

**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:	TRAN MINOR RESIDENTIAL SUBDIVISION
Permit Number (Land Development Projects):	TPM 20835
Work Authorization Number (CIP):	
Applicant:	Thuan and Karen Tran
Applicant's Address:	1029 Villeta Dr. Escondido, CA 92027
Plan Prepare By (<i>Leave blank if same as applicant</i>):	John Maashoff, P.E. P.O. Box 846 Cardiff, CA 92007
Date:	June 18, 2007
Revision Date (If applicable):	Sept 25, 2008 (new SWMP format)

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	
TPM Revised submittal	x		Sept 25, 2008

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:

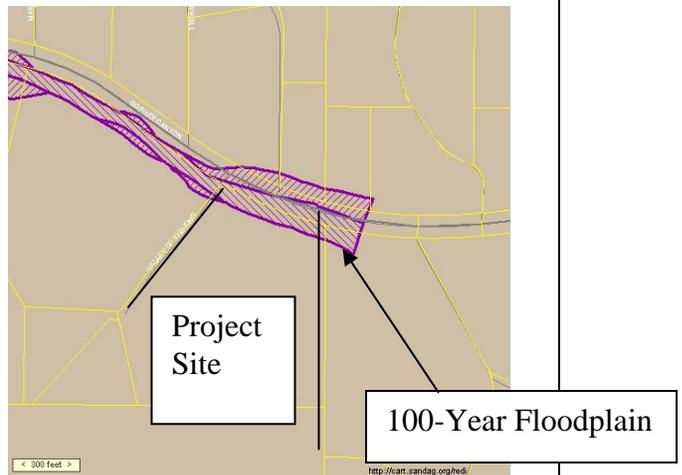
- Project Location
- Project Description
- Physical Features (Topography)
- Surrounding Land Use
- Proposed Project Land Use
- Location of dry weather flows (year-round flows in streams, or creeks) within project limits, if applicable.

The subject site is approximately 14.6 acres in size and is commonly referred to as The Tran TPM. The Tran TPM is located on the south side of Gopher Canyon Road immediately east of Valley of the King Road in Bonsall.

The Tran TPM proposes to subdivide an existing parcel into 4 lots and a remainder parcel. Parcel 4 is currently developed with a SFD, each of the other parcels is anticipated to be developed with a single family residence. The TPM shows proposed grading associated with the anticipated future development as well as utilities such as roads, water mains, etc. necessary to support the anticipated development. The existing parcel is approximately 14.6 acres in size. The proposed parcels range from 2 net acres to approximately 6.5 acres in size.

The property is currently undeveloped. Previously the site was farmed as an avocado orchard but recent fires destroyed most of the trees and the land remains vacant. The photograph on the following page shows the previous orchard and disturbed areas. In order to minimize impacts from the proposed subdivision/development, the site has been designed to take access for each of the parcels off of the existing Valley of the King Road. Two of the proposed parcels have a short driveway directly off of Valley of the Kings Road, the other 3 parcels will share a common driveway. By providing for joint driveway use, the overall amount of proposed impervious surface is minimized.

The County’s Floodplain map #394-1713 shows the property in question in relation to the downstream creeks and floodplain and floodway areas. The map below shows the general outline of the downstream floodways.



The total area of impervious surfaces can be summed up using the development basins identified in the Preliminary Drainage Report and on the TPM. The total new impervious surfaces being proposed with this development is approximately 1.58 acres. The existing parcel is approximately 14.6 acres. The new development areas that may contain impervious surfaces due to proposed development is approximately 10.8% of the site.

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.	x		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. (SEE ATTACHMENT I)

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

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

Number	Name
903.12	San Luis Rey River

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	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Inland Surface Waters		x	x	x				x	x	x		x		x		
Ground Waters		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 type="checkbox"/> Desilting Basin |
| <input checked="" type="checkbox"/> Fiber Rolls | <input checked="" type="checkbox"/> Gravel Bag Berm |
| <input type="checkbox"/> Street Sweeping and Vacuuming | <input checked="" type="checkbox"/> Sandbag Barrier |
| <input 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 type="checkbox"/> Solid Waste Management | <input checked="" type="checkbox"/> Concrete Waste Management |
| <input checked="" type="checkbox"/> Stabilized Construction Entrance/Exit | <input 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_reqtmlds.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 checked="" type="checkbox"/> Other. Description: <i>The projects development envelope is contained to previously disturbed areas and limited in size. Approximately 90% of the project remains pervious.</i>
<input type="checkbox"/> 1. Not feasible. State Reason:
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 checked="" type="checkbox"/> Other. Description: <i>All proposed impervious surfaces are directed to a vegetated swale or undeveloped/natural area prior to being discharged to the creek along Gopher Canyon Rd. No structures are proposed as part of the TPM development.</i>
<input type="checkbox"/> 3. Not feasible. State Reason:
4. Minimize Soil Compaction-County LID Handbook 2.2.4
<input checked="" type="checkbox"/> 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 checked="" type="checkbox"/> Other. Description: <i>Grading is not proposed outside of the proposed development area. All grading is proposed outside of the biological open space easement proposed.</i>
4. Not feasible. State Reason:

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
√ Rural Swales
<input type="checkbox"/> Concave Median
<input type="checkbox"/> Cul-de-sac Landscaping Design
√ Other. Description: <i>Impervious areas associated with future structures will drain to undeveloped/natural areas. The proposed private driveways drain to a vegetated swale before joining the tributary adjacent to Gopher Canyon Rd.</i>
LID Parking Lot Design
<input type="checkbox"/> Permeable Pavements
<input type="checkbox"/> Curb-cuts to landscaping
√ Other. Description: <i>No parking lots are proposed. Parking areas for the residential lots will drain to undeveloped/natural areas.</i>
LID Driveway, Sidewalk, Bike-path Design
<input type="checkbox"/> Permeable Pavements
<input type="checkbox"/> Pitch pavements toward landscaping
√ Other. Description: <i>Proposed pavement areas drain to undeveloped/natural areas or through the proposed vegetated swale (Q wq volumes)</i>
LID Building Design
<input type="checkbox"/> Cisterns & Rain Barrels
<input type="checkbox"/> Downspout to swale
<input type="checkbox"/> Vegetated Roofs
√ Other. Description: <i>No buildings are proposed as part of the TPM development. Future structures shall drain to swales within the building pad areas as shown on the TPM.</i>
LID Landscaping Design
<input type="checkbox"/> Soil Amendments
<input type="checkbox"/> Reuse of Native Soils
√ Smart Irrigation Systems
<input type="checkbox"/> Street Trees
√ Other. Description: <i>The only grading proposed per the TPM is to support the proposed driveways and residential lots (in order to minimize impacts). The graded areas are surrounded by 2:1 slopes to minimize the overall grading footprint.</i>
<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?				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.				
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	x			

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		

BMP		YES	NO	N/A
5.	Private Roads			
	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

BMP		YES	NO	N/A
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
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.			
	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

		BMP	YES	NO	N/A
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
	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.

The project is designed to minimize the increase of impervious areas. The common driveways incorporated in the plan reduce the amount of grading required as well as the amount of new impervious surfaces. Only a small portion of the entire site is proposed to be developed with new impervious surfaces, thus increases in runoff and potential pollutants of concern are minimized. Driveways are proposed to be the minimum width required to meet engineering and safety services requirements. Roof drains from the proposed structures should be directed into vegetated swales prior being discharged into lined swales, ditches, natural areas, or driveway conveyance systems.

Landscaping of all newly created slopes are incorporated into the project. Planting of all slopes should occur immediately upon completion of grading. The goal is to achieve plant establishment expeditiously to reduce erosion.

The site has been designed to create relatively flat residential pad areas so runoff can be filtered using vegetated swales prior to being discharged. If the Hydrologic and Hydrology study prepared with the grading plans for the site shows erosive velocities may occur at the point of discharge, a rip-rap energy dissipater will need to be installed to prevent any such erosion. The site plan shows the location of proposed rip-raps.

Source control BMPs will consist of measures to prevent polluted runoff. All domestic discharges should be directed into the proposed sanitary sewer system proposed on the westerly side of the property. In conjunction with the sale of any of the newly created lots, each buyer should be given a copy of this report as well as copies of any relevant brochures developed by the County's Environmental Health Department including: Stormwater Runoff Pollution Fact Sheet; Stormwater Runoff Pollution Prevention Tips for Homeowners; Stormwater Pollution Prevention Yard Work (Landscaping, Gardening, Pest Control); Stormwater Pollution Prevention Pet Waste; and Stormwater BMP Swimming Pool And Spa Cleaning.

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)
T	.39	1.67	.06
W	.38	1.08	.06

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

Biofilters
<input checked="" type="checkbox"/> Bioretention /Vegetated swale
<input type="checkbox"/> Vegetated filter strip
<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

	COMPLETED	NO
Include Treatment Datasheet as Attachment E. The datasheet should include the following:		
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.

The project is a 4 lot subdivision with a remainder lot. The lots are proposed to be residentially zoned without a Home Owners Association. The required treatment volume of runoff from all new impervious surfaces is relatively low, in the order of .06 CFS.

The California Stormwater BMP Handbook identifies Vegetated Swales as a BMP for consideration. Swales incorporated into the project will be constructed using the design criteria and guidelines listed in the Handbook's standard drawing, TC-30.

The site has been designed to create relatively flat residential pad areas so runoff can be filtered using vegetated swales prior to being discharged to either the private driveways or rip-rap energy dissipators. Runoff collected in the common driveway will be directed to a vegetated swale at the intersection of the driveway and Gopher Canyon Road. The swale was selected for several reasons: Landscape maintenance is inherent with private property ownership; small volume of required treatment rates; medium removal efficiencies for secondary pollutants of concern associated with the propose project; etc.

Pollutants are removed by filtration through the vegetation, sedimentation, adsorption to soil particles, and infiltration through the soil. These are mainly effective at removing debris and solid particles; although some dissolve constituents are removed by adsorption onto the soil.

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	x	
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/B
PROJECT LOCATION MAP / SITE MAP

ATTACHMENT C

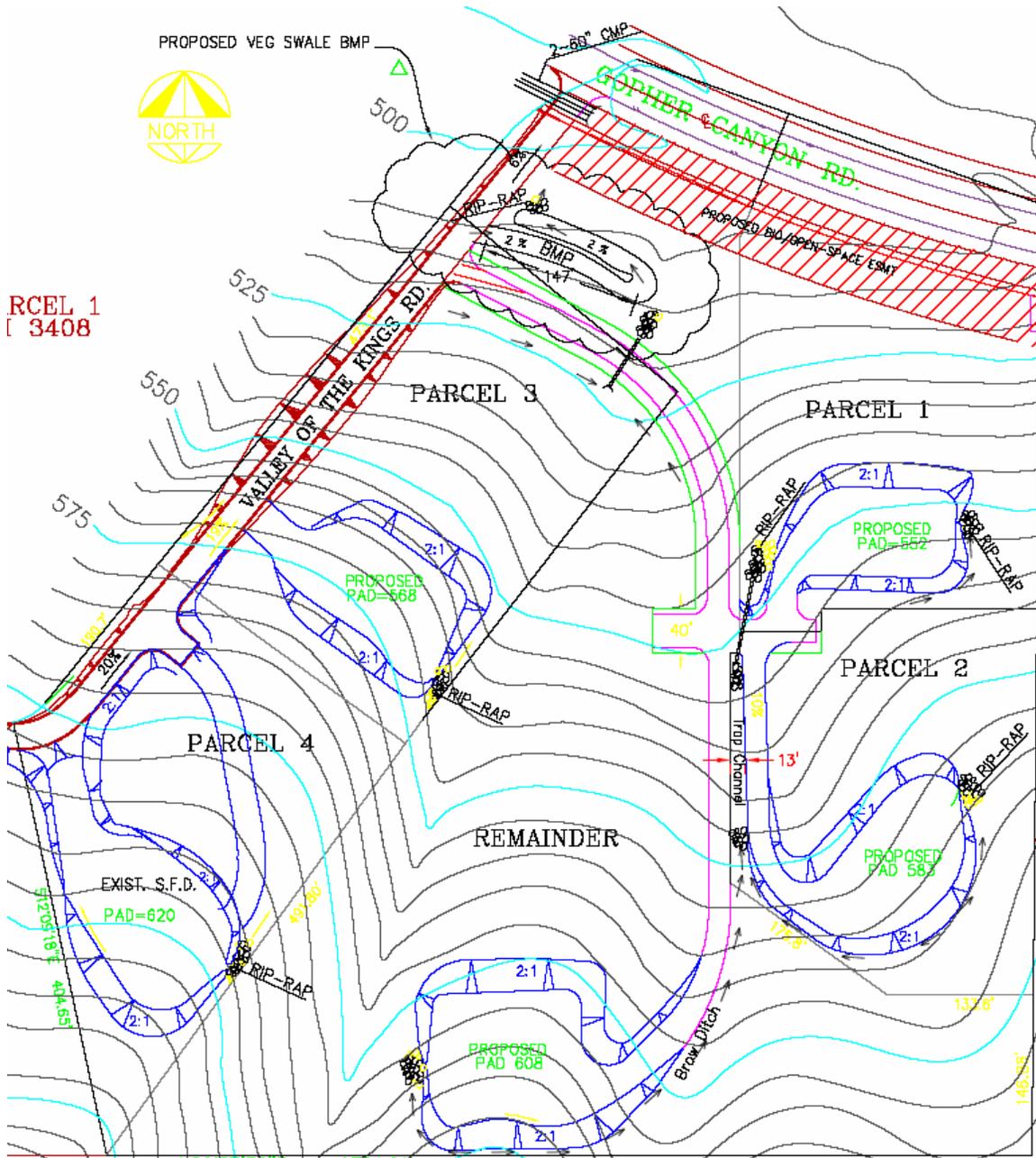
RELEVANT MONITORING DATA

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

There was no sampling data made available for the existing site condition. The proposed project is not expected to generate significant amounts of pollutants, however, the following constituents are commonly found on similar developments and could affect water quality: Sediments and nutrients, trash and debris, oxygen demanding substances, bacteria and viruses, oil and grease (hydrocarbons) and pesticides.

ATTACHMENT D

LID AND TREATMENT BMP LOCATION MAP



ATTACHMENT E

TREATMENT BMP DATASHEET

The vegetated trapezoidal swale with a width of 4 feet, 3:1 side slopes and a flow depth of 3.4 feet can convey approximately 62 cfs using the CASQA design parameters of $n=.25$. Travel time in the swale with these characteristics will be approximately 3.2 minutes. 100-Year Storm Calculations are shown below:

$1.486ar^2/3s^{1/2}$		trap channel 3:1 side slopes	
a	48.28	b	4
p	25.5	d	3.4
r	1.893074	a	48.28
s	0.02	p	25.5
$r^{2/3}$	1.530307		
$s^{1/2}$	0.141421		
n	0.25		
Q	62.11		
Velocity	1.29		

The same channel can convey the calculated water quality flows with a depth of flow equal to .37' and a velocity of .38 fps. Travel time in the swale with these characteristics will be approximately 11 minutes.

Water Quality Calculations are shown below:

$1.486ar^2/3s^{1/2}$		trap channel 3:1 side slopes	
a	1.8907	b	4
p	6.3	d	0.37
r	0.298214	a	1.8907
s	0.02	p	6.3
$r^{2/3}$	0.44636		
$s^{1/2}$	0.141421		
n	0.25		
Q	0.71		
Velocity	0.38		

The proposed Trapezoidal Vegetated Swale intended to treat runoff from the new impervious surfaces associated with the project is approximately 250 feet in length. The channel shown on the TPM has a bottom width of 4 feet, side slopes of 3:1, and a longitudinal slope of 2% maximum. This allows for water quality travel time of approximately 11 minutes and is in general conformance with the CASQA design parameters noted in TC-30.

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))

The site is being designed such that there should be only minimal concern for ongoing maintenance of this project. 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. Operation and maintenance guidelines for maintenance of the proposed vegetated swales is outlined in the referenced CASQA fact sheets..

Please see attached CASQA fact sheets for additional information.

ATTACHMENT G

FISCAL RESOURCES

The owner of the project and subsequent property owners will be financially responsible for the long term maintenance of the proposed Treatment Control BMP's.

No special funding mechanisms are proposed for the development of the subject property. All construction related BMPs will be secured in conjunction with the grading plan and permits required for development of the site. Post construction maintenance will generally be done by the individual property owners as part of their routine landscaping maintenance program. No elaborate, complex or extensive permanent structural BMPs are proposed, it is not anticipated special financing or funding mechanisms will be required for the routine maintenance or periodic repair, etc. of the proposed post construction treatment control BMPs.

Please see attached CASQA fact sheets for additional information.

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 decisions are based.



_____ Date

ATTACHMENT I

ADDENDUM

The Tran TPM project is located in the Bonsall Hydrologic subarea, within the San Luis Rey River (903.12) Hydrologic Unit. The projects runoff will be conveyed westerly to the San Luis Rey River via a system of swales, ditches, creeks and storm drains. Overall, the project area of 14.6 acres represents only a fraction of the 558 square mile drainage basin.

A map of the San Luis Rey Hydrologic Unit identified on Project Clean Water's web site (<http://www.projectcleanwater.org/index.html>) was used as a reference. Although not directly adjacent to the project the downstream receiving waters are impaired with Bacteria, Chloride and TDS. There are no domestic water supplies or reservoirs within the limits of the project. Annual rainfall amounts and intensity curves are included in the accompanying drainage study, the results of which are referenced later in this report.

As previously mentioned the property is primarily currently undeveloped. The site generally consists of non-native grasslands as well as some orchard uses. The project's land use designation is 17-EDA and the existing zoning is A-70. The project is surrounded by properties containing agricultural uses, primarily orchards. The subject site generally drains from south to north where it enters a large ditch on the southerly side of Gopher Canyon Road. Dry weather flows were observed in the drainage directly adjacent to Gopher Canyon Road. The highest point on the property has an elevation of approximately 705 feet and is located along the southerly property line near the western edge of the property. The north east corner of the site's elevation is approximately 516 feet. The lowest existing point is at the northeast portion of the site and is approximately 495 feet. A copy of the TPM, including existing and proposed elevations is attached. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements.

The drainage study prepared for the TPM shows an area of approximately 7.38 acres, generally southerly of the site, drains onto the site. Another larger area drains across the site in the drainage ditch located immediately south of Gopher Canyon Road. The majority of these areas are undeveloped. A site visit discovered sedimentation occurring mainly from areas east of the subject property and trash from the adjacent roadway as the two obvious pollutants in the ditch traversing the site. Other pollutants such as herbicides, pesticides and fertilizers may be present in the ditch from agricultural uses upstream of the site. The ditch may also contain hydrocarbons deposited from Gopher Canyon Road.

The proposed subdivision, and development as shown on the TPM, will not significantly alter drainage patterns on the site and the existing site drainage patterns are generally preserved. The TPM shows the proposed drainage patterns. The existing offsite runoff

from the south will continue to traverse the property uninterrupted to the drainage system along the northerly property line. Runoff from the east, and other offsite tributary areas, will continue to flow in their natural patterns from east to west in the system adjacent to Gopher Canyon Road. The drainage study prepared for the TPM shows an area of approximately 7.38 acres, generally southerly of the site, drains onto the site. Another larger area drains across the site in the drainage ditch located immediately south of Gopher Canyon Road. The majority of these areas are undeveloped.

Runoff from the proposed pads, together with any offsite runoff entering will drain via vegetated swales, small storm drain conveyance systems, and landscaped areas to either the ditch adjacent to Gopher Canyon Road or existing tributaries traversing the site. All runoff from the site will eventually be discharged to the lowest points along the northerly property line. The San Diego County Hydrology Manual shows the site is underlined by Soil Group "C" or "D" type soils. A copy of the entire County Hydrologic Soils groups map is included in the appendix. Contaminated or hazardous soils were not documented within the project site.