

**Major Stormwater Management Plan
(Major SWMP)
For
The Pearl**

**Preparation/Revision Date:
January 23, 2012**

Prepared for:

Hitzke Development
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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.


Tracy Santucci, RCE# 49763



10/31/13
4/23/12
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:	The Pearl
Project Location:	414 S. Sierra Avenue, Solana Beach, CA
Permit Number (Land Development Projects):	N/A
Work Authorization Number (CIP only):	N/A
Applicant:	Hitzke Development Corporation
Applicant's Address:	251 Autumn Dr, Suite 100, San Marcos, CA 92069
Plan Prepared By (<i>Leave blank if same as applicant</i>):	SWS Engineering, Inc.
Preparer's Address:	261 Autumn Dr, Suite 115, San Marcos, CA 92069
Date:	January 23, 2012

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		
Planning				

Instructions for a Major SWMP can be downloaded at
<http://www.sdcountry.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 ☒	No ☐	A	Housing subdivisions of 10 or more dwelling units. Examples: single-family homes, multi-family homes, condominiums, and apartments.
Yes ☐	No ☒	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 ☐	No ☒	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 ☐	No ☒	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 ☐	No ☒	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 ☐	No ☒	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 ☐	No ☒	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 ☒	No ☐	H	Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff.
Yes ☐	No ☒	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 ☐	No ☒	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 0.29 (Acres)

Estimated amount of disturbed area: 0.29 (Acres)

(If >1 acre, you must also provide a WDID number from the SWRCB) WDID: N/A

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: 0.29 (Acres)

B. Total impervious area (including roof tops) before construction 0.27 (Acres)

C. Total impervious area (including roof tops) after construction 0.27 (Acres)

Calculate percent impervious before construction: $B/A = \underline{93} \%$

Calculate percent impervious after construction: $C/A = \underline{93} \%$

Please provide detailed descriptions regarding the following questions:

TABLE 2: PROJECT SPECIFIC STORMWATER ANALYSIS

1.	Please provide a brief description of the project.
	The project is an affordable housing building with 10 residential units, 1 commercial unit, associated parking, sidewalks, and landscaping.
2.	Describe the current and proposed zoning and land use designation.
	Existing zoning = C-Commercial Proposed zoning = C-Commercial
3.	Describe the pre-project and post-project topography of the project. (Show on Plan)
	The existing project area consists of an existing parking lot that ranges in elevation from approximately 59 to 61 feet. The proposed project would replace the entire parking lot with a multi-story building with underground parking varying in depth below existing grade from 6 to 10 feet -
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.
	Groundwater was not encountered in subsurface exploration. The earth materials on site are primarily comprised of Pleistocene Old Paralac Deposits. These deposits consists predominately of interlayered moderate yellowish brown to gray brown, silty sand.
5.	Describe if contaminated or hazardous soils are within the project area. (Show on Plan)
	Contaminated or hazardous soils are not anticipated to be encountered within the project area.
6.	Describe the existing site drainage and natural hydrologic features. (Show on Plan).
	The existing property is an existing public city parking lot along South Sierra Avenue. The project is bounded by an existing fitness center to the north, timeshare apartments to the east and south, and South Sierra Avenue to the west. The northern parking lot of the eastern timeshare apartments drain westerly through a concrete ribbon gutter and sheet flows down the existing slope. The runoff confluences with the runoff from the existing parking lot and eastern vegetated slope before discharging to the northwest corner of the parking lot in South Sierra Avenue.
7.	Describe site features and conditions that constrain, or provide opportunities for stormwater control, such as LID features.
	Due to the size of the proposed building, Planter Boxes on the podium level of the building and along the frontage of the building and downspout filters have been included and sized for treatment of the roof runoff prior to discharging to S. Sierra Avenue.
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: PROJECT SPECIFIC STORMWATER ANALYSIS

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project include work in channels?		X		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 | ☒ Desilting Basin |
| ☒ Fiber Rolls | ☒ Gravel Bag Berm |
| ☒ Street Sweeping and Vacuuming | ☒ Sandbag Barrier |
| ☒ Storm Drain Inlet Protection | ☒ Material Delivery and Storage |
| ☒ Stockpile Management | ☒ Spill Prevention and Control |
| ☒ Solid Waste Management | ☒ Concrete Waste Management |
| ☒ Stabilized Construction Entrance/Exit | ☒ Water Conservation Practices |
| ☒ Dewatering Operations | ☒ Paving and Grinding Operations |
| ☒ Vehicle and Equipment Maintenance | |

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.swrchb.ca.gov/tmdl/docs/303dlists2006/approved/r9_06_303d_req_tmdls.pdf		X	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.

TABLE 5: HYDROMODIFICATION DETERMINATION

	QUESTIONS	YES	NO	Information
1.	Will the project increase the impervious area and peak flows to any discharge location?		X	If NO, go to 7. If YES, continue to 2.
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.

Reference the County SUSMP "HMP Applicability Requirements" in Chapter 1 for further discussion of the questions presented in Table 5. The County SUSMP is located at:
<http://www.sdcounty.ca.gov/dpw/watersheds/susmp/susmp.html>

STEP 4

POLLUTANTS OF CONCERN DETERMINATION

WATERSHED

Please check the watershed(s) for the project.

☐ San Juan 901	☐ Santa Margarita 902	☐ San Luis Rey 903	☐ Carlsbad 904
☒ San Dieguito 905	☐ Penasquitos 906	☐ San Diego 907	☐ Sweetwater 909
☐ Otay 910	☐ Tijuana 911	☐ Whitewater 719*	☐ Clark 720*
☐ West Salton 721*	☐ Anza Borrego 722*	☐ 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
905.10	Solana Beach HA
905.11	Rancho Santa Fe HSA

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
Pacific Ocean Shoreline, San Dieguito	905.11	Indicator Bacteria	300

http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_reqtmdl_s.pdf

GROUND WATERS

Ground Waters	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Solana Beach	905.10	•	•	•												

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

PDP Categories	General Pollutant Categories								
	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		
Nutrients	X		
Heavy Metals	X		
Organic Compounds			
Trash & Debris	X		
Oxygen Demanding Substances		P	
Oil & Grease	X		
Bacteria & Viruses		P	Indicator Bacteria
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	
☐	Preserve well draining soils (Type A or B)
☐	Preserve Significant Trees
☐	Preserve critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions
☒	Other. Description: No existing natural areas to preserve.
2. Minimize Disturbance to Natural Drainages	
☐	Set-back development envelope from drainages
☐	Restrict heavy construction equipment access to planned green/open space areas
☒	Other. Description: No existing natural areas to preserve.
3. Minimize and Disconnect Impervious Surfaces (see 5)	
☐	Clustered Lot Design
☒	Items checked in 5
☐	Other. Description:
4. Minimize Soil Compaction	
☐	Restrict heavy construction equipment access to planned green/open space areas
☒	Re-till soils compacted by construction vehicles/equipment
☐	Collect & re-use upper soil layers of development site containing organic material
☐	Other. Description:
5. Drain Runoff from Impervious Surfaces to Pervious Areas	
<u>LID Street & Road Design</u>	
☐	Curb-cuts to landscaping
☐	Rural Swales
☐	Concave Median
☐	Cul-de-sac Landscaping Design
☒	Other. Description: No streets are proposed

<u>LID Parking Lot Design</u>	
☐	Permeable Pavements
☐	Curb-cuts to landscaping
☒	Other. Description: Parking will be provided within the building
<u>LID Driveway, Sidewalk, Bike-path Design</u>	
☐	Permeable Pavements
☒	Pitch pavements toward landscaping
☐	Other. Description:
<u>LID Building Design</u>	
☐	Cisterns & Rain Barrels
☒	Downspout to swale or landscaping
☐	Vegetated Roofs
☐	Other. Description:
<u>LID Landscaping Design</u>	
☒	Soil Amendments
☐	Reuse of Native Soils
☐	Smart Irrigation Systems
☒	Street Trees
☐	Other. Description:
6.	Minimize erosion from slopes
☒	Disturb existing slopes only when necessary
☒	Minimize cut and fill areas to reduce slope lengths
☐	Incorporate retaining walls to reduce steepness of slopes or to shorten slopes
☐	Provide benches or terraces on high cut and fill slopes to reduce concentration of flows
☐	Rounding and shaping slopes to reduce concentrated flow
☒	Collect concentrated flows in stabilized drains and channels
☐	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>
Interior floor drains and elevator shaft sump	Interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer	Inspect and maintain drains to prevent blockages and overflow
Interior parking garages	Parking garage floor drains will be plumbed to the sanitary sewer	Inspect and maintain drains to prevent blockages and overflow
Landscape/outdoor pesticide uses	Landscaped designed to minimize irrigation and runoff, to promote surface infiltration where appropriate, and minimizes the use of fertilizers and pesticides that can contribute to stormwater pollution. Plants and soil conditions of landscaped areas used to retain stormwater shown on landscape plans. Pest-resistant plants considered for use adjacent to hardscape. Plants selected to insure successful establishment appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in Fact Sheets SC-41 "Building and Grounds Maintenance" in the CASQA Stormwater Quality Handbooks at www.calbmphandbooks.com. Provide IPM information to new owners, lessees and operators.

Refuse Areas	Details showing site refuse and will be provided during the construction document submittals. Signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar	Adequate number of receptacles will be provided. Inspection of receptacles will be regular, repair or replacement of receptacles. Receptacles to remain covered. Inspect and pick up litter daily and clean up spill control materials available onsite. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.
Fire Sprinkler Test Water	The fire sprinkler test water will be drained to the sanitary sewer.	See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater "Quality Handbooks at www.cabmphandbooks.com
Rooftop Equipment	Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment	
Roofing, gutters, and trim	Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	
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.

Roof runoff will be directed and treated through Planter Boxes on the podium level of the building and along the frontage of the building and downspout filters prior to discharging to S. Sierra Avenue.

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	
Trash & Debris	X	X		
Oxygen Demanding			X	
Bacteria			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	
Pollutants that tend to associate with fine particles during treatment				High				Low	
Pollutants that tend to be dissolved following treatment				High				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)		
☐ Bioretention area		
☒ Flow-through Planter	X	
☐ Cistern with Bioretention		
Settling Basins (Dry Ponds)		
☐ Extended/dry detention basin with grass/vegetated lining		
☐ Extended/dry detention basin with impervious lining		
Infiltration Devices (LID)		
☐ Infiltration basin		
☐ Dry well		
☐ Infiltration trench		
☐ Other _____		

Wet Ponds and Constructed Wetlands		
☐ Wet pond/basin (permanent pool)		
☐ Constructed wetland		
Vegetated Swales (LID⁽¹⁾)		
☐ Vegetated Swale		
Media Filters		
☐ Austin Sand Filter		
☐ Delaware Sand Filter		
☐ Multi-Chambered Treatment Train (MCTT)		
Higher-rate Biofilters		
☐ Tree-pit-style unit		
☐ Other _____		
Higher-rate Media Filters		
☐ Vault-based filtration unit with replaceable cartridges		
☐ Other _____		
Hydrodynamic Separator Systems		
☐ Swirl Concentrator		
☐ Cyclone Separator		
Trash Racks		
☐ Catch Basin Insert		
☐ Catch Basin Insert w/ Hydrocarbon boom		
☒ Other <u>Downspout Filter</u>	X	

⁽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
Planter Box		First	
Downspout Filter		First	

BMP's approved as part of Stormwater Management Plan (SWMP) dated _____ 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.

Due to site constraints, the building roof runoff will be directed to Planter Boxes on the podium level and along the frontage of the building and downspout filters are capable of treating the roof runoff prior to discharging to S. Sierra Avenue.

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 ¹	x		Planter Box, Downspout Filter
Second ²		x	
Third ³		x	
Fourth ⁴		x	

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)
TC-1	Planter Box		H
TC-2	Downspout Filter		L

* For location of BMP's, 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:
Company Name:
Phone Number:
Street Address:
City/State/Zip:
Email Address:

➤ **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.

--

ATTACHMENTS

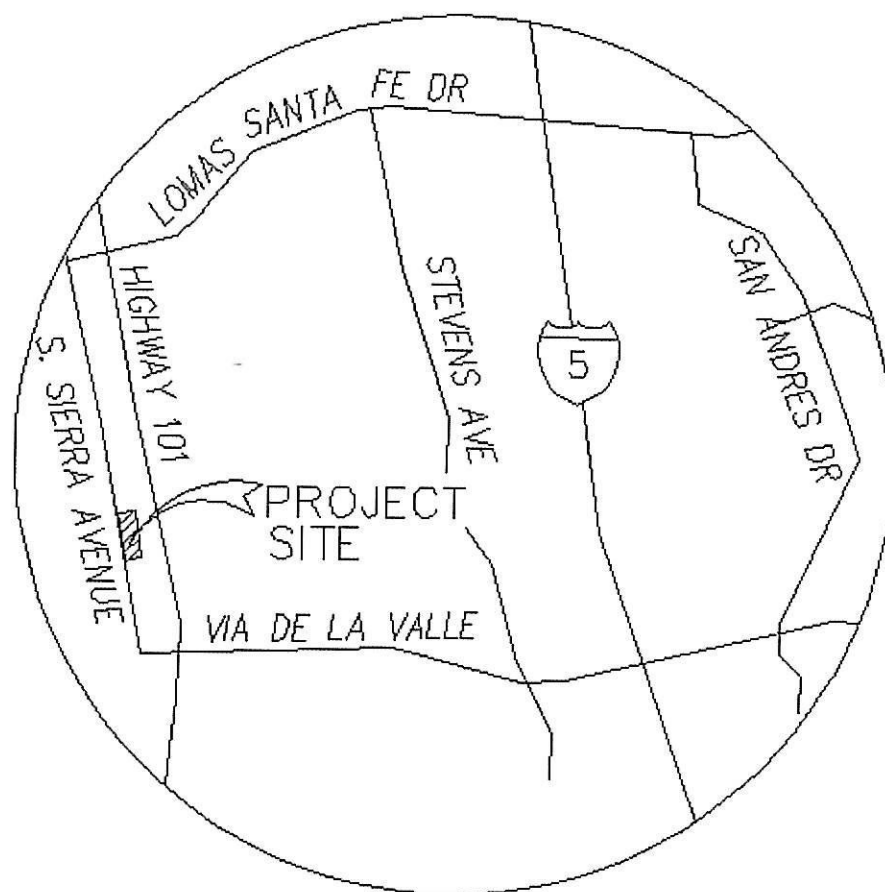
Please include the following attachments.

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



VICINITY MAP

NOT TO SCALE

ATTACHMENT B & C

Source Control & Drainage Management Area (DMA) Exhibit

LEGEND

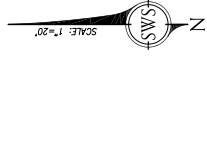
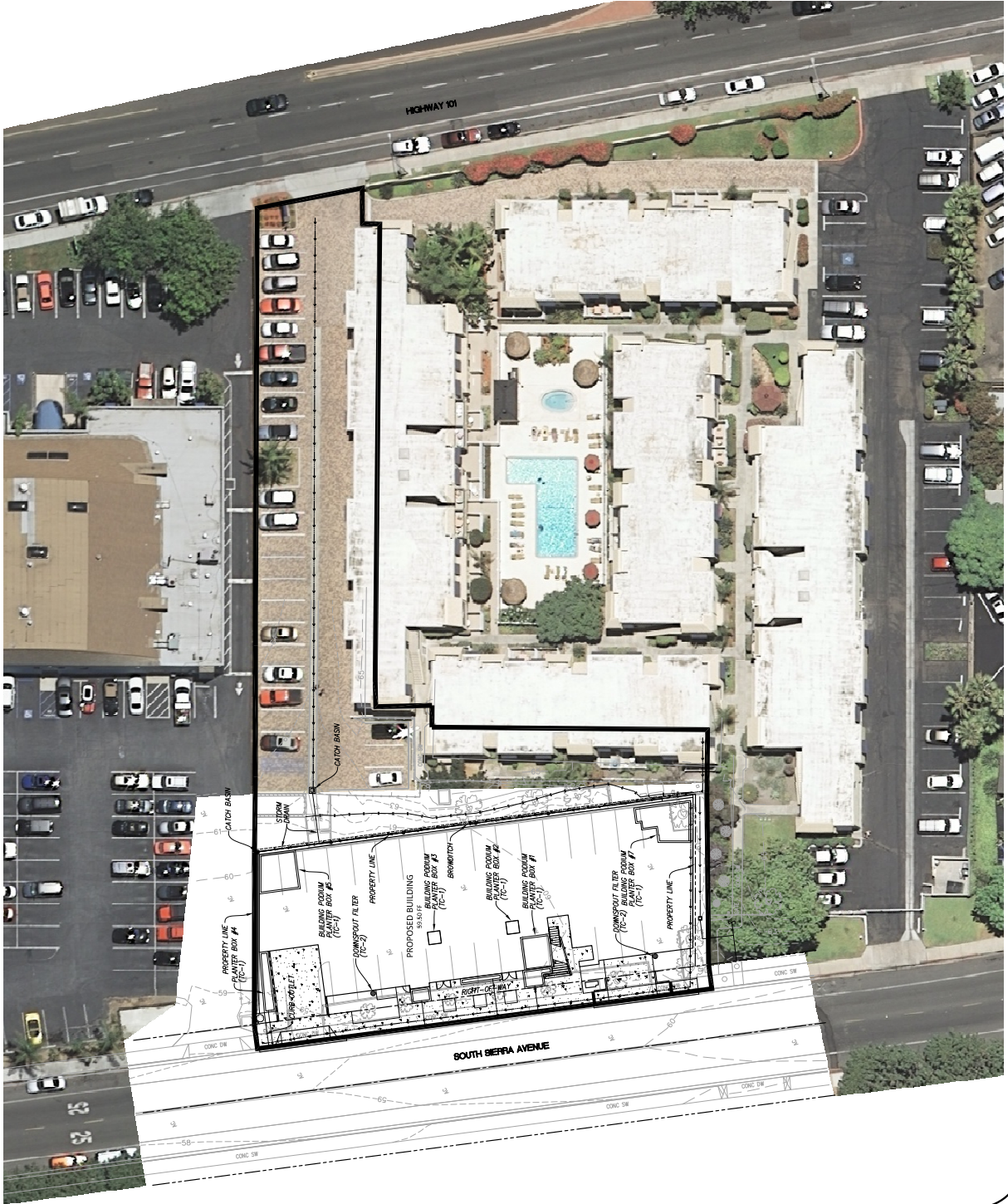
- PROPERTY LINE
- MAJOR BASIN BOUNDARY
- FLOW PATH

PERMANENT PROJECT BMPs

SITE DESIGN / LID	
SYMBOL	DESCRIPTION
SD-1	PITCH PAVERS/TOWARDS LANDSCAPING
SD-2	DOWNSPOUT TO SWALE OR LANDSCAPING
SD-3	SOIL AMENDMENTS
SD-4	STREET TREES
SD-5	MINIMIZE EROSION FROM SLOPES

SOURCE CONTROL	
SYMBOL	DESCRIPTION
SC-1	INTERIOR FLOOR DRAINS AND ELEVATOR SHAFT SUMP PUMPS WILL BE PLUMBED TO SANITARY SEWER
SC-2	PARKING GARAGE FLOOR DRAINS WILL BE PLUMBED TO THE SANITARY SEWER
SC-3	LANDSCAPED DESIGNED TO MINIMIZE IRRIGATION AND RUNOFF
SC-4	REFUSE AREAS
SC-5	FIRE SPRINKLER TEST WATER WILL BE DRAINED TO THE SANITARY SEWER
SC-6	ROOFTOP MOUNTED EQUIPMENT WITH POTENTIAL TO PRODUCE POLLUTANTS SHALL BE ROOFED AND/OR HAVE SECONDARY CONTAINMENT
SC-7	ROOFING, GUTTERS, AND TRIM MATERIALS SHALL NOT BE MADE OF COPPER WHERE FEASIBLE
SC-8	PLUGS, SIDEWALKS, AND PARKING LOTS TO BE SWEEP REGULARLY

TREATMENT CONTROL	
SYMBOL	DESCRIPTION
TC-1	PLANTER BOX
TC-2	DOWNSPOUT FILTER



SCALE IN FEET
GRAPHIC SCALE

THE PEARL EXHIBIT B AND C SOURCE CONTROL AND DRAINAGE MANAGEMENT AREA (DMA) EXHIBIT

SWS ENGINEERING, INC.

31045 Temecula Parkway, Suite 201
Temecula, CA 92592
P: 951-206-3407 F: 951-587-4451

DATE: June 20, 12 8:34am BY: cadina.fresen
FILE # 2.0 Project\2010\10-041\VR020\Reports\DMAs\10-041-SWMP.dwg



ATTACHMENT D

Sizing Design Calculations and TC-BMP/LID Design Details

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

The Pearl
WQ for Raised Landscape Planters
01-23-12

Planter #	WQ Volume Calculation				Planter Detail						
	85th% (in)	C-value	Rooftop Drainage Area (sf)	Treatment Volume Req'd (cf)	Planter Area (sf)	Soil Depth (ft)	Volume Fraction of Voids	Storage Volume of Voids (cf)	Ponding Depth Above Soil (in)	Ponding Volume Above Soil (cf)	Total Storage Volume of Planter (cf)
1	0.58	0.87	851	35.8	131.0	2.33	0.30	91.6	6	65.5	157.1
2	0.58	0.87	563	23.7	25.0	2	0.30	15.0	6	12.5	27.5
3	0.58	0.87	563	23.7	25.0	2	0.30	15.0	6	12.5	27.5
4	0.58	0.87	662	27.8	68.6	1	0.30	20.6	6	34.3	54.8
5	0.58	0.87	711	29.9	214.0	1	0.30	64.2	6	107.0	171.2
6	0.58	0.87	4,118	173.2	253.0	1.67	0.30	126.8	6	126.5	253.3
7	0.58	0.87	1,040	43.7	54.2	2	0.30	32.5	6	27.1	59.6

Volume Provided > Volume Required
Therefore design OK!

ATTACHMENT F

Maintenance Plan

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

PRIVATE TREATMENT CONTROL BMP OPERATION AND MAINTENANCE VERIFICATION FORM PLANTER BOXES

1. Transcribe the following information from your notification letter and make corrections as necessary:

Permit No.: _____

BMP Location: _____

Responsible Party: _____

Phone Number: () _____ ☐ Check here for Phone Number Change

Responsible Party Address: _____

☐ Check here for Address Change Number Street Name & Suffix City/Zip

2. Using the Table below, please describe the inspections and maintenance activities that have been conducted during the last year, and date(s) maintenance was performed. Under "Results of Inspection," indicate whether maintenance was required based on each inspection, and if so, what type of maintenance. If maintenance was required, provide the date maintenance was conducted and description of the maintenance. Refer to the back of this sheet for information describing typical maintenance indicators and maintenance activities. If no maintenance was required based on the inspection results, state "no maintenance required."

Date of Inspection	Results of Inspection	Date Maintenance Completed and Description of Maintenance Conducted

3. Attach copies of available supporting documents (photographs, copies of maintenance contracts, and/or maintenance records).

4. Sign the bottom of the form and return to:

County of San Diego Watershed Protection Program
Treatment Control BMP Tracking
5201 Ruffin Road, Suite P, MS 0326
San Diego, CA 92123

Signature of Responsible Party _____

Print Name _____

Date _____

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
PLANTER BOXES**

Planter boxes capture runoff from downspouts or sheet flow from plazas and paved areas. The runoff briefly floods the surface of the box and then percolates through an active soil layer to drain rock below. Typical maintenance consists of the following:

Planter Box BMP Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Accumulation of sediment, litter, or debris	Check that the soil is at the appropriate depth to allow a reservoir above the soil surface and is sufficient to effectively filter stormwater. Remove any accumulations of sediment, litter, and debris. Till or replace soil as necessary. Confirm that soil is not clogging and that the planter will drain within 3-4 hours after a storm event.
Poor vegetation establishment	Determine whether the vegetation is dense and healthy. Replace dead plants. Prune or remove any overgrown plants or shrubs that may interfere with planter operation. Clean up fallen leaves or debris and replenish mulch. Remove any nuisance or invasive vegetation.
Standing water (BMP not draining)	Check the underdrain piping to make sure it is intact and unobstructed. If mosquito larvae are present and persistent, contact the San Diego County Vector Control Program at (858) 694-2888. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.
Erosion due to concentrated stormwater runoff flow	Examine downspouts from rooftops or sheet flow from paving to ensure that flow to the planter is unimpeded. Remove any debris and repair any damaged pipes. Check splash blocks or rocks and repair, replace, or replenish as necessary.
Damage to structural components such as the box, inlet, or outlet structures	Observe the structure of the box and fix any holes, cracks, rotting, or failure.
Obstructed inlet or outlet structure	Clear obstructions. Examine the overflow pipe to make sure that it can safely convey excess flows to a storm drain. Repair or replace any damaged or disconnected piping.

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
DRAINAGE INSERTS**

1. Transcribe the following information from your notification letter and make corrections as necessary:

Permit No.: _____

BMP Location: _____

Responsible Party: _____

Phone Number: () _____ ☐ Check here for Phone Number Change

Responsible Party Address: _____

☐ Check here for Address Change Number Street Name & Suffix City/Zip

2. Using the Table below, please describe the inspections and maintenance activities that have been conducted during the last year, and date(s) maintenance was performed. Under "Results of Inspection," indicate whether maintenance was required based on each inspection, and if so, what type of maintenance. If maintenance was required, provide the date maintenance was conducted and description of the maintenance. Refer to the back of this sheet for information describing typical maintenance indicators and maintenance activities. If no maintenance was required based on the inspection results, state "no maintenance required."

Date of Inspection	Results of Inspection	Date Maintenance Completed and Description of Maintenance Conducted

3. Attach copies of available supporting documents (photographs, copies of maintenance contracts, and/or maintenance records).

4. Sign the bottom of the form and return to:

County of San Diego Watershed Protection Program
Treatment Control BMP Tracking
5201 Ruffin Road, Suite P, MS 0326
San Diego, CA 92123

Signature of Responsible Party

Print Name

Date

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
DRAINAGE INSERTS – SIDE 2**

The following list of typical maintenance indicators and maintenance activities for drainage inserts is provided for your reference.

Drainage Insert BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials.
Spent or clogged sorbent material or media pack	Remove and properly dispose of sorbent material or media pack, and replace with fresh material. These materials/media are potentially hazardous and must be handled by a properly trained contractor.
Damage to components of the drainage insert	Repair or replace as applicable.

Maintenance of drainage inserts involves handling of potentially hazardous material (oil sorbent material), which requires special disposal. Additionally, maintenance may involve entry into the storm drain inlet underground. Therefore the maintenance operator must be trained in handling and disposal of hazardous waste, and must also be certified for confined space entry if the maintenance will require entry into the storm drain inlet. Therefore it is recommended that private BMP owners obtain a maintenance contract with a qualified contractor to provide inspection and maintenance. There are several storm drain cleaning service providers who are able to inspect and/or maintain drainage inserts. Contact the manufacturer of the drainage insert to find qualified service providers.

ATTACHMENT H

HMP EXEMPTION DOCUMENTATION

HMP Exemption Documentation

Existing Conditions:

Impervious Area = 0.27 acres
Peak Flows, Q₁₀₀ = 3.5

Proposed Conditions

Impervious Area = 0.27 acres
Peak Flows, Q₁₀₀ = 3.1

Since Existing Impervious Area = Proposed Impervious Area, therefore HMP Exempt

Since Existing Peak Flows, Q₁₀₀ = Proposed Peak Flows, Q₁₀₀, therefore HMP Exempt

ATTACHMENT I

Addendum