

➤ Responsible Party for Long-term Maintenance:

Identify the parties responsible for long-term maintenance of the BMPs identified above and Source Controls specified in Attachment B. Include the appropriate written agreement with the entities responsible for O&M in Attachment F. Please see Chapter 5 “Stormwater Facility Maintenance” of the County SUSMP for appropriate maintenance mechanisms.

Representative Name:	Home Owner’s Association (Future)
Company Name:	San Luis Rey Downs, LLC
Phone Number:	760.414.3273
Street Address:	5772 Camino Del Rey
City/State/Zip:	Bonsall, CA 92003
Email Address:	to be determined

Until the county accepts the treatment control, the project will be in private hands, (HOA). Once accepted, the County of San Diego will be responsible for long term maintenance.

➤ Funding Source:

Provide the funding source or sources for long-term operation and maintenance of each BMP identified above. Please see Chapter 5 “Stormwater Facility Maintenance” of the County SUSMP for the appropriate funding source options. By certifying the Major SWMP the applicant is certifying that the funding responsibilities have been addressed and will be transferred to future owners.

The HOA will be responsible for all BMP Maintenance until an “Acceptance of Drainage Facilities in to the Maintained Drainage System of the County of San Diego” is completed, at which time the County of San Diego (Special Maintenance District) will be responsible for Funding.

ATTACHMENTS

Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Project Location Map	X	
B	Source Control Exhibit	X	
C	Drainage Management Area (DMA)Exhibit	X	
D	BMP Sizing Design Calculations (Water Quality and Hydromodification) and TC-BMP/IMP Design Details	X	
E	Geotechnical Certification Sheet	X	
F	Maintenance Plan	X	
G	Treatment Control BMP Certification	X	
H	HMP Exemption Documentation	X	
I	Addendum	X	

Note: Attachments B and C may be combined.

ATTACHMENT A

Project Location Map



SITE MAP
1" = 400'

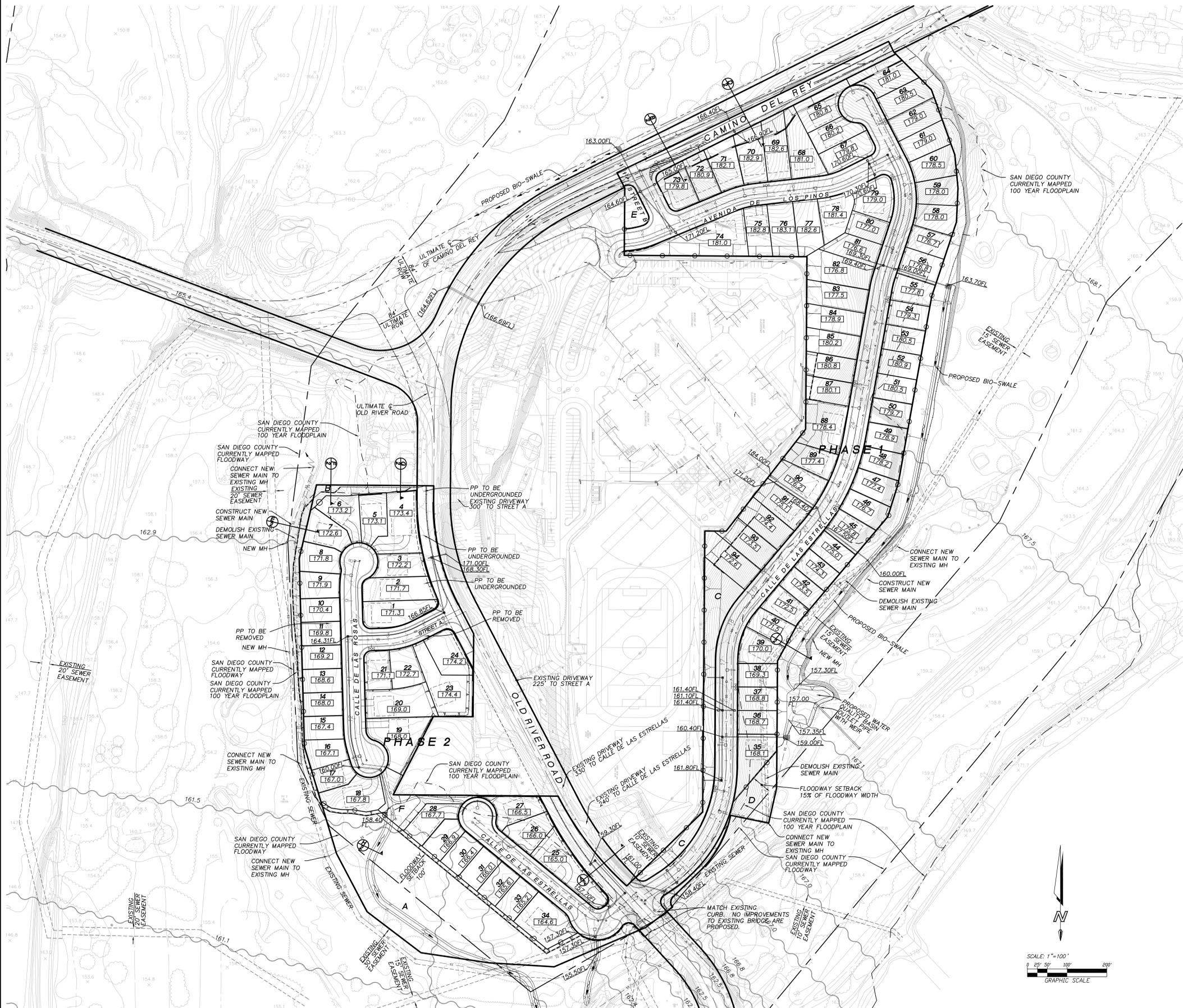


GOLF GREEN ESTATES
Attachment A: Project Location Map

ATTACHMENT B

Source Control Exhibit

COUNTY OF SAN DIEGO TRACT TM 5498 RPL3 PRELIMINARY GRADING PLAN GOLF GREENS ESTATES



STREET B (PUBLIC)			
DELTA/BRG	RADIUS	LENGTH	BEGINNING STA
N26°47'39"W	--	185.36'	1+00.00

AVENIDA DE LOS PINOS (PUBLIC)			
DELTA/BRG	RADIUS	LENGTH	BEGINNING STA
Δ= 111°25'23"	43.00'	83.62'	0+67.23
Δ= 20°34'09"	200.00'	71.80'	1+50.85
Δ= N67°11'49"E	--	213.19'	2+22.65
Δ= 16°18'27"	250.00'	71.15'	4+35.84
Δ= N83°30'16"E	--	162.86'	5+06.99
Δ= 20°17'55"	200.00'	70.86'	6+69.85
Δ= N63°12'21"E	--	127.35'	7+40.71

CALLE DE LAS ESTRELLAS (PUBLIC)			
DELTA/BRG	RADIUS	LENGTH	BEGINNING STA
Δ= 11°48'40"	200.00'	41.23'	1+00.00
Δ= N45°47'57"E	--	110.27'	1+41.23
Δ= 45°26'28"	350.00'	277.58'	2+51.50
Δ= N00°21'29"E	--	277.01'	5+29.08
Δ= 39°24'14"	220.00'	151.30'	8+06.09
Δ= N39°45'43"E	--	255.92'	9+57.39
Δ= 29°46'14"	500.00'	259.80'	12+13.31
Δ= N09°59'29"E	--	384.91'	14+73.11
Δ= 08°08'42"	200.00'	28.43'	18+58.02
Δ= N18°08'11"E	--	56.18'	18+86.45
Δ= N18°08'11"E	--	84.74'	19+42.63
Δ= 42°24'42"	200.00'	148.04'	20+27.37
Δ= N26°47'39"W	--	196.32'	21+75.41

CALLE DE LAS ROSAS (PUBLIC)			
DELTA/BRG	RADIUS	LENGTH	BEGINNING STA
Δ= N13°01'17"E	--	66.70'	8+74.36
Δ= 14°38'14"	250.00'	63.87'	9+41.05
Δ= N01°36'57"W	--	341.39'	10+04.92
Δ= 15°00'02"	250.00'	65.45'	13+46.32
Δ= N16°36'59"W	--	124.89'	14+11.77
Δ= 39°15'43"	200.00'	137.05'	15+36.66
Δ= N55°52'42"W	--	30.29'	16+73.71
Δ= 13°37'44"	200.00'	47.57'	17+04.00
Δ= N42°14'58"W	--	96.98'	17+51.57
Δ= 44°17'17"	200.00'	154.59'	18+48.55
Δ= N86°32'15"W	--	13.25'	20+03.15
Δ= 32°18'21"	200.00'	112.77'	20+16.40

STREET A (PUBLIC)			
DELTA/BRG	RADIUS	LENGTH	BEGINNING STA
Δ= N88°22'59"E	--	88.56'	3+44.31
Δ= 16°28'53"	200.00'	57.53'	2+55.75
Δ= N71°54'06"E	--	98.22'	1+98.22

AVENIDA DE ROSAS (PUBLIC)			
DELTA/BRG	RADIUS	LENGTH	BEGINNING STA
Δ= N88°23'03"E	--	124.02'	1+00.00
Δ= 05°08'33"	200.00'	17.95'	2+24.02
Δ= N83°14'30"E	--	99.55'	2+41.98

AVENIDA TOLEDO (PUBLIC)			
DELTA/BRG	RADIUS	LENGTH	BEGINNING STA
Δ= N47°45'02"E	--	112.00'	1+00.00
Δ= 24°58'06"	200.00'	87.16'	2+12.00
Δ= N72°43'08"E	--	164.87'	2+99.16

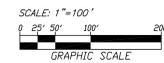
SHEET 3 OF 3

ENGINEER OF WORK

FUSCOE ENGINEERING - SAN DIEGO, INC.
6390 GREENWICH DRIVE, STE. 170
SAN DIEGO, CA 92122
(858)554-1500



ERIC K. ARMSTRONG RCE 36083 DATE



ATTACHMENT C

Drainage Management Area (DMA) Exhibit

BIORETENTION BASIN DETAILS & REQUIREMENTS

Basin	BMP Calculator Output				IMP Size Provided			
	Area (sf)	V1 (cf)	V2 (cf)	Orifice Dia. (in)	Area (sf)	V1 (cf)	V2 (cf)	Orifice Dia. (in)
1	10,009	8,339	5,898	4	10,594	8,793	10,594	4

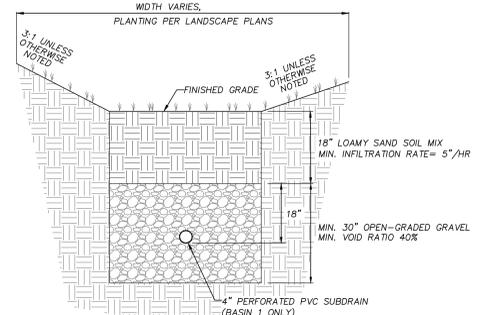
EXTENDED DETENTION BASIN DETAILS & REQUIREMENTS

Basin	Lower Orifice		Upper Orifice		Weir		Depth (ft)
	Dia. (in)	Elev. (ft)	Dia. (in)	Elev. (ft)	Length (ft)	Elev. (ft)	
2A	2.0	0.0	8.0	1.0	4.0	2.5	3.0
2B	1.0	0.0	8.0	1.0	4.0	2.5	3.0
2C	3.0	0.0	10.0	4.0	8.0	5.0	5.0
2D	4.0	0.0	12.0	1.0	8.0	3.5	4.0

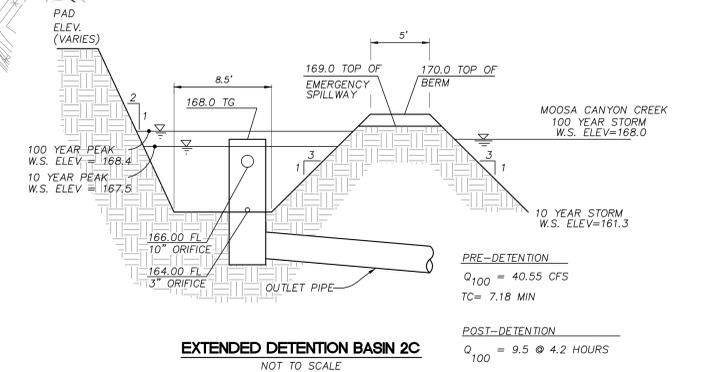
Basin	BMP Calculator Output		IMP Size Provided		Drawdown Time (hours)		
	Top A Volume (sf)	Bottom A Volume (sf)	Top A Volume (sf)	Bottom A Volume (sf)			
2A	9,312	6,162	23,212	15,252	10,165	38,005	6.0
2B	6,362	3,814	15,265	8,016	4,840	19,167	7.0
2C	10,036	3,671	39,271	23,330	6,100	77,700	7.0
2D	6,915	3,900	20,831	14,900	7,075	43,650	2.0

LEGEND

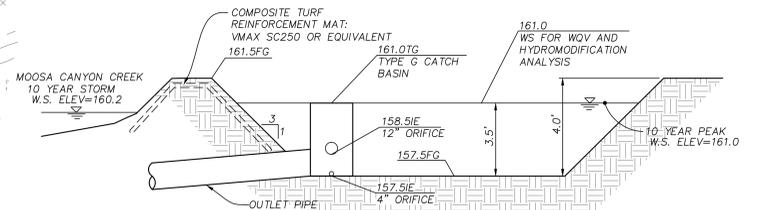
- PROPERTY LINE
- PROPOSED LOT LINE
- RIGHT-OF-WAY
- EXISTING CONTOUR
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED PAVEMENT
- PROPOSED LOTS (40% IMPERVIOUS)
- BASIN BOUNDARY
- POINT OF COMPLIANCE
- EXTENDED DETENTION BASIN
- BIORETENTION BASIN



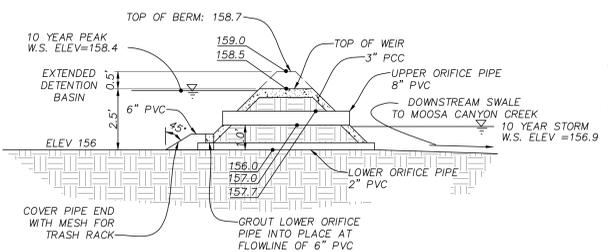
TYPICAL DETAIL - BIORETENTION BASIN
NOT TO SCALE



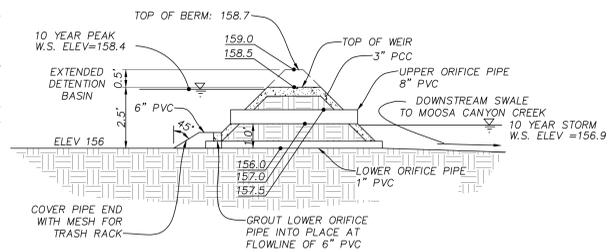
EXTENDED DETENTION BASIN 2C
NOT TO SCALE



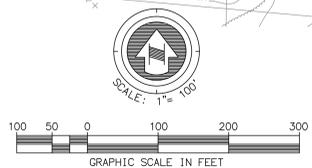
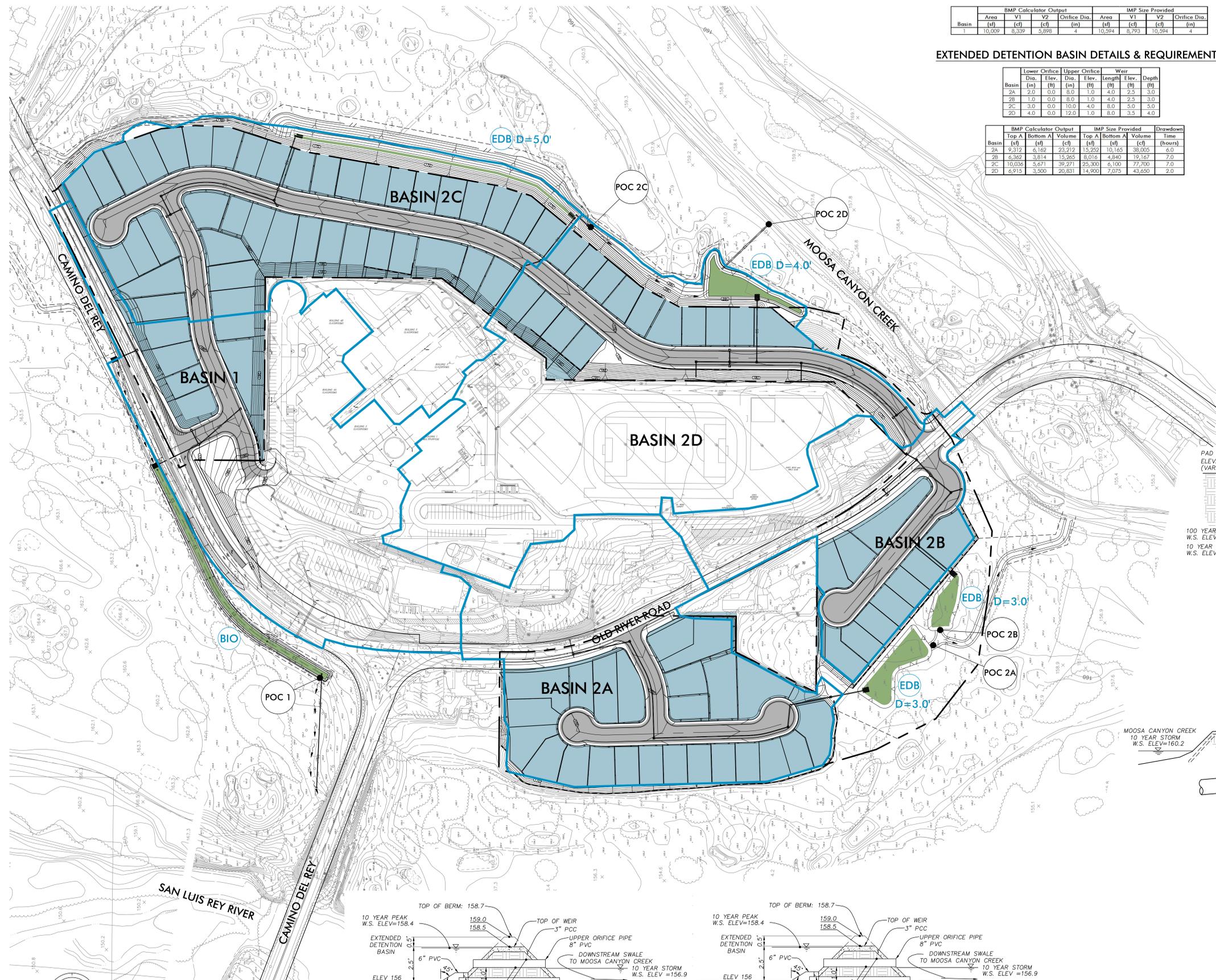
EXTENDED DETENTION BASIN 2D
NOT TO SCALE



EXTENDED DETENTION BASINS 2A
NOT TO SCALE



EXTENDED DETENTION BASINS 2B
NOT TO SCALE



GOLF GREEN ESTATES
HYDROMODIFICATION MANAGEMENT EXHIBIT
COUNTY OF SAN DIEGO, CA

FUSCO ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 • fax 858.597.0335
www.fusco.com

PROJECT NUMBER: 02518-002-02
DATE: 3/9/12

ATTACHMENT D

Sizing Design Calculations and TC-BMP/LID Design Details

(Provide BMP Sizing Calculator results and/or continuous simulation modeling results, if applicable)

Golf Green Estates
 Hydromodification Management Study
 February 2012

Bioretention Basin Sizing

Basin	BMP Calculator Output				IMP Size Provided			
	Area	V1	V2	Orifice Dia.	Area	V1	V2	Orifice Dia.
	(sf)	(cf)	(cf)	(in)	(sf)	(cf)	(cf)	(in)
1	10,009	8,339	5,898	4	10,594	8,793	10,594	4

Golf Green Estates
 Hydromodification Management Study
 February 2012

Extended Detention Basin Sizing

Basin	Lower Orifice		Upper Orifice		Weir		Depth (ft)	BMP Calculator Output			IMP Size Provided			Drawdown
	Dia.	Elev.	Dia.	Elev.	Length	Elev.		Top A	Bottom A	Volume	Top A	Bottom A	Volume	Time
	(in)	(ft)	(in)	(ft)	(ft)	(ft)		(sf)	(sf)	(cf)	(sf)	(sf)	(cf)	(hours)
2A	2.0	0.0	8.0	1.0	4.0	2.5	3.0	9,312	6,162	23,212	15,252	10,165	38,005	6.0
2B	1.0	0.0	8.0	1.0	4.0	2.5	3.0	6,362	3,814	15,265	8,016	4,840	19,167	7.0
2C	3.0	0.0	10.0	4.0	8.0	5.0	5.0	10,036	5,671	39,271	25,300	6,100	77,700	7.0
2D	4.0	0.0	12.0	1.0	8.0	3.5	4.0	6,915	3,500	20,831	14,900	7,075	43,650	2.0

Hydromodification Management Study
 Golf Green Estates
 February 2012

BMP Sizing Calculator Screen Captures

Basin Manager – Project

Result View

Define Drainage Basins Basin: **Basin 2B** Project: **Golf Green Estates**

Start Project Basin POC Export

Manage Your Projects

Create a new Project by clicking the New button and scroll down to view entry. Alternatively, select an existing Project from table and view properties below. Click Edit button to change Project properties then press Save to commit changes.

New Edit Save Delete

Name
Golf Green Estates

Name: Golf Green Estates Description:

Applicant: San Luis Rey Downs Enterprises Street: Camino Del Rey

Parcel (APN): Jurisdiction: County of San Diego City: Bonsall, CA

Hydrological Unit: San Luis Rey

Basin Manager – Define Drainage Basin 1

Result View

Define Drainage Basins Basin: **Basin 1** Project: **Golf Green Estates**

Start Project Basin POC Export

Manage Your Basins

Create a new Basin by clicking the New button and scroll down to view entry. Alternatively, select an existing Basin from table and view properties below. Click Edit button to change Basin properties then press Save to commit changes.

New Edit Save Delete

Name
Basin 2C
Basin 2B
Basin 2D
Basin 1

Description: Basin 1 Point of Compliance: BMP Outlet

Design Goal: Treatment + Flow Control Project Basin Area (ac): 11.68

Rainfall Basin: Oceanside Mean Annual Precipitation (in): 13.3

Basin Manager – POC - Drainage Basin 1

Result View

Define Drainage Basins Basin: **Basin 1** Project: **Golf Green Estates**

Start Project Basin **POC** Export

Manage Your Point of Compliance (POC)

Analyze the receiving water at the 'Point of Compliance' by completing this form. Click Edit and enter the appropriate fields, then click the Update button to calculate the critical flow and low-flow threshold condition. Finally, click Save to commit the changes.

Channel Susceptibility: **HIGH**

Low Flow Threshold: **0.1Q2**

Cancel Save Update

Channel Assessed: **No**

Watershed Area (ac): **0.00**

Vertical Susceptibility: Select...

Lateral Susceptibility: Select...

Material: Select...

Roughness: **0.000**

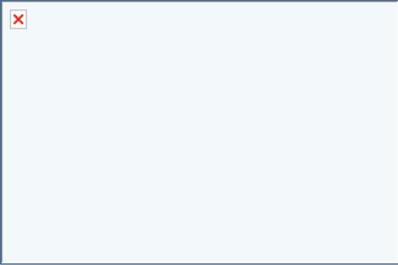
Channel Top Width (ft): **0.0**

Channel Bottom Width (ft): **0.0**

Channel Height (ft): **0.0**

Channel Slope: **0.000**

Large View



Size LID Facility – DMA - Drainage Basin 1

Result View

Size LID Facility Basin: **Basin 1** Project: **Golf Green Estates**

Start DMA **LID** Report Export

Manage Your DMA's

Create a new DMA by clicking the New button and scroll down to view entry. Alternatively, select an existing DMA from table and view properties below. Click Edit button to change DMA properties then press Save to commit changes.

New Edit Save Delete

DMA ID	Description
14929	AJF
14930	APIS
14932	APPF
14934	APPS

DMA Type: **Drains to LID** Drainage Area (ac): **0.15**

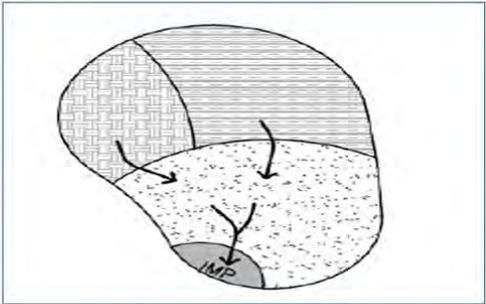
BMP ID: **BMP 1** Drain To DMA ID: **1/A**

Drainage Soil: **Type A (low runoff - sandy soils)** Pre-Project Cover: **Impervious (Pre)**

Post Surface: **Concrete or asphalt** Pre-Project Slope: **Flat - slope (less 5%)**

Messages:

Large View



Size LID Facility – LID – Drainage Basin 1

Result View

Size LID Facility Basin: **Basin 1** Project: **Golf Green Estates**

Start DMA LID Report Export

Manage Your LID's

Create a new LID by clicking the New button and scroll down to view new entry. Alternatively select an existing LID from the table and view properties below. Click the Edit button to change LID properties and press SAVE to update the calculations.

BMP ID	Description
BMP 1	Basin 1 Bioretention

New Edit Save Delete

LID Type: **Bioretention** Flow Threshold (cfs): **0.433**

Drainage Area (ac): **11.69**

Minimum Area (sqft): **10009.6** Proposed Area (sqft): **10593.5**

Minimum Volume V1 (cft): **8339.8** Proposed Volume V1 (cft): **8792.6**

Minimum Volume V2 (cft): **5898.6** Proposed Volume V2 (cft): **10593.5**

Maximum Orifice Size (in): **4.0** Proposed Orifice Size (in): **4.0**

Messages: Total DMA and LID area (Proposed) exceeds project basin area. Review and update DMA and/or LID areas accordingly.

Large View

Basin Manager – Define Drainage Basin 2A

Result View

Define Drainage Basins Basin: **Basin 2A** Project: **Golf Green Estates**

Start Project Basin POC Export

Manage Your Basins

Create a new Basin by clicking the New button and scroll down to view entry. Alternatively, select an existing Basin from table and view properties below. Click Edit button to change Basin properties then press Save to commit changes.

Name
Basin 2B
Basin 2D
Basin 1
Basin 2A

New Edit Save Delete

Description: **Basin 2A** Point of Compliance: **Discharge from Storm Drain**

Design Goal: **Treatment + Flow Control** Project Basin Area (ac): **9.64**

Rainfall Basin: **Oceanside** Mean Annual Precipitation (in): **13.3**

Basin Manager – POC - Define Drainage Basin 2A

Result View

Define Drainage Basins Basin: **Basin 2A** Project: **Golf Green Estates**

Start Project Basin **POC** Export

Manage Your Point of Compliance (POC)

Analyze the receiving water at the 'Point of Compliance' by completing this form. Click Edit and enter the appropriate fields, then click the Update button to calculate the critical flow and low-flow threshold condition. Finally, click Save to commit the changes.

Channel Susceptibility: **HIGH**

Low Flow Threshold: **0.1Q2**

Cancel Save Update

Channel Assessed: **No** Vertical Susceptibility: Select...

Watershed Area (ac): **0.00** Lateral Susceptibility: Select...

Material: Select...

Roughness: **0.000**

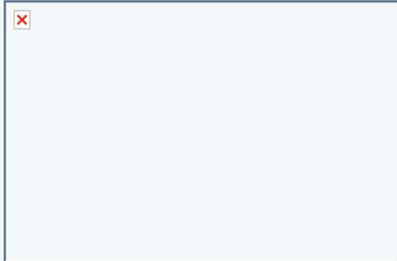
Channel Top Width (ft): **0.0**

Channel Bottom Width (ft): **0.0**

Channel Height (ft): **0.0**

Channel Slope: **0.000**

Large View



Size Pond Facility – DMA – Drainage Basin 2A

Result View

Size Pond Facility Basin: **Basin 2A** Project: **Golf Green Estates**

Plan DMA Pond Report Export

Manage Your DMA's

Create a new DMA by clicking the New button and scroll down to view entry. Alternatively, select an existing DMA from table and view properties below. Click Edit button to change DMA properties then press Save to commit changes.

DMA ID	Description
14959	AIF
14960	APIF
14962	APIM
14963	APIS

New Edit Save Delete

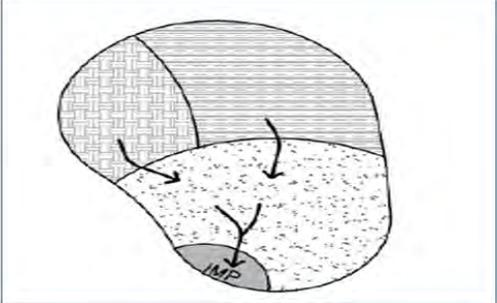
DMA Type: **Drains to Pond** Drainage Area (ac): **0.05**

Drainage Soil: **Type D (high runoff - clay soils)** Pre-Project Cover: **Pervious (Pre)**

Slope: **Moderate (5 - 10%)** Post-Project Cover: **Pervious (Post)**

Messages:

Large View



Size Pond Facility – Pond Sizer – Drainage Basin 2A

Result View

Size Pond Facility
Basin: **Basin 2A**
Project: **Golf Green Estates**

Start
DMA
Pond
Report
Export

Manage Your Scenarios

Create a new scenario by clicking the New button and scroll down to view entry. Alternatively, select an existing scenario from table and view properties below. Click Edit button to change scenario properties then press SAVE to update the calculations.

New
Edit
Save
Delete

Scenario	Description
Design A	EDB 2A

Example Layout

Pond Soil Type: Type A (low runoff - sandy soils)

Side Slope 1 (H:1): 3.00

Side Slope 2 (H:1): 3.00

Depth (ft): 3.0

Lower Orifice Invert (ft): 156.00

Upper Orifice Invert (ft): 157.00

Weir Invert (ft): 158.50

Weir Length (ft): 4.0

Low Flow Threshold (cfs): 0.176

Upper Flow Threshold (cfs): 4.627

Drainage Area (ac): 9.64

Calculate Orifice Size: Calculate

Calculate Pond Size: Calculate

Lower Maximum Orifice Size (in): 2.0

Upper Maximum Orifice Size (in): 8.0

Top Area (sqft): 9312

Bottom Area (sqft): 6162

Volume (cft): 23212.3

Drawdown Time (hrs): 7.0

Percent Drained (96 hrs): 100.0

Sizing FAILED. Pond size is not 'converging' on an optimum size. Possible causes include: 1) post-project flows are much greater than pre-project flows, 2) lower outflow orifice is too small resulting in excessive storage needs, or 3) lower orifice is too large exceeding downstream low flow thresholds. Please review the pre/post project flows and orifice sizes. (Iterations: 50) **** Drawdown PASSED. Drawdown time (7 hrs) < 96 hrs. ****

Basin Manager – Define Drainage Basin 2B

Result View

Define Drainage Basins
Basin: **Basin 2B**
Project: **Golf Green Estates**

Start
Project
Basin
POC
Export

Manage Your Basins

Create a new Basin by clicking the New button and scroll down to view entry. Alternatively, select an existing Basin from table and view properties below. Click Edit button to change Basin properties then press Save to commit changes.

New
Edit
Save
Delete

Name
Basin 2C
Basin 2B
Basin 2D
Basin 1

Description: Basin 2B

Design Goal: Treatment + Flow Control

Rainfall Basin: Oceanside

Point of Compliance: BMP Outlet

Project Basin Area (ac): 5.40

Mean Annual Precipitation (in): 13.3

Basin Manager – POC - Drainage Basin 2B

Result View

Define Drainage Basins Basin: **Basin 2B** Project: **Golf Green Estates**

Start Project Basin **POC** Export

Manage Your Point of Compliance (POC)

Analyze the receiving water at the 'Point of Compliance' by completing this form. Click Edit and enter the appropriate fields, then click the Update button to calculate the critical flow and low-flow threshold condition. Finally, click Save to commit the changes.

Channel Susceptibility: HIGH
Low Flow Threshold: 0.1Q2

Cancel Save Update

Channel Assessed: No
Watershed Area (ac): 0.00

Vertical Susceptibility: Select...
Lateral Susceptibility: Select...

Material: Select...
Roughness: 0.000
Channel Top Width (ft): 0.0
Channel Bottom Width (ft): 0.0
Channel Height (ft): 0.0
Channel Slope: 0.000

Large View

Size Pond Facility – DMA – Drainage Basin 2B

Result View

Size Pond Facility Basin: **Basin 2B** Project: **Golf Green Estates**

Start DMA **Print** Report Export

Manage Your DMA's

Create a new DMA by clicking the New button and scroll down to view entry. Alternatively, select an existing DMA from table and view properties below. Click Edit button to change DMA properties then press Save to commit changes.

DMA ID	Description
12964	AJF
12965	APIF
12966	APIM
12967	APIS

New Edit Save Delete

Define DMA Properties

DMA Type: Drains to Pond Drainage Area (ac): 0.18

Drainage Soil: Type A (low runoff - sandy soils) Pre-Project Cover: Impervious (Pre)
Slope: Flat - slope (less 5%) Post-Project Cover: Impervious (Post)

Messages:

DMA Layout Large View

Size Pond Facility – Pond Sizer – Drainage Basin 2B

Result View

Size Pond Facility Basin: **Basin 2B** Project: **Golf Green Estates**

Start DMA **Pond** Report Export

Manage Your Scenarios

Create a new scenario by clicking the New button and scroll down to view entry. Alternatively, select an existing scenario from table and view properties below. Click Edit button to change scenario properties then press SAVE to update the calculations.

New Cancel Save Delete

Scenario	Description
Design A	EDB 2B

Example Layout

Pond Soil Type: **Type A (low runoff - sandy soils)**

Side Slope 1 (H:1): **3.00**

Side Slope 2 (H:1): **3.00**

Depth (ft): **3.0**

Lower Orifice Invert (ft): **156.00**

Upper Orifice Invert (ft): **157.00**

Weir Invert (ft): **158.50**

Weir Length (ft): **4.0**

Low Flow Threshold (cfs): **0.123**

Upper Flow Threshold (cfs): **2.882**

Drainage Area (ac): **5.41**

Calculate Orifice Size: **Calculate**

Calculate Pond Size: **Calculate**

Lower Maximum Orifice Size (in): **1.0**

Upper Maximum Orifice Size (in): **8.0**

Top Area (sqft): **6362**

Bottom Area (sqft): **3814**

Volume (cft): **15265.2**

Drawdown Time (hrs): **7.0**

Percent Drained (96 hrs): **100.0**

Sizing PASSED. Post-project mitigated flow-duration and flow-frequency meet the pre-project conditions. (Iterations: 5) ****
Drawdown PASSED. Drawdown time (7 hrs) < 96 hrs. ****

Basin Manager – Define Drainage Basin 2C

Result View

Define Drainage Basins Basin: **Basin 2C** Project: **Golf Green Estates**

Start Project **Basin** POC Export

Manage Your Basins

Create a new Basin by clicking the New button and scroll down to view entry. Alternatively, select an existing Basin from table and view properties below. Click Edit button to change Basin properties then press Save to commit changes.

New Edit Save Delete

Name
Basin 2C
Basin 2B
Basin 2D
Basin 1

Description: **Basin 2C**

Design Goal: **Treatment + Flow Control**

Rainfall Basin: **Oceanside**

Point of Compliance: **BMP Outlet**

Project Basin Area (ac): **12.94**

Mean Annual Precipitation (in): **13.3**

Basin Manager – POC - Define Drainage Basin 2C

Result View

Define Drainage Basins Basin: **Basin 2C** Project: **Golf Green Estates**

Start Project Basin **POC** Export

Manage Your Point of Compliance (POC)

Analyze the receiving water at the 'Point of Compliance' by completing this form. Click Edit and enter the appropriate fields, then click the Update button to calculate the critical flow and low-flow threshold condition. Finally, click Save to commit the changes.

Channel Susceptibility: **HIGH**

Low Flow Threshold: **0.1Q2**

Cancel Save Update

Channel Assessed: **No**

Watershed Area (ac): **0.00**

Vertical Susceptibility: **Select...**

Lateral Susceptibility: **Select...**

Material: **Select...**

Roughness: **0.000**

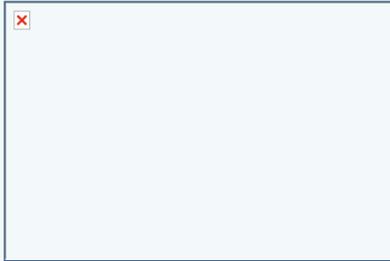
Channel Top Width (ft): **0.0**

Channel Bottom Width (ft): **0.0**

Channel Height (ft): **0.0**

Channel Slope: **0.000**

Large View



Size Pond Facility – DMA – Drainage Basin 2C

Result View

Size Pond Facility Basin: **Basin 2C** Project: **Golf Green Estates**

Start DMA Pond Report Export

Manage Your DMA's

Create a new DMA by clicking the New button and scroll down to view entry. Alternatively, select an existing DMA from table and view properties below. Click Edit button to change DMA properties then press Save to commit changes.

New Edit Save Delete

DMA ID	Description
12915	1-APF
12916	1-APIM
12917	1-APIS
12918	1-APPF

Define DMA Properties

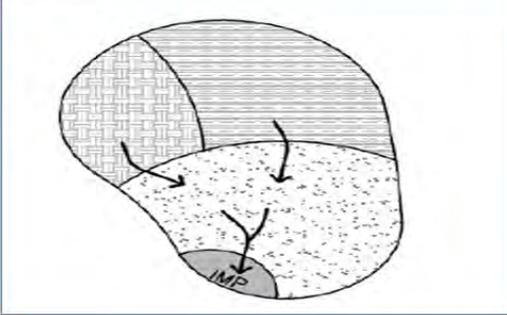
DMA Type: **Drains to Pond** Drainage Area (ac): **0.44**

Drainage Soil: **Type A (low runoff - sandy soils)** Pre-Project Cover: **Previous (Pre)**

Slope: **Flat - slope (less 5%)** Post-Project Cover: **Impervious (Post)**

Messages:

DMA Layout Large View



Size Pond Facility – Pond Sizer – Drainage Basin 2C

Result View

Size Pond Facility

Basin: **Basin 2C**

Project: **Golf Green Estates**

Start
DMA
Pond
Report
Export

Manage Your Scenarios

Create a new scenario by clicking the New button and scroll down to view entry. Alternatively, select an existing scenario from table and view properties below. Click Edit button to change scenario properties then press SAVE to update the calculations.

New
Edit
Save
Delete

Scenario	Description
Design A	EDB 2C

Example Layout

Pond Soil Type: Type A (low runoff - sandy soils)

Side Slope 1 (H:1): 2.00

Side Slope 2 (H:1): 3.00

Depth (ft): 5.0

Lower Orifice Invert (ft): 164.00

Upper Orifice Invert (ft): 166.00

Weir Invert (ft): 168.00

Weir Length (ft): 8.0

Low Flow Threshold (cfs): 0.299

Upper Flow Threshold (cfs): 6.722

Drainage Area (ac): 12.93

Calculate Orifice Size: Calculate

Calculate Pond Size: Calculate

Lower Maximum Orifice Size (in): 3.0

Upper Maximum Orifice Size (in): 10.0

Top Area (sqft): 10036

Bottom Area (sqft): 5671

Volume (cft): 39270.8

Drawdown Time (hrs): 7.0

Percent Drained (96 hrs): 100.0

Sizing PASSED. Post-project mitigated flow-duration and flow-frequency meet the pre-project conditions. (Iterations: 2) ****
 Drawdown PASSED. Drawdown time (7 hrs) < 96 hrs. ****

Basin Manager – Define Drainage Basin 2D

Result View

Define Drainage Basins

Basin: **Basin 2D**

Project: **Golf Green Estates**

Start
Project
Basin
POC
Export

Manage Your Basins

Create a new Basin by clicking the New button and scroll down to view entry. Alternatively, select an existing Basin from table and view properties below. Click Edit button to change Basin properties then press Save to commit changes.

New
Edit
Save
Delete

Name
Basin 2C
Basin 2B
Basin 2D
Basin 1

Description: Basin 2D

Design Goal: Treatment + Flow Control

Rainfall Basin: Oceanside

Point of Compliance: BMP Outlet

Project Basin Area (ac): 14.33

Mean Annual Precipitation (in): 13.3

Basin Manager – POC - Drainage Basin 2D

Result View

Define Drainage Basins Basin: **Basin 2D** Project: **Golf Green Estates**

Start Project Basin **POC** Export

Manage Your Point of Compliance (POC)

Analyze the receiving water at the 'Point of Compliance' by completing this form. Click Edit and enter the appropriate fields, then click the Update button to calculate the critical flow and low-flow threshold condition. Finally, click Save to commit the changes.

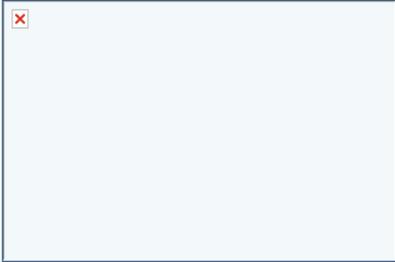
Channel Susceptibility: HIGH
Low Flow Threshold: 0.1Q2

Cancel Save Update

Channel Assessed: No
Watershed Area (ac): 0.00
Vertical Susceptibility: Select...
Lateral Susceptibility: Select...

Material: Select...
Roughness: 0.000
Channel Top Width (ft): 0.0
Channel Bottom Width (ft): 0.0
Channel Height (ft): 0.0
Channel Slope: 0.000

Large View



Size Pond Facility – DMA – Drainage Basin 2D

Result View

Size Pond Facility Basin: **Basin 2D** Project: **Golf Green Estates**

Start DMA Pond Report Export

Manage Your DMA's

Create a new DMA by clicking the New button and scroll down to view entry. Alternatively, select an existing DMA from table and view properties below. Click Edit button to change DMA properties then press Save to commit changes.

New Edit Save Delete

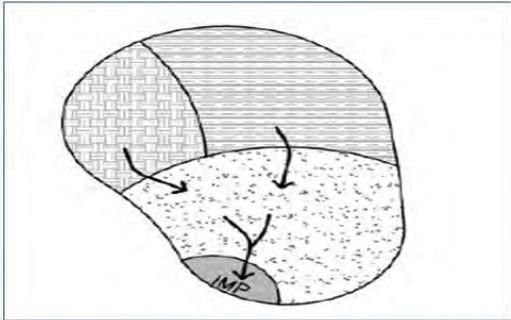
DMA ID	Description
12980	APM
12981	APIS
12982	APPF
12983	APPM

Define DMA Properties

DMA Type: Drains to Pond
Drainage Area (ac): 1.50
Drainage Soil: Type D (high runoff - clay soils)
Slope: Steep (greater 10%)
Pre-Project Cover: Pervious (Pre)
Post-Project Cover: Pervious (Post)

Messages:

DMA Layout Large View



Size Pond Facility – Pond Sizer – Drainage Basin 2D

Result View

Size Pond Facility

Basin: **Basin 2D**

Project: **Golf Green Estates**

Start
DMA
Pond
Report
Export

Manage Your Scenarios

Create a new scenario by clicking the New button and scroll down to view entry. Alternatively, select an existing scenario from table and view properties below. Click Edit button to change scenario properties then press SAVE to update the calculations.

New
Edit
Save
Delete

Scenario	Description
Design A	EDB 2D

Example Layout

Pond Soil Type: Type A (low runoff - sandy soils)

Side Slope 1 (H:1): 3.00

Side Slope 2 (H:1): 3.00

Depth (ft): 4.0

Lower Orifice Invert (ft): 157.50

Upper Orifice Invert (ft): 158.50

Weir Invert (ft): 161.00

Weir Length (ft): 8.0

Low Flow Threshold (cfs): 0.384

Upper Flow Threshold (cfs): 8.208

Drainage Area (ac): 14.34

Calculate Orifice Size: Calculate

Calculate Pond Size: Calculate

Lower Maximum Orifice Size (in): 4.0

Upper Maximum Orifice Size (in): 12.0

Top Area (sqft): 6915

Bottom Area (sqft): 3500

Volume (cft): 20831.4

Drawdown Time (hrs): 2.0

Percent Drained (96 hrs): 100.0

Sizing PASSED. Post-project mitigated flow-duration and flow-frequency meet the pre-project conditions. (Iterations: 1) ****

Drawdown PASSED. Drawdown time (2 hrs) < 96 hrs. ****

Project Summary

Project Name	Golf Green Estates
Project Applicant	San Luis Rey Downs Enterprises
Jurisdiction	County of San Diego
Parcel (APN)	
Hydrologic Unit	San Luis Rey

Compliance Basin Summary

Basin Name:	Basin 1
Receiving Water:	BMP Outlet
Rainfall Basin	Oceanside
Mean Annual Precipitation (inches)	13.3
Project Basin Area (acres):	11.68
Watershed Area (acres):	0.00
SCCWRP Lateral Channel Susceptibility (H, M, L):	
SCCWRP Vertical Channel Susceptibility (H, M, L):	
Overall Channel Susceptibility (H, M, L):	HIGH
Lower Flow Threshold (% of 2-Year Flow):	0.1

Drainage Management Area Summary

ID	Type	BMP ID	Description	Area (ac)	Pre-Project Cover	Post Surface Type	Drainage Soil	Slope
14929	Drains to LID	BMP 1	AIIF	0.15	Impervious (Pre)	Concrete or asphalt	Type A (low runoff - sandy soi...	Flat - slope (less ...
14930	Drains to LID	BMP 1	APIS	0.03	Pervious (Pre)	Concrete or asphalt	Type A (low runoff - sandy soi...	Steep (greater 10%)
14932	Drains to LID	BMP 1	APPF	0.16	Pervious (Pre)	Landscaping	Type A (low runoff - sandy soi...	Flat - slope (less ...
14934	Drains to LID	BMP 1	APPS	0.03	Pervious (Pre)	Landscaping	Type A (low runoff - sandy soi...	Steep (greater 10%)
14937	Drains to LID	BMP 1	CIIM	0.32	Impervious (Pre)	Concrete or asphalt	Type C (slow infiltration)	Moderate (5 - 10%)
14938	Drains to LID	BMP 1	CIIF	1.41	Impervious (Pre)	Concrete or asphalt	Type C (slow infiltration)	Flat - slope (less ...
14940	Drains to LID	BMP 1	CPIF	0.05	Pervious (Pre)	Concrete or asphalt	Type C (slow infiltration)	Flat - slope (less ...

14941	Drains to LID	BMP 1	CPIM	0.21	Pervious (Pre)	Concrete or asphalt	Type C (slow infiltration)	Moderate (5 - 10%)
14942	Drains to LID	BMP 1	CPIS	0.58	Pervious (Pre)	Concrete or asphalt	Type C (slow infiltration)	Steep (greater 10%)
14943	Drains to LID	BMP 1	CPPF	0.48	Pervious (Pre)	Landscaping	Type C (slow infiltration)	Flat - slope (less ...
14944	Drains to LID	BMP 1	CPPM	0.7	Pervious (Pre)	Landscaping	Type C (slow infiltration)	Moderate (5 - 10%)
14945	Drains to LID	BMP 1	CPPS	1.44	Pervious (Pre)	Landscaping	Type C (slow infiltration)	Steep (greater 10%)
14946	Drains to LID	BMP 1	DIIF	3.45	Impervious (Pre)	Concrete or asphalt	Type D (high runoff - clay soi...	Flat - slope (less ...
14947	Drains to LID	BMP 1	DIIM	0.35	Impervious (Pre)	Concrete or asphalt	Type D (high runoff - clay soi...	Moderate (5 - 10%)
14948	Drains to LID	BMP 1	DIIS	0.02	Impervious (Pre)	Concrete or asphalt	Type D (high runoff - clay soi...	Steep (greater 10%)
14949	Drains to LID	BMP 1	DPIM	0.09	Pervious (Pre)	Concrete or asphalt	Type D (high runoff - clay soi...	Moderate (5 - 10%)
14950	Drains to LID	BMP 1	DPIF	0.31	Pervious (Pre)	Concrete or asphalt	Type D (high runoff - clay soi...	Flat - slope (less ...
14951	Drains to LID	BMP 1	DPIS	0.17	Pervious (Pre)	Concrete or asphalt	Type D (high runoff - clay soi...	Steep (greater 10%)
14952	Drains to LID	BMP 1	DPPF	1.04	Pervious (Pre)	Landscaping	Type D (high runoff - clay soi...	Flat - slope (less ...
14953	Drains to LID	BMP 1	DPPM	0.29	Pervious (Pre)	Landscaping	Type D (high runoff - clay soi...	Moderate (5 - 10%)
14954	Drains to LID	BMP 1	DPPS	0.41	Pervious (Pre)	Landscaping	Type D (high runoff - clay soi...	Steep (greater 10%)

LID Facility Summary

BMP ID	Type	Description	Plan Area (sqft)	Volume 1(cft)	Volume 2(cft)	Orifice Flow (cfs)	Orifice Size (inch)
BMP 1	Bioretention	Basin 1 Bioretention	10009	8339	5898	0.433	4.00

Project Summary

Project Name	Golf Green Estates
Project Applicant	San Luis Rey Downs Enterprises
Jurisdiction	County of San Diego
Parcel (APN)	
Hydrologic Unit	San Luis Rey

Compliance Basin Summary

Basin Name:	Basin 2A
Receiving Water:	Discharge from Storm Drain
Rainfall Basin	Oceanside
Mean Annual Precipitation (inches)	13.3
Project Basin Area (acres):	9.64
Watershed Area (acres):	0.00
SCCWRP Lateral Channel Susceptibility (H, M, L):	
SCCWRP Vertical Channel Susceptibility (H, M, L):	
Overall Channel Susceptibility (H, M, L):	HIGH
Lower Flow Threshold (% of 2-Year Flow):	0.1

Drainage Management Area Summary

ID	Type	BMP ID	Description	Area (ac)	Pre-Project Cover	Post Surface Type	Drainage Soil	Slope
14959	Drains to Pond	BMP 1	AIIF	0.02	Impervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
14960	Drains to Pond	BMP 1	APIF	1.95	Pervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
14962	Drains to Pond	BMP 1	APIM	0.72	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
14963	Drains to Pond	BMP 1	APIS	0.18	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
14964	Drains to Pond	BMP 1	APPF	1.96	Pervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
14965	Drains to Pond	BMP 1	APPM	0.87	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
14966	Drains to Pond	BMP 1	APPS	0.32	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
14967	Drains to Pond	BMP 1	CIIF	0.78	Impervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
14968	Drains to Pond	BMP 1	CIIM	0.9	Impervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
14969	Drains to Pond	BMP 1	CIIS	0.03	Impervious (Pre)		Type C (slow infiltration)	Steep (greater 10%)
14970	Drains to Pond	BMP 1	CPIF	0.04	Pervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
14971	Drains to Pond	BMP 1	CPIM	0.02	Pervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
14972	Drains to Pond	BMP 1	CPPF	0.29	Pervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...

14973	Drains to Pond	BMP 1	CPPM	0.76	Pervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
14974	Drains to Pond	BMP 1	CPPS	0.55	Pervious (Pre)		Type C (slow infiltration)	Steep (greater 10%)
14975	Drains to Pond	BMP 1	DIIM	0.2	Impervious (Pre)		Type D (high runoff - clay soi...	Moderate (5 - 10%)
14976	Drains to Pond	BMP 1	DPPM	0.05	Pervious (Pre)		Type D (high runoff - clay soi...	Moderate (5 - 10%)

Pond Facility Summary

Scenario	Description	Bottom Area (sqft)	Top Area (sqft)	Depth (ft)	Volume (cft)	Low Orifice (in)	Low Invert (ft)	High Orifice (in)	High Invert (ft)	Weir Length (ft)	Weir Invert (ft)	Facility Soil	Drawdown (hrs)
Design A	EDB 2A	6162	9312	3	23212.3	2.00	156.00	8.00	157.00	4.00	158.5	A	7.00

Project Summary

Project Name	Golf Green Estates
Project Applicant	San Luis Rey Downs Enterprises
Jurisdiction	County of San Diego
Parcel (APN)	
Hydrologic Unit	San Luis Rey

Compliance Basin Summary

Basin Name:	Basin 2B
Receiving Water:	BMP Outlet
Rainfall Basin	Oceanside
Mean Annual Precipitation (inches)	13.3
Project Basin Area (acres):	5.40
Watershed Area (acres):	0.00
SCCWRP Lateral Channel Susceptibility (H, M, L):	
SCCWRP Vertical Channel Susceptibility (H, M, L):	
Overall Channel Susceptibility (H, M, L):	HIGH
Lower Flow Threshold (% of 2-Year Flow):	0.1

Drainage Management Area Summary

ID	Type	BMP ID	Description	Area (ac)	Pre-Project Cover	Post Surface Type	Drainage Soil	Slope
12964	Drains to Pond	BMP 1	AiIF	0.18	Impervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
12965	Drains to Pond	BMP 1	APIF	1.14	Pervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
12966	Drains to Pond	BMP 1	APIM	0.2	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
12967	Drains to Pond	BMP 1	APIS	0.03	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
12968	Drains to Pond	BMP 1	APPF	0.96	Pervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
12969	Drains to Pond	BMP 1	APPM	0.2	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
12970	Drains to Pond	BMP 1	APPS	0.05	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
12971	Drains to Pond	BMP 1	CIIF	0.49	Impervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
12972	Drains to Pond	BMP 1	CIIM	0.86	Impervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
12973	Drains to Pond	BMP 1	CPIF	0.01	Pervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
12974	Drains to Pond	BMP 1	CPIM	0.09	Pervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
12975	Drains to Pond	BMP 1	CPIS	0.01	Pervious (Pre)		Type C (slow infiltration)	Steep (greater 10%)
12976	Drains to Pond	BMP 1	CPPF	0.02	Pervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...

12977	Drains to Pond	BMP 1	CPPM	0.58	Pervious (Pre)	Type C (slow infiltration)	Moderate (5 - 10%)
12978	Drains to Pond	BMP 1	CPPS	0.59	Pervious (Pre)	Type C (slow infiltration)	Steep (greater 10%)

Pond Facility Summary

Scenario	Description	Bottom Area (sqft)	Top Area (sqft)	Depth (ft)	Volume (cft)	Low Orifice (in)	Low Invert (ft)	High Orifice (in)	High Invert (ft)	Weir Length (ft)	Weir Invert (ft)	Facility Soil	Drawdown (hrs)
Design A	EDB 2B	3814	6362	3	15265.2	1.00	156.00	8.00	157.00	4.00	158.5	A	7.00

Project Summary

Project Name	Golf Green Estates
Project Applicant	San Luis Rey Downs Enterprises
Jurisdiction	County of San Diego
Parcel (APN)	
Hydrologic Unit	San Luis Rey

Compliance Basin Summary

Basin Name:	Basin 2C
Receiving Water:	BMP Outlet
Rainfall Basin	Oceanside
Mean Annual Precipitation (inches)	13.3
Project Basin Area (acres):	12.94
Watershed Area (acres):	0.00
SCCWRP Lateral Channel Susceptibility (H, M, L):	
SCCWRP Vertical Channel Susceptibility (H, M, L):	
Overall Channel Susceptibility (H, M, L):	HIGH
Lower Flow Threshold (% of 2-Year Flow):	0.1

Drainage Management Area Summary

ID	Type	BMP ID	Description	Area (ac)	Pre-Project Cover	Post Surface Type	Drainage Soil	Slope
12915	Drains to Pond	BMP 1	1-APIF	0.44	Pervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
12916	Drains to Pond	BMP 1	1-APIM	0.52	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
12917	Drains to Pond	BMP 1	1-APIS	0.49	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
12918	Drains to Pond	BMP 1	1-APPF	0.95	Pervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
12919	Drains to Pond	BMP 1	1-APPM	0.82	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
12920	Drains to Pond	BMP 1	1-APPS	1.11	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
12921	Drains to Pond	BMP 1	1-CPIF	0.05	Pervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
12922	Drains to Pond	BMP 1	1-CPIM	0.68	Pervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
12923	Drains to Pond	BMP 1	1-CPIS	0.21	Pervious (Pre)		Type C (slow infiltration)	Steep (greater 10%)
12924	Drains to Pond	BMP 1	1-CPPF	0.03	Pervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
12925	Drains to Pond	BMP 1	1-CPPM	0.7	Pervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
12926	Drains to Pond	BMP 1	1-CPPS	0.23	Pervious (Pre)		Type C (slow infiltration)	Steep (greater 10%)
12927	Drains to Pond	BMP 1	1-DIIF	2.27	Impervious (Pre)		Type D (high runoff - clay soi...	Flat - slope (less ...

12928	Drains to Pond	BMP 1	1-DPIF	0.37	Pervious (Pre)		Type D (high runoff - clay soi...	Flat - slope (less ...
12929	Drains to Pond	BMP 1	1-DPIM	1.22	Pervious (Pre)		Type D (high runoff - clay soi...	Moderate (5 - 10%)
12930	Drains to Pond	BMP 1	1-DPIS	0.5	Pervious (Pre)		Type D (high runoff - clay soi...	Steep (greater 10%)
12931	Drains to Pond	BMP 1	1-DPPF	0.66	Pervious (Pre)		Type D (high runoff - clay soi...	Flat - slope (less ...
12932	Drains to Pond	BMP 1	1-DPPM	1.04	Pervious (Pre)		Type D (high runoff - clay soi...	Moderate (5 - 10%)
12933	Drains to Pond	BMP 1	1-DPPS	0.64	Pervious (Pre)		Type D (high runoff - clay soi...	Steep (greater 10%)

Pond Facility Summary

Scenario	Description	Bottom Area (sqft)	Top Area (sqft)	Depth (ft)	Volume (cft)	Low Orifice (in)	Low Invert (ft)	High Orifice (in)	High Invert (ft)	Weir Length (ft)	Weir Invert (ft)	Facility Soil	Drawdown (hrs)
Design A	EDB 2C	5671	10036	5	39270.8	3.00	164.00	10.00	166.00	8.00	168.00	A	7.00

Project Summary

Project Name	Golf Green Estates
Project Applicant	San Luis Rey Downs Enterprises
Jurisdiction	County of San Diego
Parcel (APN)	
Hydrologic Unit	San Luis Rey

Compliance Basin Summary

Basin Name:	Basin 2D
Receiving Water:	BMP Outlet
Rainfall Basin	Oceanside
Mean Annual Precipitation (inches)	13.3
Project Basin Area (acres):	14.33
Watershed Area (acres):	0.00
SCCWRP Lateral Channel Susceptibility (H, M, L):	
SCCWRP Vertical Channel Susceptibility (H, M, L):	
Overall Channel Susceptibility (H, M, L):	HIGH
Lower Flow Threshold (% of 2-Year Flow):	0.1

Drainage Management Area Summary

ID	Type	BMP ID	Description	Area (ac)	Pre-Project Cover	Post Surface Type	Drainage Soil	Slope
12980	Drains to Pond	BMP 1	APIM	0.47	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
12981	Drains to Pond	BMP 1	APIS	0.04	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
12982	Drains to Pond	BMP 1	APPF	0.44	Pervious (Pre)		Type A (low runoff - sandy soi...	Flat - slope (less ...
12983	Drains to Pond	BMP 1	APPM	0.76	Pervious (Pre)		Type A (low runoff - sandy soi...	Moderate (5 - 10%)
12984	Drains to Pond	BMP 1	APPS	0.02	Pervious (Pre)		Type A (low runoff - sandy soi...	Steep (greater 10%)
12985	Drains to Pond	BMP 1	CIIF	0.34	Impervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
12986	Drains to Pond	BMP 1	CPIS	0.37	Pervious (Pre)		Type C (slow infiltration)	Steep (greater 10%)
12987	Drains to Pond	BMP 1	CPPF	1.4	Pervious (Pre)		Type C (slow infiltration)	Flat - slope (less ...
12988	Drains to Pond	BMP 1	CPPM	0.02	Pervious (Pre)		Type C (slow infiltration)	Moderate (5 - 10%)
12989	Drains to Pond	BMP 1	CPPS	0.35	Pervious (Pre)		Type C (slow infiltration)	Steep (greater 10%)
12990	Drains to Pond	BMP 1	DIIF	3.15	Impervious (Pre)		Type D (high runoff - clay soi...	Flat - slope (less ...
12991	Drains to Pond	BMP 1	DPIF	0.22	Pervious (Pre)		Type D (high runoff - clay soi...	Flat - slope (less ...
							Type D (high runoff - clay	

12992	Drains to Pond	BMP 1	DPIM	0.09	Pervious (Pre)		soi...	Moderate (5 - 10%)
12993	Drains to Pond	BMP 1	DPIS	0.94	Pervious (Pre)		Type D (high runoff - clay soi...	Steep (greater 10%)
12994	Drains to Pond	BMP 1	DPPF	4.17	Pervious (Pre)		Type D (high runoff - clay soi...	Flat - slope (less ...
12995	Drains to Pond	BMP 1	DPPM	0.06	Pervious (Pre)		Type D (high runoff - clay soi...	Moderate (5 - 10%)
12996	Drains to Pond	BMP 1	DPPS	1.5	Pervious (Pre)		Type D (high runoff - clay soi...	Steep (greater 10%)

Pond Facility Summary

Scenario	Description	Bottom Area (sqft)	Top Area (sqft)	Depth (ft)	Volume (cft)	Low Orifice (in)	Low Invert (ft)	High Orifice (in)	High Invert (ft)	Weir Length (ft)	Weir Invert (ft)	Facility Soil	Drawdown (hrs)
Design A	EDB 2D	3500	6915	4	20831.4	4.00	157.5	12.00	158.5	8.00	161.00	A	2.00

ATTACHMENT E

Geotechnical Certification Sheet (if applicable)

The design of stormwater treatment and other control measures proposed in this plan requiring specific soil infiltration characteristics and/or geological conditions has been reviewed and approved by a registered Civil Engineer, Geotechnical Engineer, or Geologist in the State of California.

Name and registration #

Date

ATTACHMENT F

Maintenance Plan

(Use Chapter 5 of the SUSMP as guidance in developing your Maintenance Plan)

The following is a general outline to create your project specific Maintenance Plan.

- I. Inspection, Maintenance Log and Self-Verification Forms (Examples are provided in Appendix F of the San Diego County SUSMP)
- II. Updates, Revisions and Errata
- III. Introduction
 - A. Narrative overview describing the site; drainage areas, routing, and discharge points; and treatment facilities.
- IV. Responsibility for Maintenance
 - A. General
 - (1) Name and contact information for responsible individual(s).
 - (2) Organization chart or charts showing organization of the maintenance function and location within the overall organization.
 - (3) Reference to Operation and Maintenance Agreement (if any). A copy of the agreement should be attached.
 - (4) Maintenance Funding
 - (1) Sources of funds for maintenance
 - (2) Budget category or line item
 - (3) Description of procedure and process for ensuring adequate funding for maintenance
 - B. Staff Training Program
 - C. Records
 - D. Safety

- V. Summary of Drainage Areas and Stormwater Facilities
 - A. Drainage Areas
 - (1) Drawings showing pervious and impervious areas (copied or adapted from initial SWMP).
 - (2) Designation and description of each drainage area and how flow is routed to the corresponding facility.
 - B. Treatment and Flow-Control Facilities
 - (1) Drawings showing location and type of each facility
 - (2) General description of each facility (Consider a table if more than two facilities)
 - (1) Area drained and routing of discharge.
 - (2) Facility type and size
- VI. Facility Documentation
 - A. "As-built" drawings of each facility (design drawings in the draft Plan)
 - B. Manufacturer's data, manuals, and maintenance requirements for pumps, mechanical or electrical equipment, and proprietary facilities (include a "placeholder" in the draft plan for information not yet available).
 - C. Specific operation and maintenance concerns and troubleshooting
- VII. Maintenance Schedule or Matrix
 - A. Maintenance Schedule for each facility with specific requirements for:
 - (1) Routine inspection and maintenance
 - (2) Annual inspection and maintenance
 - (3) Inspection and maintenance after major storms
 - B. Service Agreement Information

Assemble and make copies of your maintenance plan. One copy must be submitted to the County, and at least one copy kept on-site. Here are some suggestions for formatting the maintenance plan:

- Format plans to 8½" x 11" to facilitate duplication, filing, and handling.
- Include the revision date in the footer on each page.
- Scan graphics and incorporate with text into a single electronic file. Keep the electronic file backed-up so that copies of the maintenance plan can be made if the hard copy is lost or damaged.

1. INSPECTION FREQUENCY

Inspections of the extended detention basins (EDBs) will occur at a minimum of once a month. Inspections will also occur before and after large storm events or on a weekly basis during periods of wet weather. The rainy season within the jurisdiction of the San Diego Regional Water Quality Control Board is October 1 – April 30. Refer to Attachment D for extended detention basin locations.

2. PREVENTATIVE ACTIONS

The following is a list of actions that will help prevent problems from occurring. They should be done on a routine basis throughout the duration of the project.

VEGETATION CONTROL

Vegetation in the basin should be trimmed and mowed to keep a maximum height of 18 inches. All vegetation clippings should be removed from the basin when trimming and mowing is conducted. Trimming and mowing prevents marsh vegetation from overtaking the basin and creating faunal habitats. It also prevents areas of water stagnation which can create a vector and health problem.

BASIN CLEANING

Trash and debris should be removed from the basin. Special attention should be given to the inlet and outlet structures. A build up of trash and debris in these areas can decrease the efficiency of the basin or make it inoperable during storms.

VECTOR CONTROL

Sediments deposited at the inlet structures should be managed to prevent areas of ponding and possible vector problems. Sediment grading can be accomplished by manually raking the deposits.

REMOVAL OF SEDIMENT ACCUMULATION

Sediments that settle in the basin should be removed when the accumulation grows to a depth of 18 inches or 10% of the basin volume, whichever is less.

EQUIPMENT INSPECTION

All physical components of the basin should be regularly inspected for operability. This includes all valves, fence gates, locks, and access hatches.

GENERAL CLEANUP

Graffiti will be removed in a timely manner to improve the appearance of the basin. Weeds will be removed around fences and grass trimmed to keep the basin from becoming an eyesore and help discourage further graffiti or vandalism. All landscape clippings and cleaning solvents used to remove graffiti should be properly removed from the basin after cleanup.

3. MAINTENANCE INDICATORS AND CORRECTIVE ACTIONS

The following is a list of indicators that would trigger immediate corrective actions to be taken. Corrective action should be taken within 10 days to ensure that damage does not occur from the extended detention basin not operating efficiently.

BLOCKAGE OF INLETS/OUTLETS

Any blockages from sediment, debris, or vegetation that keep the basin from operating effectively will be removed immediately and properly disposed of. The basin should be able to completely drain within 72 hours after a storm.

STRUCTURAL DAMAGE

If any damage to the structural components of the basin is found, repairs will be made promptly. Designers and contractors will conduct repairs where structural damage has occurred.

EMBANKMENT DAMAGE

Any damage to the embankments and slopes will be repaired quickly so that no erosion will occur.

EROSION DAMAGE

If there is damage due to erosion such as siltation, steps will be taken to prevent further loss of soil and repair any conditions that may cause the basin to not operate effectively. Possible corrective steps include erosion control blankets, riprap, sodding, or reduced flow through the area. Design engineers will be consulted to address erosion problems if the solution is not evident.

FENCE DAMAGE

Timely repair of fences will be done to maintain the security of the site and the safety of residents.

INVASIVE VEGETATION

If necessary, elimination of trees and woody vegetation will be required. Woody vegetation will be removed from embankments.

ANIMAL BURROWS

Animal burrows will be filled and compacted. Further steps may be needed to physically remove the animals if the problem persists. Vector control specialists will be consulted regarding possible solutions. This consulting is necessary as the threat of rabies in some areas may necessitate the animals being destroyed rather than relocated.

EQUIPMENT DAMAGE

General corrective maintenance will be done to fix any damage done to the basin or related components. If corrective maintenance is being done to one component, other components will be inspected to see if maintenance is needed.

4. PROPOSED METHOD OF DISPOSING OF SEDIMENT AND POLLUTANTS

Removed sediment materials are not considered hazardous waste and can be disposed of as landscaping material. If it is determined that hazardous waste has been deposited into the basin, the suspected waste will be analyzed to determine proper disposal options.

5. COST ESTIMATE

Based on Appendix H of the County of San Diego's SUSMP, each extended detention basin costs approximately \$4330 a year to maintain. A private maintenance company will be hired to maintain them.

6. PROPOSED MECHANISM TO ASSURE MAINTENANCE FUNDING

The extended detention basins are to fall under the Third Category BMP Maintenance Plan per the County of San Diego SUSMP. Under the authority of County Flood Control, the primary funding mechanism will be a special assessment by inclusion into a watershed specific Community Facility District (CFD) or through the formation of an individual CFD. The assessment will be collected with property tax. Because this primary funding mechanism may require substantial amount of time to establish and collect assessments, a developer fee is required to cover the initial maintenance period of 2 years.

Inspected By: _____ Inspection Date: _____

Extended Detention Basin Location: _____

MAINTENANCE ACTIVITY CHECKLIST

- Has trash and debris been removed from the detention basin?
- Has the outlet riser been inspected and debris and sediment removed from it?
- Is the sediment 18" deep or volume decreased by 10%? If so, has the accumulated materials been removed?
- Is Vegetation in the basin taller than 18 inches? If so, was it trimmed and mowed?
- Were the banks of the basin inspected for vegetative stabilization?
- Do the banks need replanting?
- Are there signs of severe erosion in the form of ruts or sediment deposits?
- Have the banks been inspected for structural integrity?
- Have the fences been inspected?
- Is there graffiti? Has it been removed?
- Has the grass been trimmed around fences, the basin, outlet structures, and sampling structures?
- Have weeds been removed?
- Have alluvial deposits created zones of ponded water? If so, were the sediments manually raked to eliminate the ponding zones?
- Have all the valves, fence gates, locks, and access hatches been inspected?
- Are there any trees or woody vegetation on the embankments? Have they been removed?
- Are there any animal burrows? Were they filled and compacted?

Items Repaired or Replaced:

Stormwater Facility Operation and Maintenance Fact Sheet

► WET PONDS, CONSTRUCTED WETLANDS, AND EXTENDED (“DRY”) DETENTION BASINS

These larger-scale facilities remove pollutants by detaining runoff in a quiescent pool long enough for some of the particulates to settle to the bottom. They require both routine (preventative) maintenance and non-routine maintenance.

For any basin, vault or other device that is designed to hold, or does hold water for longer than 72 hours, coordinate with the San Diego County Vector Control Program (SDCVCP). The following may be required:

- Provide a copy of the site operation and maintenance plan to the SDCVCP.
- Access to all potential vector-producing areas will be given to SDCVCP personnel.
- Copies of O&M reports will be supplied to SDCVCP.
- The SDCVCP will be given advance notice of O&M activities such as silt management, vegetation management, and water management.
- A schedule of routine O&M activities will be given to the SDCVCP.
- O&M personnel will cooperate with SDCVCP and adjust activities as necessary to facilitate control of mosquitoes and vectors.

Typical routine maintenance consists of the following:

- Examine inlets to ensure that piping is intact and not plugged. Remove accumulated sediment or debris near the inlet.
- Examine outlets and overflow structures and remove any debris or sediment that could plug the outlets. Identify and correct any sources of sediment and debris. Check rocks or other armoring and replace as necessary.
- Inspect embankments, dikes, berms, and side slopes for signs of erosion or structural deficiencies.
- Confirm that any fences around the facility are secure.
- Control vectors by filling any holes in or around the pond and examine the pond for evidence of mosquito larvae.

Typical non-routine maintenance includes the following:

- Dredge accumulated sediment. This may be required every five to 15 years, and more frequently if there are excess sources of sediment (as may occur on newly constructed

sites where soils are not yet stabilized). Dredging is usually a major project requiring mechanized equipment. The work will include an initial survey of depths and elevations; sediment sampling and testing; removal, transport, and disposal of accumulated sediment, and reestablishment of original design grades and sections.

- Remove invasive plants. Depending on the success of the design and the rate of sedimentation, ponds may be subject to excessive growth of rooted macrophytes, which reduce the effective area of the pond and create quiescent surface water that supports mosquito larvae. Removal may require a level of effort similar to dredging.

Vegetated Swale Inspection and Maintenance Checklist – Golf Green Estates

Property Address: Camino Del Rey & Old River Road, Unincorporated San Diego County Property Owner: San Luis Rey Downs Enterprises, LLC

Treatment Measure No.: _____ Date of Inspection: _____ Type of Inspection: Monthly Pre-Wet Season

After heavy runoff End of Wet Season

Inspector(s): _____

Other: _____

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Y/N)	Comments (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)	Results Expected When Maintenance Is Performed
Sediment Accumulation on Vegetation	Sediment accumulating near culverts and/or in channels builds up to 75 millimeters (3 inches) at any spot, or it covers vegetation			When finished, swale should be level from side to side and drain freely toward outlet. There should be no areas of standing water once inflow has ceased and sediment is disposed of properly.
Standing Water	When water stands in the swale between storms and does not drain within 5 days after rainfall.			There should be no areas of standing water once inflow has ceased. Any of the following may apply: sediment or trash blockages removed, improved grade from head to foot of swale, removed clogged check dams, added underdrains or converted to a wet swale.
Flow spreader (if any)	Flow spreader uneven or clogged so that flows are not uniformly distributed through entire swale width.			Spreader leveled and cleaned so that flows are spread evenly over entire swale width.
Constant Baseflow	When small quantities of water continually flow through the swale, even when it has been dry for weeks, and an eroded, muddy channel has formed in the swale bottom.			No eroded, muddy channel on the bottom. A low-flow pea-gravel drain may be added the length of the swale.
Poor Vegetation Coverage	When planted vegetation is sparse or bare or eroded patches occur in more than 10% of the swale bottom.			Vegetation coverage in more than 90% of the swale bottom. Determine why growth of planted vegetation is poor and correct that condition. Re-plant with plugs of vegetation from the upper slope: plant in the swale bottom at 8-inch intervals, or re-seed into loosened, fertile soil.

Vegetated Swale Maintenance Plan

Property Address: Camino Del Rey and Old River Road, Unincorporated San Diego County

Date of Inspection: _____

Treatment Measure No.: _____

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Y/N)	Comments (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	Results Expected When Maintenance Is Performed
Vegetation	When the planted vegetation becomes excessively tall; when nuisance weeds and other vegetation start to take over.			Vegetation mowed per specifications or maintenance plan, or nuisance vegetation removed so that flow is not impeded. Vegetation should never be mowed lower than the design flow depth. Remove clippings from the swale and dispose appropriately.
Excessive Shading	Growth of planted vegetation is poor because sunlight does not reach swale.			Healthy growth of planted vegetation. If possible, trim back over-hanging limbs and remove brushy vegetation on adjacent slopes.
Inlet/Outlet	Inlet/outlet areas clogged with sediment and/or debris.			Material removed so that there is no clogging or blockage in the inlet and outlet areas.
Trash and Debris Accumulation	Trash and debris accumulated in the swale.			Trash and debris removed from swale.
Erosion/ Scouring	Eroded or scoured swale bottom due to flow channelization, or higher flows.			No erosion or scouring in swale bottom. For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, the swale should be re-graded and re-seeded. For smaller bare areas, overseed when bare spots are evident, or take plugs of grass from the upper slope and plant in the swale bottom at 8-inch intervals.
Miscellaneous	Any condition not covered above that needs attention in order for the vegetated swale to function as designed.			Meet the design specifications.

Extended Detention Basin Inspection and Maintenance Checklist – Golf Green Estates

Property Address: Camino Del Rey and Old River Road, Unincorporated San Diego County Property Owner: San Luis Rey Downs Enterprises, LLC

Treatment Measure No.: _____ Date of Inspection: _____ Type of Inspection: Monthly Pre-Wet Season

After heavy runoff End of Wet Season

Inspector(s): _____ Other: _____

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Y/N)	Comments (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	Results Expected When Maintenance Is Performed
General				
Trash & Debris	<ul style="list-style-type: none"> • Trash and debris accumulated in basin. • Visual evidence of dumping. 			Trash and debris cleared from site and disposed of properly.
Poisonous Vegetation and noxious weeds	Poisonous or nuisance vegetation or noxious weeds, e.g., morning glory, English ivy, reed canary grass, Japanese knotweed, purple loosestrife, blackberry, Scotch broom, poison oak, stinging nettles, or devil's club.			Use Integrated Pest Management techniques to control noxious weeds or invasive species.
Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants.			No contaminants or pollutants present.
Rodent Holes	If facility acts as a dam or berm, any evidence of rodent holes, or any evidence of water piping through dam or berm via rodent holes.			The design specifications are not compromised by holes. Any rodent control activities are in accordance with applicable laws and do not affect any protected species.
Insects	Insects such as wasps and hornets interfere with maintenance activities.			Insects do not interfere with maintenance activities.

Extended Detention Basin Inspection and Maintenance Checklist

Property Address: _____

Date of Inspection: _____

Treatment Measure No.: _____

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Y/N)	Comments (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	Results Expected When Maintenance Is Performed
Tree/Brush Growth and Hazard Trees	<ul style="list-style-type: none"> • Growth does not allow maintenance access or interferes with maintenance activity. • Dead, diseased, or dying trees. 			<ul style="list-style-type: none"> • Trees do not hinder maintenance activities. • Remove hazard trees as approved by the City. (Use a certified Arborist to determine health of tree or removal requirements).
Drainage time	Standing water remains in basin more than five days.			Correct any circumstances that restrict the flow of water from the system. Restore drainage to design condition. If the problem cannot be corrected and problems with standing water recur, then mosquitoes should be controlled with larvicides, applied by a licensed pesticide applicator.
Outfall structure	Debris or silt build-up obstructs an outfall structure.			Remove debris and/or silt build-up and dispose of properly.
Side Slopes				
Erosion	<ul style="list-style-type: none"> • Eroded over 2 in. deep where cause of damage is still present or where there is potential for continued erosion. • Any erosion on a compacted berm embankment. 			Cause of erosion is managed appropriately. Side slopes or berm are restored to design specifications, as needed.
Storage Area				
Sediment	Accumulated sediment >10% of designed basin depth or affects inletting or outletting condition of the facility.			Sediment cleaned out to designed basin shape and depth; basin reseeded if necessary to control erosion. Sediment disposed of properly.
Liner (If Applicable)	Liner is visible and has more than three 1/4-inch holes in it.			Liner repaired or replaced. Liner is fully covered.
Emergency Overflow/ Spillway and Berms				
Settlement	Berm settlement 4 inches lower than the design elevation.			Dike is built back to the design elevation.

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Y/N)	Comments (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	Results Expected When Maintenance Is Performed
Tree Growth	Tree growth on berms or emergency spillway >4 ft in height or covering more than 10% of spillway.			<ul style="list-style-type: none"> Trees should be removed. If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. A civil engineer should be consulted for proper berm/spillway restoration.
Emergency Overflow/ Spillway	Rock is missing and soil is exposed at top of spillway or outside slope.			Rocks and pad depth are restored to design standards.
Debris Barriers (e.g., Trash Racks)				
Trash and Debris	Trash or debris is plugging openings in the barrier.			Trash or debris is removed and disposed of properly.
Damaged/ Missing Bars	Bars are missing, loose, bent out of shape, or deteriorating due to excessive rust.			Bars are repaired or replaced to allow proper functioning of trash rack.
Inlet/Outlet Pipe	Debris barrier is missing or not attached to pipe.			Debris barrier is repaired or replaced to allow proper functioning of trash rack.
Fencing and Gates				
Missing or broken parts	Any defect in or damage to the fence or gate that permits easy entry to a facility.			Fencing and gate are restored to design specifications.
Deteriorating Paint or Protective Coating	Part or parts that have a rusting or scaling condition that has affected structural adequacy.			Paint or protective coating is sufficient to protect structural adequacy of fence or gate.
Flow Duration Control Outlet (if included in design to meet Hydromodification Management Standard)				
Risers, orifices and screens	Any debris or clogging			Restore unobstructed flow through discharge structure; to meet original design; dispose of debris properly.
Miscellaneous				
Miscellaneous	Any condition not covered above that needs attention to restore extended detention basin to design conditions.			Meets the design specifications.

ATTACHMENT G

Treatment Control BMP Certification for DPW Permitted Land Development Projects

ATTACHMENT H

HMP Exemption Documentation (if applicable)

ATTACHMENT I

Addendum