

STORM WATER MANAGEMENT PLAN

PIZZUTO PROPERTY COUNTY of SAN DIEGO TPM 20846/Log No. 04-08-030

Prepared for:

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September 18, 2008

W.O. 555-0915-400

Storm Water Management Plan For Priority Projects (Major SWMP)

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:	Pizzuto Residence W.O. 555-0915-400
Permit Number (Land Development Projects):	TPM 20846/Log No. 04-08-030
Work Authorization Number (CIP only):	
Applicant:	Syliva Pizzuto
Applicant's Address:	733 Hillsboro Way, San Marcos, CA 92069
Plan Prepare By (<i>Leave blank if same as applicant</i>):	BHA Inc., 5115 Avendia Encinas, Suite L Carlsbad, CA 92008
Date:	September 18, 2008
Revision Date (If applicable):	

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) 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
	YES	NO	

Instructions for a Major SWMP can be downloaded at <http://www.co.san-diego.ca.us/dpw/stormwater/susmp.html>.

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

PROJECT DESCRIPTION

Please provide a brief description of the project in the following box. Please include:

- Project Location
- Project Description
- Physical Features (Topography)
- Surrounding Land Use
- Proposed Project Land Use
- Location of dry weather flows (year-round flows in streams, or creeks) within project limits, if applicable.

Project Location: The Pizzuto Residence is located on Clayton Place between Deer Springs Place and Deer Springs Road in the County of San Diego.

Project Description: The 41.1 acre property is surround mostly by undeveloped land and rural used land. The site is steeply sloped and currently undeveloped. The project proposes the development of three residential lots with grading pads, driveways, and the improvement of deer Springs Place. The disturbed area is approximately 3.0 acres.

The majority of the runoff from the project generally drains in the southerly direction, with the runoff being intercepted by proposed brow ditches, street gutter of Clayton Place, and proposed storm drains.

Topography: The site is steeply sloped and currently undeveloped. The on-site topography falls in all directions, with the majority of the runoff directed in the southerly direction. On-site elevations range from 1,214 feet to 844 feet mean sea level.

Project Land Use and Surrounding Land Use: The proposed project and surrounding land have a land use of limited agriculture. The minimum proposed lot size is 8 acres.

Dry Weather Flows: There was little or any signs of erosion on-site. The existing drainage courses had no standing water.

PRIORITY DEVELOPMENT PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

Table 1

PRIORITY DEVELOPMENT PROJECT	YES	NO
Redevelopment that creates or adds at least 5,000 net square feet of additional impervious surface area	x	
Residential development of more than 10 units		x
Commercial developments with a land area for development of greater than 1 acre		x
Heavy industrial development with a land area for development of greater than 1 acre		x
Automotive repair shop(s)		x
Restaurants, where the land area for development is greater than 5,000 square feet		x
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface	x	
Environmentally Sensitive Areas (ESA): 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.		x
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff		x
Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater	x	
Retail Gasoline Outlets (RGO) that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.		x

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered Priority Development Projects. Parking lots, buildings and other structures associated with utility projects are subject to the WPO requirements if one or more of the criteria above are met.

If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.

If you answered **YES** to any of the questions, please continue.

HYDROMODIFICATION DETERMINATION

The following questions provide a guide to collecting information relevant to hydromodification management issues.

Table 2

	QUESTIONS	YES	NO	Information
1.	Will the proposed project disturb 50 or more acres of land? (Including all phases of development)		x	If YES, continue to 2. If NO, go to 6.
2.	Would the project site discharge directly into channels that are concrete-lined or significantly hardened such as with rip-rap, sackcrete, etc, downstream to their outfall into bays or the ocean?			If NO, continue to 3. If YES, go to 6.
3.	Would the project site discharge directly into underground storm drains discharging directly to bays or the ocean?			If NO, continue to 4. If YES, go to 6.
4.	Would the project site discharge directly to a channel (lined or un-lined) and the combined impervious surfaces downstream from the project site to discharge at the ocean or bay are 70% or greater?			If NO, continue to 5. If YES, go to 6.
5.	Project is required to manage hydromodification impacts.			Hydromodification Management Required as described in Section 67.812 b(4) of the WPO.
6.	Project is not required to manage hydromodification impacts.			Hydromodification Exempt. Keep on file.

An exemption is potentially available for projects that are required (No. 5. in Table 2 above) to manage hydromodification impacts: The project proponent may conduct an independent geomorphic study to determine the project's full hydromodification impact. The study must incorporate sediment transport modeling across the range of geomorphically-significant flows and demonstrate to the County's satisfaction that the project flows and sediment reductions will not detrimentally affect the receiving water to qualify for the exemption.

STORMWATER QUALITY DETERMINATION

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide the following information in a printed report accompanying this form.

Table 3

	QUESTIONS	COMPLETED	NA
1.	Describe the topography of the project area.	X	
2.	Describe the local land use within the project area and adjacent areas.	X	
3.	Evaluate the presence of dry weather flow.	X	
4.	Determine the receiving waters that may be affected by the project throughout all phases of development (i.e., construction, maintenance and operation).	X	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	X	
6.	Determine if there are any High Risk Areas (which is defined by the presence of municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.		X
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.		X
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	X	
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	X	
10.	Determine contaminated or hazardous soils within the project area.		X

TREATMENT BMPs DETERMINATION

Complete the checklist below to determine if Treatment Best Management Practices (BMPs) are required for the project.

Table 4

No.	CRITERIA	YES	NO	INFORMATION
1.	Is this an emergency project		x	If YES, go to 6. If NO, continue to 2.
2.	Have TMDLs been established for surface waters within the project limit?		x	If YES, go to 5. If NO, continue to 3.
3.	Will the project directly discharge to a 303(d) impaired receiving water body?		x	If YES, go to 5. If NO, continue to 4.
4.	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> ?		x	If YES, continue to 5. If NO, go to 6.
5.	Provide Treatment BMPs for the project.	x		If YES, go to 7.
6.	Project is not required to provide Treatment BMPs			Document for Project Files by referencing this checklist.
7.	End			

Now that the need for a treatment BMPs has been determined, other information is required to complete the SWMP.

WATERSHED

Please check the watershed(s) for the project.

<input type="checkbox"/> San Juan 901	<input type="checkbox"/> Santa Margarita 902	<input type="checkbox"/> San Luis Rey 903	<input checked="" 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	

Please provide the hydrologic sub-area and number(s)

Number	Name
904.53	Buena Hydrologic Subarea
904.51	Downstream 303(d) list Pacific Ocean shoreline, San Marcos Hydrologic Area impaired by bacteria indicators.

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan for the San Diego Basin, which is available at the Regional Board office or at <http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html>.

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	RECI	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Inland Surface Waters	904.53	*	X	X					X	X		X		X		
Ground Waters	904.32	X	X	X												

* Excepted from Municipal

X Existing Beneficial Use

0 Potential Beneficial Use

POLLUTANTS OF CONCERN

Using Table 5, 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 5. 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.

Note: If other monitoring data that is relevant to the project is available. Please include as Attachment C.

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.

- | | |
|---|--|
| <input checked="" type="checkbox"/> Silt Fence | <input checked="" type="checkbox"/> Desilting Basin |
| <input checked="" type="checkbox"/> Fiber Rolls | <input checked="" type="checkbox"/> Gravel Bag Berm |
| <input checked="" type="checkbox"/> Street Sweeping and Vacuuming | <input type="checkbox"/> Sandbag Barrier |
| <input checked="" type="checkbox"/> Storm Drain Inlet Protection | <input checked="" type="checkbox"/> Material Delivery and Storage |
| <input checked="" type="checkbox"/> Stockpile Management | <input checked="" type="checkbox"/> Spill Prevention and Control |
| <input checked="" type="checkbox"/> Solid Waste Management | <input checked="" type="checkbox"/> Concrete Waste Management |
| <input checked="" type="checkbox"/> Stabilized Construction Entrance/Exit | <input checked="" type="checkbox"/> Water Conservation Practices |
| <input type="checkbox"/> Dewatering Operations | <input checked="" type="checkbox"/> Paving and Grinding Operations |
| <input checked="" type="checkbox"/> 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.

Table 6

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_reqtmdls.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.	x		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.		x	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 shows to the County official’s satisfaction that advanced treatment is not required

Now that the need for treatment BMPs has been determined, other information is needed to complete the SWMP.

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If YES is checked, it is assumed that the measure was used for this project.

Table 7

	OPTIONS	YES	NO	N/A
1.	Has the project been located and road improvements aligned to avoid or minimize impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?	X		
2.	Is the project designed to minimize impervious footprint?	X		
3.	Is the project conserving natural areas where feasible?			X
4.	Where landscape is proposed, are rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?	X		
5.	For roadway projects, are structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?	X		
6.	Can any of the following methods be utilized to minimize erosion from slopes:			
6.a.	Disturbing existing slopes only when necessary?	X		
6.b.	Minimize cut and fill areas to reduce slope lengths?	X		
6.c.	Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?		X	
6.d.	Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	X		
6.e.	Rounding and shaping slopes to reduce concentrated flow?	X		
6.f.	Collecting concentrated flows in stabilized drains and channels?	X		

LOW IMPACT DEVELOPMENT (LID)

Each numbered item below is a LID requirement of the WPO. Please check the box(s) under each number that best describes the Low Impact Development BMP(s) selected for this project.

Table 8

1. Conserve natural Areas, Soils, and Vegetation-County LID Handbook 2.2.1
<input type="checkbox"/> Preserve well draining soils (Type A or B)
<input type="checkbox"/> Preserve Significant Trees
<input type="checkbox"/> Other. Description:
<input checked="" type="checkbox"/> 1. Not feasible. State Reason: Soil Type is "D". No significant trees on-site.
2. Minimize Disturbance to Natural Drainages-County LID Handbook 2.2.2
<input checked="" type="checkbox"/> Set-back development envelope from drainages
Restrict heavy construction equipment access to planned green/open space areas
<input type="checkbox"/> Other. Description:
<input type="checkbox"/> 2. Not feasible. State Reason:
3. Minimize and Disconnect Impervious Surfaces (see 5) -County LID Handbook 2.2.3
<input type="checkbox"/> Clustered Lot Design
<input checked="" type="checkbox"/> Items checked in 5?
<input type="checkbox"/> Other. Description:
<input checked="" type="checkbox"/> 3. Not feasible. State Reason: Three lots are proposed on 41.14 acres.
4. Minimize Soil Compaction-County LID Handbook 2.2.4
Restrict heavy construction equipment access to planned green/open space areas
<input type="checkbox"/> Re-till soils compacted by construction vehicles/equipment
Collect & re-use upper soil layers of development site containing organic materials
<input type="checkbox"/> Other. Description:
4. Not feasible. State Reason: Areas adjacent to foundations, roads, and manufactured slopes must be compacted to a minimum soil density requirement.
5. Drain Runoff from Impervious Surfaces to Pervious Areas-County LID Handbook 2.2.5

LID Street & Road Design
<input type="checkbox"/> Curb-cuts to landscaping
<input type="checkbox"/> Rural Swales
<input type="checkbox"/> Concave Median
<input type="checkbox"/> Cul-de-sac Landscaping Design
<input checked="" type="checkbox"/> Other. Description:Runoff from streets is intercepted by curb inlets and discharged into a gravel swale for treatment.
LID Parking Lot Design
<input type="checkbox"/> Permeable Pavements
<input type="checkbox"/> Curb-cuts to landscaping
<input checked="" type="checkbox"/> Other. Description: No proposed parking lots
LID Driveway, Sidewalk, Bike-path Design
<input type="checkbox"/> Permeable Pavements
<input checked="" type="checkbox"/> Pitch pavements toward landscaping
<input type="checkbox"/> Other. Description:
LID Building Design
<input type="checkbox"/> Cisterns & Rain Barrels
<input checked="" type="checkbox"/> Downspout to swale
<input type="checkbox"/> Vegetated Roofs
<input type="checkbox"/> Other. Description:
LID Landscaping Design
<input type="checkbox"/> Soil Amendments
<input checked="" type="checkbox"/> Reuse of Native Soils
<input checked="" type="checkbox"/> Smart Irrigation Systems
<input type="checkbox"/> Street Trees
<input type="checkbox"/> Other. Description:
<input type="checkbox"/> 5. Not feasible. State Reason:

CHANNELS & DRAINAGES

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

Table 9

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?		x		If YES go to 6.
3.	Will the project discharge to unlined channels?		x		If YES go to 6.
4.	Will the project increase potential sediment load of downstream flow?		x		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?		x		If YES go to 8.
6.	Review channel lining materials and design for stream bank erosion.	x			Continue to 7.
7.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.	x			Continue to 8.
8.	Include, where appropriate, energy dissipation devices at culverts.	x			Continue to 9.
9.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	x			Continue to 10.
10.	Include, if appropriate, detention facilities to reduce peak discharges.			x	
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.			x	Continue to 12.
12.	Provide other design principles that are comparable and equally effective.			x	Continue to 13.
13.	End				

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

Table 10

BMP		YES	NO	N/A
1.	Provide Storm Drain System Stenciling and Signage			
1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING – DRAINS TO _____") and/or graphical icons to discourage illegal dumping.	X		
1.b.	Signs 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.			X
2.	Design Outdoors Material Storage Areas to Reduce Pollution Introduction			
2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.	X		
2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.			X
2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.			X
2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.			X
3.	Design Trash Storage Areas to Reduce Pollution Introduction			
3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or,			X
3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.			X
4.	Use Efficient Irrigation Systems & Landscape Design			
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.			
4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	X		
4.b.	Designing irrigation systems to each landscape area's specific water requirements.	X		
4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	X		
4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.	X		
5.	Private Roads			

BMP		YES	NO	N/A
	The design of private roadway drainage shall use at least one of the following			
5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.	X		
5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.		X	
5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.		X	
5.d.	Other methods that are comparable and equally effective within the project.			X
6.	Residential Driveways & Guest Parking			
	The design of driveways and private residential parking areas shall use one at least of the following features.			
6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.	X		
6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.			X
6.c.	Other features which are comparable and equally effective.			X
7.	Dock Areas			
	Loading/unloading dock areas shall include the following.			
7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			X
7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			X
7.c.	Other features which are comparable and equally effective.			X
8.	Maintenance Bays			
	Maintenance bays shall include the following.			
8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			X
8.b.	Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.			X
8.c.	Other features which are comparable and equally effective.			X
9.	Vehicle Wash Areas			
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.			
9.a.	Self-contained; or covered with a roof or overhang.			X
9.b.	Equipped with a clarifier or other pretreatment facility.			X
9.c.	Properly connected to a sanitary sewer.			X
9.d.	Other features which are comparable and equally effective.			X

BMP		YES	NO	N/A
10.	Outdoor Processing Areas			
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.			X
	10.a. Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			X
	10.b. Grade or berm area to prevent run-on from surrounding areas.			X
	10.c. Installation of storm drains in areas of equipment repair is prohibited.			X
	10.d. Other features which are comparable or equally effective.			X
11.	Equipment Wash Areas			
	Outdoor equipment/accessory washing and steam cleaning activities shall be.			
	11.a. Be self-contained; or covered with a roof or overhang.			X
	11.b. Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate			X
	11.c. Be properly connected to a sanitary sewer.			X
	11.d. Other features which are comparable or equally effective.			X
12.	Parking Areas			
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.			
	12.a. Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.			X
	12.b. Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.			X
	12.c. Other design concepts that are comparable and equally effective.			X
13.	Fueling Area			
	Non-retail fuel dispensing areas shall contain the following.			
	13.a. Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.			X
	13.b. Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.			X
	13.c. Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.			X

BMP			YES	NO	N/A
	13.d.	At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.			X

Please list other project specific Source Control BMPs in the following box. Write N/A if there are none. N/A

TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 11), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 5). Any pollutants identified by Table 5, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 11, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern.

Priority development projects that are **not** anticipated to generate a pollutant for which the receiving water is CWA 303(d) impaired shall select a single or combination of stormwater BMPs from Table 11, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the “maximum extent practicable” standard.

Table 11. Treatment Control BMP Selection Matrix

Pollutants of Concern	Bioretention Facilities (LID)*	Settling Basins (Dry Ponds)	Wet Ponds and Wetlands	Infiltration Facilities or Practices (LID)*	Media Filters	High-rate biofilters	High-rate media filters	Trash Racks & Hydro-dynamic Devices
Coarse Sediment and Trash	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
Pollutants that tend to be dissolved following treatment	Medium	Low	Medium	High	Low	Low	Low	Low

*Additional information is available in the County of San Diego LID Handbook.

NOTES ON POLLUTANTS OF CONCERN:

In Table 12, Pollutants of Concern are grouped as gross pollutants, pollutants that tend to associate with fine particles, and pollutants that remain dissolved.

Table 12

Pollutant	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	
Nutrients		X	X
Heavy Metals		X	
Organic Compounds		X	
Trash & Debris	X		
Oxygen Demanding		X	
Bacteria		X	
Oil & Grease		X	
Pesticides		X	

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality values for the project. 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)
Gravel Swale	3.60	0.41	N/A
Parcel 1	0.69	0.05	N/A
Parcel 2	0.42	0.03	N/A
Parcel 3	0.51	0.03	N/A

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters		
<input type="checkbox"/>	Bioretention swale	
<input checked="" type="checkbox"/>	Vegetated filter strip	Biofilter (Grassy Swales and Gravel Swales)
<input type="checkbox"/>	Stormwater Planter Box (open-bottomed)	
<input type="checkbox"/>	Stormwater Flow-Through Planter (sealed bottom)	
<input type="checkbox"/>	Bioretention Area	
<input type="checkbox"/>	Vegetated Roofs/Modules/Walls	
Detention Basins		
<input type="checkbox"/>	Extended/dry detention basin with grass/vegetated lining	
<input type="checkbox"/>	Extended/dry detention basin with impervious lining	
Infiltration Basins		
<input type="checkbox"/>	Infiltration basin	
<input type="checkbox"/>	Infiltration trench	
<input type="checkbox"/>	Dry well	
<input type="checkbox"/>	Permeable Paving	
<input type="checkbox"/>	Gravel	
<input type="checkbox"/>	Permeable asphalt	
<input type="checkbox"/>	Pervious concrete	
<input type="checkbox"/>	Unit pavers, ungrouted, set on sand or gravel	
<input type="checkbox"/>	Subsurface reservoir bed	
Wet Ponds or Wetlands		
<input type="checkbox"/>	Wet pond/basin (permanent pool)	
<input type="checkbox"/>	Constructed wetland	
Filtration		
<input type="checkbox"/>	Media filtration	
<input type="checkbox"/>	Sand filtration	
Hydrodynamic Separator Systems		
<input type="checkbox"/>	Swirl Concentrator	
<input type="checkbox"/>	Cyclone Separator	
Trash Racks and Screens		

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	COMPLETED	NO
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	x	
2. Engineering calculations for the BMP(s)	x	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation.

A grassy swales and gravel swales similar to the vegetated swale presented in Fact Sheet 4 of the Low Impact Development (LID) Appendices for the County of San Diego has been selected as the Integrated Management Practice to treat runoff from individual parcels and streets.

Grassy swales and gravel swales will collect, convey, and filter site runoff and remove pollutants of concern.

Grassy swales and gravel swales will also convey the 100-year peak runoff. Grassy swales and gravel swales will also serve to delay peak runoff by reducing flow velocities.

The maximum grade of the grassy swales and gravel swales is 1.0%.

See calculations for grassy swales and gravel swales in Attachment E. See Project Site Map for location of grassy swales and gravel swales.

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project. Guidelines for each category are located in Chapter 5, Section 5.2 of the County SUSMP.

CATEGORY	SELECTED	
	YES	NO
First	X	
Second ¹		X
Third ¹		X
Fourth		X

Note:

1. Projects in Category 2 or 3 may choose to establish or be included in a Stormwater Maintenance Assessment District for the long-term maintenance of treatment BMPs.

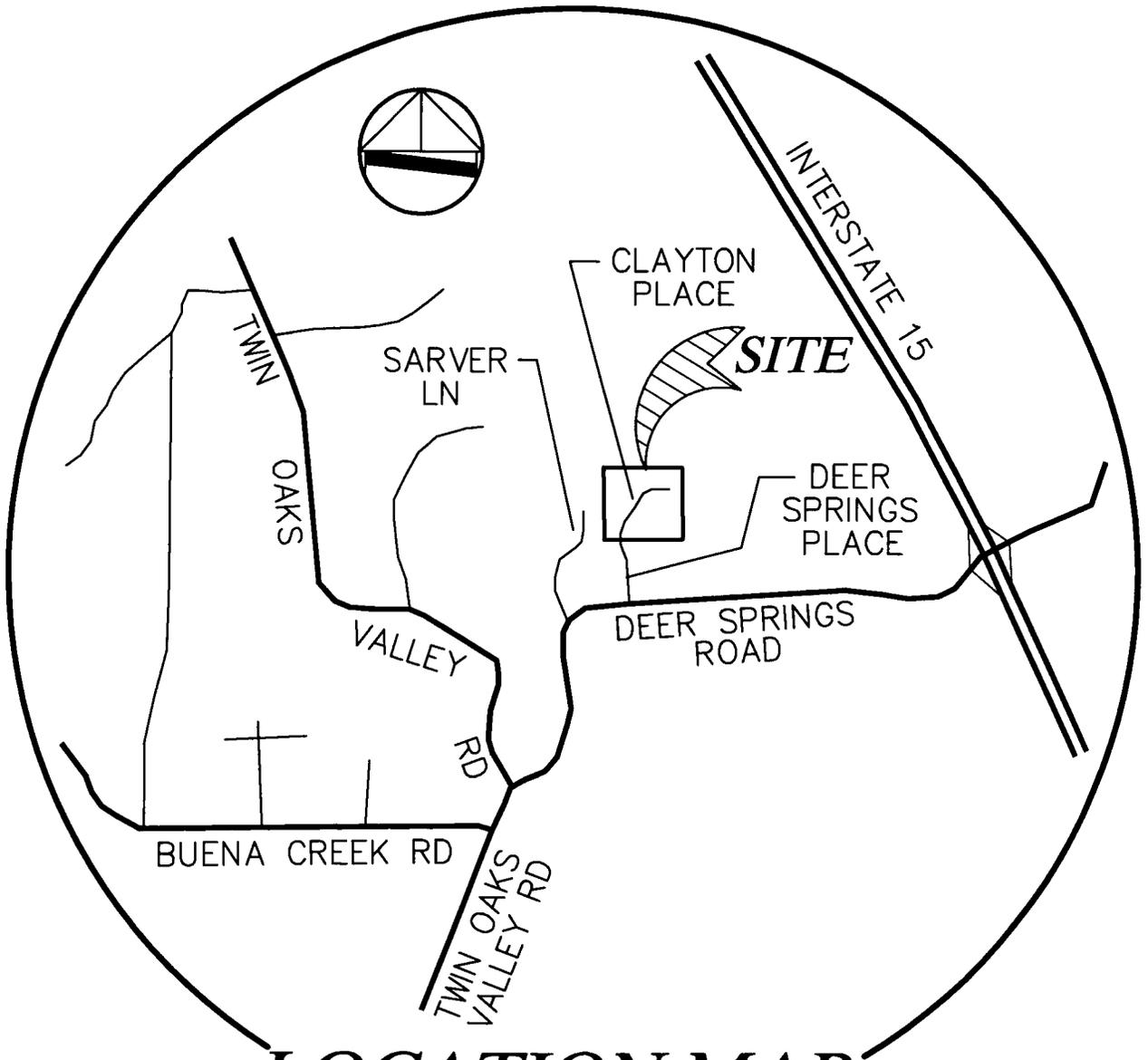
ATTACHMENTS

Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Project Location Map	X	
B	Site Map	X	
C	Relevant Monitoring Data	X	
D	LID and Treatment BMP Location Map	SEE ATTACHMENT A	
E	Treatment BMP Datasheets	X	
F	Operation and Maintenance Program for Treatment BMPs	X	
G	Fiscal Resources		X
H	Certification Sheet	X	
I	Addendum	X	

Note: Attachments A and B may be combined.

ATTACHMENT A
PROJECT LOCATION MAP



LOCATION MAP

NTS

ATTACHMENT B

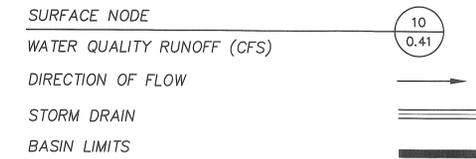
SITE MAP

SITE MAP

STORM WATER MANAGEMENT PLAN

TENTATIVE PARCEL MAP NO. 20846 RPL #6

LEGEND



POST-DEVELOPMENT BMPS

SITE DESIGN BMPS

MINIMIZE IMPERVIOUS FOOTPRINT.

MINIMIZE DIRECTLY CONNECTED IMPERVIOUS AREAS BY DRAINING ROOF TOPS, PATIOS AND SIDEWALKS INTO ADJACENT LANDSCAPING.

MAXIMIZE CANOPY INTERCEPTION AND WATER CONSERVATION BY PLANTING ADDITIONAL NATIVE OR DROUGHT TOLERANT TREES AND LARGE SHRUBS.

CONVEY RUNOFF SAFELY FROM TOPS OF SLOPES.

- VEGETATE PEROUS AREAS WITH NATIVE OR DROUGHT TOLERANT VEGETATION

SIDEWALKS ARE DESIGNED TO MINIMUM WIDTHS BASED ON MUNICIPAL AND PUBLIC SAFETY STANDARDS.

CONSIDER USING POROUS PAVEMENT TO REPLACE IMPERVIOUS AREAS.

- RIP RAP ENERGY DISSIPATOR 

SOURCE CONTROL BMPS

- PROVIDE STORM WATER CONVEYANCE SYSTEM STENCILING AND SIGNAGE (SUCH AS: "NO DUMPING - 1 LIVE DOWN STREAM")

USE THE FOLLOWING METHODS TO REDUCE EXCESSIVE IRRIGATION RUNOFF:

EMPLOY RAIN SHUTOFF DEVICES TO PREVENT IRRIGATION AFTER PRECIPITATION.

DESIGN IRRIGATION SYSTEMS TO EACH LANDSCAPE AREA'S SPECIFIC WATER REQUIREMENTS.

USE FLOW REDUCERS OR SHUTOFF VALVES TRIGGERED BY A PRESSURE DROP OR LOSS IN THE EVENT OF BROKEN SPRINKLER HEADS OR LINES.

USE SOIL MOISTURE SENSORS TO REGULATE IRRIGATION.

EMPLOY OTHER COMPARABLE, EQUALLY EFFECTIVE, METHODS TO REDUCE IRRIGATION WATER RUNOFF.

PRIVATE ROADS AND RESIDENTIAL DRIVEWAYS WILL DRAIN TO LANDSCAPING PRIOR TO DISCHARGING TO THE STORM WATER CONVEYANCE SYSTEM.

LOW IMPACT DEVELOPMENT

MINIMIZE AND DISCONNECT IMPERVIOUS SURFACES:

DRAIN RUNOFF FROM IMPERVIOUS SURFACES TO PEROUS AREAS:

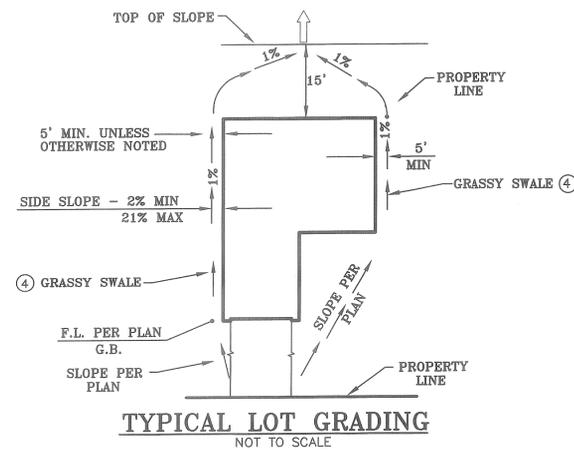
PITCH DRIVEWAYS PAVEMENTS TOWARD LANDSCAPING

DIRECT DOWN SPOUTS FROM BUILDINGS INTO GRASSY SWALES

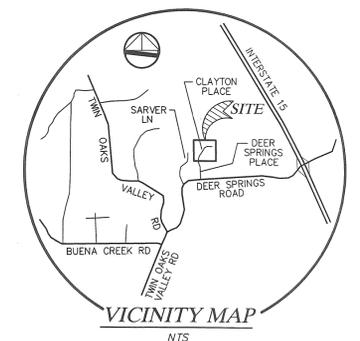
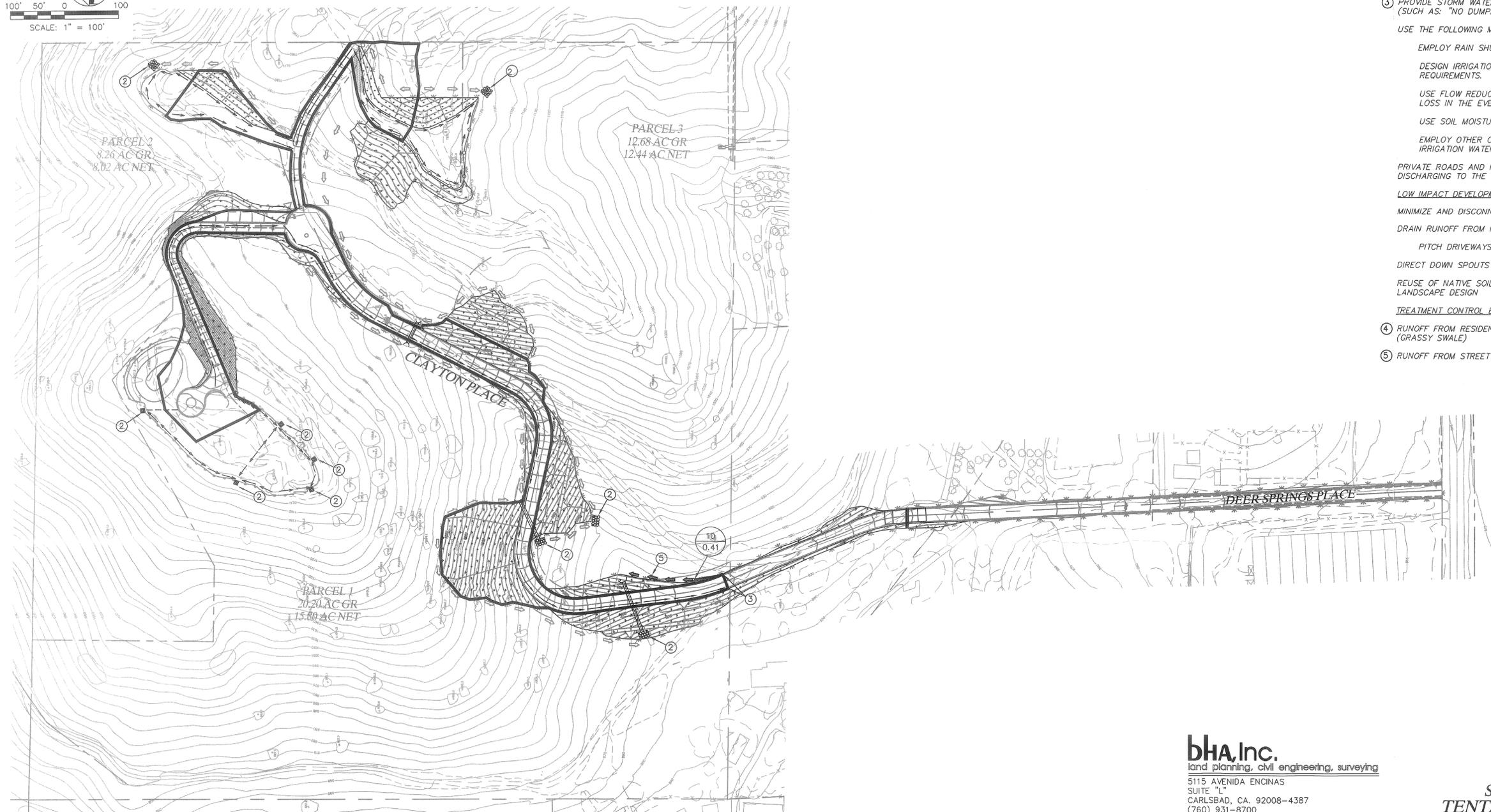
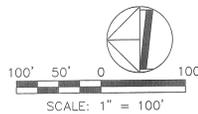
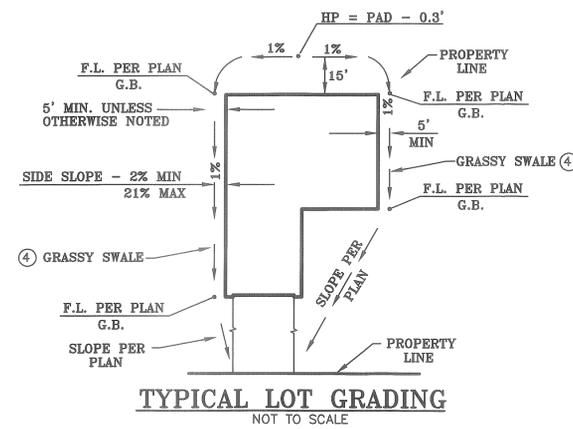
REUSE OF NATIVE SOILS AND INCORPORATE SMART IRRIGATION SYSTEMS IN LANDSCAPE DESIGN

TREATMENT CONTROL BMPS

- RUNOFF FROM RESIDENTIAL PADS AND DRIVEWAYS WILL BE FILTERED BY A BIOFILTER (GRASSY SWALE)
- RUNOFF FROM STREET WILL BE TREATED BY A BIOFILTER (GRAVEL SWALE) 



OR



bha, Inc.
land planning, civil engineering, surveying
5115 AVENIDA ENCINAS
SUITE "L"
CARLSBAD, CA. 92008-4387
(760) 931-8700

SITE MAP
STORM WATER MANAGEMENT PLAN
TENTATIVE PARCEL MAP NO. 20846 RPL #6

ATTACHMENT C

RELEVANT MONITORING DATA

(NOTE: PROVIDE RELEVANT WATER QUALITY MONITORING DATA IF AVAILABLE.)

NO RELEVANT WATER QUALITY MONITORING DATA IS AVAILABLE

ATTACHMENT D

LID AND TREATMENT BMP LOCATION MAP

SEE SITE MAP FOR LID AND TREATMENT BMP LOCATIONS

ATTACHMENT E

TREATMENT BMP DATASHEET

*(NOTE: POSSIBLE SOURCE FOR DATASHEETS CAN BE FOUND AT
WWW.CABMPHANDBOOKS.COM. INCLUDE ENGINEERING CALCULATIONS FOR SIZING
THE TREATMENT BMP.)*

HYDRAULIC ELEMENTS - I PROGRAM PACKAGE
(C) Copyright 1982-2008 Advanced Engineering Software (aes)
Ver. 15.0 Release Date: 04/01/2008 License ID 1459

Analysis prepared by:

BHA INC.
5115 AVENDIA ENCINAS, SUITE L
CARLSBAD, CA 92008
(760) 931-8700

TIME/DATE OF STUDY: 11:43 09/16/2008
=====

Problem Descriptions:
STORMWATER FLOW Q=0.4CFS
GRAVEL SWALE

>>>>CHANNEL INPUT INFORMATION<<<<

CHANNEL Z1 (HORIZONTAL/VERTICAL) = 3.00
 Z2 (HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH (FEET) = 2.00
CONSTANT CHANNEL SLOPE (FEET/FEET) = 0.010000
UNIFORM FLOW (CFS) = 0.41
MANNINGS FRICTION FACTOR = 0.2400
=====

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH (FEET) = 0.44
FLOW TOP-WIDTH (FEET) = 4.64
FLOW AREA (SQUARE FEET) = 1.46
HYDRAULIC DEPTH (FEET) = 0.32
FLOW AVERAGE VELOCITY (FEET/SEC.) = 0.28
UNIFORM FROUDE NUMBER = 0.088
PRESSURE + MOMENTUM (POUNDS) = 17.67
AVERAGED VELOCITY HEAD (FEET) = 0.001
SPECIFIC ENERGY (FEET) = 0.442
=====

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH (FEET) = 2.62
CRITICAL FLOW AREA (SQUARE FEET) = 0.24
CRITICAL FLOW HYDRAULIC DEPTH (FEET) = 0.09
CRITICAL FLOW AVERAGE VELOCITY (FEET/SEC.) = 1.71
CRITICAL DEPTH (FEET) = 0.10
CRITICAL FLOW PRESSURE + MOMENTUM (POUNDS) = 2.10
AVERAGED CRITICAL FLOW VELOCITY HEAD (FEET) = 0.045
CRITICAL FLOW SPECIFIC ENERGY (FEET) = 0.149
=====

CALCULATE LENGTH FOR 5-MIN. RESIDENCE
TIME. $L = 0.28 \text{ Ft/s} \times 5 \text{ MIN} \times \frac{60 \text{ S}}{1 \text{ MIN}} = 84 \text{ Ft}$

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Analysis prepared by:

BHA INC.
5115 AVENDIA ENCINAS, SUITE L
CARLSBAD, CA 92008
(760) 931-8700

TIME/DATE OF STUDY: 08:40 09/16/2008
=====

Problem Descriptions:
100 YEAR STORM Q=9.3CFS
GRAVEL SWALE

>>>>CHANNEL INPUT INFORMATION<<<<

CHANNEL Z1 (HORIZONTAL/VERTICAL) = 3.00
Z2 (HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH (FEET) = 2.00
CONSTANT CHANNEL SLOPE (FEET/FEET) = 0.010000
UNIFORM FLOW (CFS) = 9.30
MANNINGS FRICTION FACTOR = 0.0240
=====

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH (FEET) = 0.66
FLOW TOP-WIDTH (FEET) = 5.97
FLOW AREA (SQUARE FEET) = 2.64
HYDRAULIC DEPTH (FEET) = 0.44
FLOW AVERAGE VELOCITY (FEET/SEC.) = 3.53
UNIFORM FROUDE NUMBER = 0.935
PRESSURE + MOMENTUM (POUNDS) = 108.97
AVERAGED VELOCITY HEAD (FEET) = 0.193
SPECIFIC ENERGY (FEET) = 0.855
=====

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH (FEET) = 5.83
CRITICAL FLOW AREA (SQUARE FEET) = 2.50
CRITICAL FLOW HYDRAULIC DEPTH (FEET) = 0.43
CRITICAL FLOW AVERAGE VELOCITY (FEET/SEC.) = 3.73
CRITICAL DEPTH (FEET) = 0.64
CRITICAL FLOW PRESSURE + MOMENTUM (POUNDS) = 108.72
AVERAGED CRITICAL FLOW VELOCITY HEAD (FEET) = 0.216
CRITICAL FLOW SPECIFIC ENERGY (FEET) = 0.853
=====

85TH PERCENTILE STORMWATER RUNOFF

PIZZUTO PROPERTY
COUNTY OF SAN DIEGO

$$Q_{wq} = CIA$$

Where:

Q_{wq} = Flow rate per cubic feet (cfs)

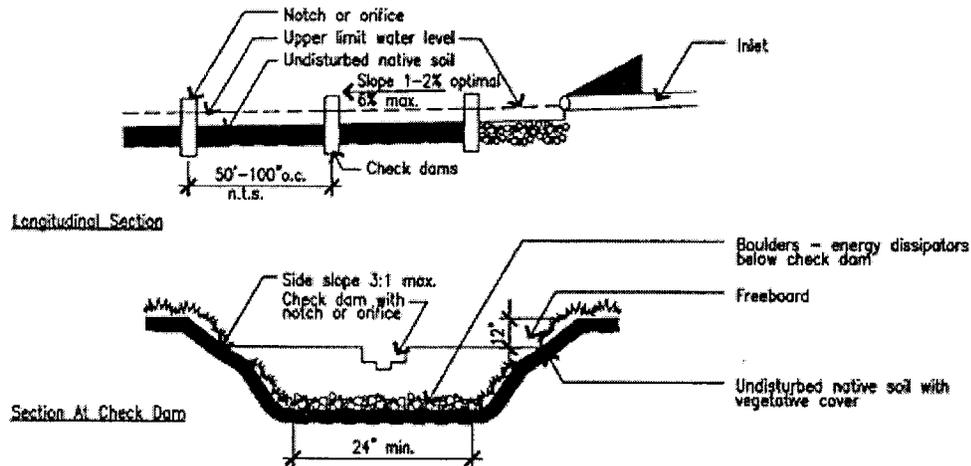
C = weighted runoff coefficient of drainage area

I = Rainfall intensity in inches per hour (0.2 in/hr)

A = Drainage area (acres)

NODE	C	I _{wq} (in/hr)	A (acres)	Q _{wq} (cfs)
Gravel Swale	0.57	0.2	3.60	0.41
Parcel 1	0.33	0.2	0.69	0.05
Parcel 2	0.33	0.2	0.42	0.03
Parcel 3	0.33	0.2	0.51	0.03

Fact Sheet 4. Vegetated Swale / Rock Swale



Conditions, dimensions, and materials shown are typical. Modifications may be required for proper application; consult qualified professional.

Vegetated / rock swales are vegetated or rock lined earthen channels that collect, convey, and filter site water runoff and remove pollutants. Swales are an alternative to lined channels and pipes; configuration and setting are unique to each site.

CHARACTERISTICS

- If properly designed and maintained, swales can last for at least 50 years.
- Can be used in all soil types, natural or amended.
- When swales are not holding water, they appear as a typical landscaped area.
- Water is filtered by vegetation/rocks and pollutants are removed by infiltration into the subsurface of the soil.
- Swales also serve to delay runoff peaks by reducing flow velocities.

APPLICATION

- Swales are most effective in removing coarse to medium sized sediments.
- Parking lot medians, perimeters of impervious pavements.
- Street and highway medians, edges (in lieu of curb and gutter, where appropriate).
- In combination with constructed treatment systems or sand filters.

DESIGN

- Vegetation of each swale is unique to the setting, function, climate, geology, and character of each site and climatic condition.
- Can be designed with natural or amended soils, depending on the infiltration rate provided by the natural condition versus the rate needed to reduce surface runoff.
- Grass swales move water more quickly than vegetated swales. A grass swale is planted with salt grass; a vegetated swale is planted with bunch grass, shrubs or trees.
- Rocks, gravel, boulders, and/or cobbles help slow peak velocity, allow sedimentation, and add aesthetic value.

- Pollutant removal effectiveness can be maximized by increasing residence time of water in swale using weirs or check dams.
- Swales are often used as an alternative to curbs and gutters along roadways, but can also be used to convey stormwater flows in recreation areas and parking lots.
- Calculations should also be provided proving the swale capable of safely conveying the 100-year flow to the swale without flooding adjacent property or infrastructure.
- See County of San Diego Drainage Design Manual for design criteria. (section 5.5) <http://www.sdcountry.ca.gov/dpw/docs/hydrologymanual.pdf>

MAINTENANCE

- Swale maintenance includes mowing and removing clippings and litter. Vegetated swales may require additional maintenance of plants.
- Periodically remove sediment accumulation at top of bank, in swale bed, or behind check dams.
- Monitor for erosion and reseed grass or replace plants, erosion control netting and mulch as necessary. Fertilize and replace vegetation well in advance of rainy season to minimize water quality degradation.
- Regular inspections and maintenance is required during the establishment period.

LIMITATIONS

- Only suitable for grades between 1% and 6%; when greater than 2.5% should be paired with weir or check dam.
- “Turf” swales will commonly require irrigation and may not meet State water conservation goals.
- Irrigated vegetation is not appropriate in certain sites. Xeriscape techniques, natural stone and rock linings should be used as an alternative to turf.
- Wider road corridors may be required to incorporate swales.
- Contributing drainage areas should be sized to meet the stormwater management objective given the amount of flow that will be produced.
- When contributing flow could cause formation of low-flow channel, channel dividers must be constructed to direct flow and prevent erosion.

ECONOMICS

- Estimated grass swale construction cost per linear foot \$4.50-\$8.50 (from seed) to \$15-20 (from sod), compare to \$2 per inch of diameter underground pipe e.g., a 12” pipe would cost \$24 per linear foot).
- \$0.75 annual maintenance cost per linear foot

REFERENCES

- CALTRANS – Storm Water Handbook (cabmphandbooks.com)
- For additional information pertaining to Swales, see the works cited in the San Diego County LID Literature Index.

ATTACHMENT F

OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMPS

*(NOTE: INFORMATION REGARDING OPERATION AND MAINTENANCE CAN BE OBTAINED
FROM THE FOLLOWING WEB SITE:*

[HTTP://WWW.CO.SAN-DIEGO.CA.US/DPW/WATERSHEDS/LAND_DEV/SUSMP.HTML](http://www.co.san-diego.ca.us/dpw/watersheds/land_dev/susmp.html).)

5.0 OPERATION AND MAINTENANCE PROGRAM

5.1 Maintenance Schedule

The operation and maintenance requirement (Appendix H Estimated O & M Costs for BMP Project from County of San Diego Stormwater Manual) for each type of BMP is as follows:

Biofilter - Grassy Swale and Gravel Swale					
Routine Action	Maintenance Indicator	Field Measurement	Measurement Frequency	Maintenance Activity	Site-Specific Requirement
Height of vegetation	Average vegetation height greater than 12 inches, emergence of trees or woody vegetation.	Visual observation and random measurements through out the side slope area.	Once during wet season, once during dry season	Cut vegetation to an average height of 6 inches and remove trimmings. Remove any trees, or woody vegetation.	None
Assess adequate vegetative cover	Less than 90 percent coverage in strip invert/swale or less than 70 percent on swale side slope	Visual inspection of strip/swale. Prepare a site schematic to record location and distribution of barren or browning spots to be restored. File the schematic for assessment of persistent problems.	Assess quantity needed in May each year late wet season and late dry season.	Reseed/revegetate barren spots by Nov.	None
				Scarify area to be restored to a depth of 2-inches. Restore side slope coverage with hydroseed mixture.	
				If after 2 applications (2 seasons) of reseeding/revegetating and growth is unsuccessful both times, an erosion blanket or equivalent protection will be installed over eroding areas	

Biofilter - Grassy Swale and Gravel Swale					
Routine Action	Maintenance Indicator	Field Measurement	Measurement Frequency	Maintenance Activity	Site-Specific Requirement
Inspect for debris accumulation	Debris or litter present	Visual observation	During routine trashing, per district schedule	Remove litter, and debris.	None
Inspection for accumulation sediment	Sediment at or near vegetation height, channeling of flow, inhibited flow due to change in slope.	Visual observation	Annually	Remove sediment. If flow in channeled, determine cause and take corrective action. If sediment becomes deep enough to change the flow gradient, remove sediment during dry season, characterize and properly dispose of sediment, and revegetate.	None
				Notify engineer to determine if regrading is necessary. If necessary, regrade to design specification and revegetate swale/strip. If regrading is necessary, the process should start in May. Revegetate strip/swale in Nov. Target completion prior to wet season.	
Inspect for burrows	Burrows/visual holes, mounds	observation	Annually and after vegetation trimming	Where burrows cause seepage, erosion and leakage, backfill firmly.	

Biofilter - Grassy Swale and Gravel Swale					
Routine Action	Maintenance Indicator	Field Measurement	Measurement Frequency	Maintenance Activity	Site-Specific Requirement
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, emergence of trees, woody vegetation, fence damage, etc.	Visual observation	Semi-Annually, late wet season and late dry season.	Corrective action prior to wet season. Consult engineer if an immediate solution is not evident.	Remove any trees, or woody vegetation.

ATTACHMENT G

FISCAL RESOURCES

6.0 FISCAL RESOURCES

The Pizzuto Tentative Parcel Map falls within the “First Category” of the County of San Diego (County) Maintenance Mechanism because the use of bio-filtration grassy swales and gravel swales.

6.1 First Category:

The County should have only minimal concern for ongoing maintenance. The proposed BMPs inherently “take care of themselves”, or property owners can naturally be expected to do so as an incident of taking care of their property.

6.1.1 Mechanisms to Assure Maintenance:

Stormwater Ordinance Requirement: The County of San Diego Watershed Protection, Stormwater Management, and Discharge Control Ordinance (WPO) requires this ongoing maintenance. In the event that the mechanisms below prove ineffective, or in addition to enforcing those mechanisms, civil action, criminal action or administrative citation could also be pursued for violations of the ordinance.

Public Nuisance Abatement: Under the WPO failure to maintain a BMP would constitute a public nuisance, which may be abated under the Uniform Public Nuisance Procedure. This provides an enforcement mechanism additional to the above, and would allow costs of maintenance to be billed to the owner, a lien placed on the property, and the tax collections process to be used.

Notice to Purchasers: Section 67.819(e) of the WPO requires developers to provide clear written notification to persons acquiring land upon which a BMP is located, or others assuming a BMP is located, or others assuming a BMP maintenance obligation, of the maintenance duty.

Condition in Ongoing Land Use Permits: For those applications (listed in WPO Section 67.804) upon whose approval ongoing conditions may be imposed, a condition will be added which requires the owner of the land upon which the stormwater facility is located to maintain that facility in accordance with the requirements specified in the Standard Urban Stormwater Management Plan. Failure to perform maintenance may then be addressed as a violation of the permit, under the ordinance governing that permit process.

Subdivision Public Report: Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the subdivider has requested the California Department of Real Estates to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued).

6.1.2 Funding

None required.

ATTACHMENT H
CERTIFICATION SHEET

This Stormwater Management Plan has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decision are based.

Ronald L. Holloway

Date

ATTACHMENT I

ADDENDUM

ATTACHMENT J

2002 CWA SECTION 303(D) LIST OF WATER QUALITY LIMITED SEGMENT

2002 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENT

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

Approved by USEPA:
July 2003

REGION TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	TMDL PRIORITY	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9 C	Pacific Ocean Shoreline, San Dieguito HU	90511000	Bacteria Indicators <i>Impairment located at San Dieguito Lagoon Mouth, Solana Beach.</i>	Nonpoint/Point Source	Low	0.86 Miles	
9 C	Pacific Ocean Shoreline, San Joaquin Hills HSA	90111000	Bacteria Indicators <i>Impairment located at Cameo Cove at Irvine Cove Dr./Riviera Way, Heister Park-North</i>	Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source	Low	0.63 Miles	
9 C	Pacific Ocean Shoreline, San Luis Rey HU	90311000	Bacteria Indicators <i>Impairment located at San Luis Rey River Mouth.</i>	Nonpoint/Point Source	Low	0.49 Miles	
9 C	Pacific Ocean Shoreline, San Marcos HA	90451000	Bacteria Indicators <i>Impairment located at Moonlight State Beach.</i>	Nonpoint/Point Source	Low	0.5 Miles	
9 C	Pacific Ocean Shoreline, Scripps HA	90630000	Bacteria Indicators <i>Impairment located at La Jolla Shores Beach at El Paseo Grande, La Jolla Shores Beach at Caminito Del Oro, La Jolla Shores Beach at Vallecitos, La Jolla Shores Beach at Ave de la Playa, Casa Beach (Childrens Pool), South Casa Beach at Coast Blvd., Whispering Sands Beach at Ravina St., Windansea Beach at Vista de la Playa, Windansea Beach at Bonair St., Windansea Beach at Playa del Norte, Windansea Beach at Palomar Ave., Tourmaine Surf Park, Pacific Beach at Grand Ave.</i>	Nonpoint/Point Source	Medium	3.9 Miles	
9 C	Pacific Ocean Shoreline, Tijuana HU	91111000	Bacteria Indicators <i>Impairment located from the border, extending north along the shore.</i>	Nonpoint/Point Source	Low	3 Miles	
9 R	Pine Valley Creek (Upper)	91141000	Enterococci	Grazing-Related Sources Concentrated Animal Feeding Operations (permitted, point source) Transient encampments	Medium	2.9 Miles	