

# **Water Quality Management Plan**

**For:**

**Ling Yen Mountain Temple**

**PRELIMINARY**

**APN'S: 0226-061-47, 0226-061-73, 0226-061-74, 0226-061-75, AND 0226-061-77**

**Prepared for:**

**Ling Yen Mountain Temple**

**13938 DeCliff Drive**

**Etiwanda, CA 91739**

**909-899-6138**

**Preliminary WQMP in Support of**

**Conditional Use Application**

**Prepared by:**

**The Altum Group**

**73-710 Fred Waring Drive, Suite 219**

**Palm Desert, CA 92660**

**760-346-4750**

**Approval Date: \_\_\_\_\_**

### Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for Ling Yen Mountain Temple by The Altum Group. The WQMP is intended to comply with the requirements of the County of San Bernardino Areawide Stormwater Program and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

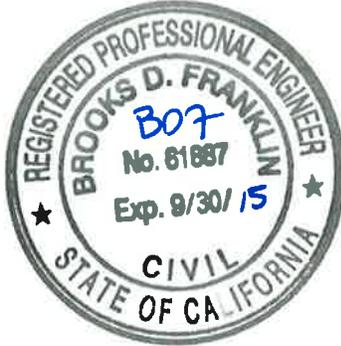
"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

Project Data			
Permit/Application Number(s):	Pending-to be issued by County	Grading Permit Number(s):	N/A
Tract/Parcel Map Number(s):	N/A	Building Permit Number(s):	N/A
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			0226-061-47, 0226-061-73, 0226-061-74, 0226-061-75, and 0226-061-77
Owner's Signature			
<b>Owner Name:</b> Ling Yen Mountain Temple			
Title	Limei Fang		
Company			
Address	13938 Decliff Dr. Etiwanda, CA. 91739		
Email	lymtusa@gmail.com		
Telephone #	909-463-0189		
Signature		Date	

### Preparer's Certification

Project Data			
Permit/Application Number(s):	Pending-to be issued by County	Grading Permit Number(s):	N/A
Tract/Parcel Map Number(s):	N/A	Building Permit Number(s):	N/A
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			0226-061-47, 0226-061-73, 0226-061-74, 0226-061-75, and 0226-061-77

“The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036.”

<b>Engineer:</b> Doug Franklin		PE Stamp Below  
Title	Vice President	
Company	The Altum Group	
Address	73-710 Fred Waring Drive, Suite 219 Palm Desert, CA. 92660	
Email	doug.franklin@thealtumgroup.com	
Telephone #	760-346-4750	
Signature	<i>Brooks D. Franklin</i>	
Date	<i>6-8-15</i>	

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## Section 1 Discretionary Permit(s)

<b>Form 1-1 Project Information</b>					
Project Name		Ling Yen Mountain Temple			
Project Owner Contact Name:		Limei Fang			
Mailing Address:	13938 DeCliff Drive Etiwanda, CA. 91739	E-mail Address:	lymtusa@gmail.com	Telephone:	909-463-0189
Permit/Application Number(s):		Pending-to be issued by County	Tract/Parcel Map Number(s):	N/A	
Additional Information/ Comments:		This Preliminary WQMP is prepared in support of a Conditional Use Permit application. Upon approval of the Conditional Use Permit, applicant will process development plans for the site which will also include a Final WQMP.			
Description of Project:		<p>The Ling Yen Mountain Temple is a proposed project consisting of 43.6 acres of undeveloped land. The proposed development includes multiple buildings, parking, utilities, and landscaping on approximately 32.3-acres of the site. The remaining 11.3 acres will remain undeveloped at this time. Phase 1 of the project includes nine (9) buildings (approximately 65,000 sf) located on the northerly portion of the site. Phase 1 also includes the improvements to Colonbero Road/Dawnridge Drive (east side of site), Wardman Bullock Road (west side of site), parking facilities, and the water quality measures for the entire site to include the infiltration facilities to be constructed at the southerly portion of the site. Phase 2 includes additional buildings totaling 53,000 sf and associated facilities (water, sewer, grading, etc.). Phase 3 includes 41,000 sf of buildings and the associated improvements for these buildings as well as the overflow parking areas. While the overall project anticipates the construction of the water quality measures as part of Phase 1, there may be some connecting facilities required for Phases 2 and 3 as planning and construction dictate. The overall water quality facilities will be located in the infiltration facilities at the southerly portion of the site and constructed as part of Phase 1 improvements. The project site is located between the Morse Canyon Wash and an unnamed wash on the westerly side of the site. Both washes are tributary to the San Sevaine Wash, but do not have associated flow rates/water surface elevations. The proposed site development does not contribute to Morse Canyon Wash, but does contribute to the San Bernardino County Wardman Channel drainage facility at the southwest corner of the site near Wardman Bullock Road.</p>			

## Water Quality Management Plan (WQMP)

<p>Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.</p>	<p>Currently, runoff flows overland across the site in a southwesterly direction over undeveloped (previously graded and farmed) lands. The site generally slopes at 5%-10%, but does have isolated areas where the existing slope is near 20%. Runoff that does not infiltrate the existing ground is collected in the existing drainage wash on the southwesterly side of the site and conveyed to the existing San Bernardino County Wardman Channel drainage facility located just southwest of the site.</p> <p>The proposed development of the site includes clustered buildings with paved and unpaved pedestrian access through the site. Landscape and ground cover is proposed in the common areas of the site. The runoff from the developed site that does not infiltrate in to the landscape areas adjacent to the buildings/hardscape will flow overland across hardscape and will be collected at convenient locations by catch basins/inlets (with BMP filters). The runoff will then be directed via pipes to the infiltration facilities located at the southerly portion of the site.</p> <p>The infiltration facilities will consist of open gravel trenches/basins for retention/infiltration located along the southerly property line. For the purposes of this Preliminary WQMP, the infiltration trenches/basins are designed to accept and treat the runoff from the entire developed portion of the site.</p> <p>All downstream conveyance channels to the Santa Ana River receiving the treated runoff from the site are currently in place and maintained by the County to ensure design flow capacity.</p>
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## Section 2 Project Description

### 2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

<b>Form 2.1-1 Description of Proposed Project</b>					
<b>1</b> Development Category (Select all that apply):					
<input type="checkbox"/> Significant re-development involving the addition or replacement of 5,000 ft <sup>2</sup> or more of impervious surface on an already developed site	<input checked="" type="checkbox"/> New development involving the creation of 10,000 ft <sup>2</sup> or more of impervious surface collectively over entire site	<input type="checkbox"/> Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	<input type="checkbox"/> Restaurants (with SIC code 5812) where the land area of development is 5,000 ft <sup>2</sup> or more		
<input type="checkbox"/> Hillside developments of 5,000 ft <sup>2</sup> or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	<input type="checkbox"/> Developments of 2,500 ft <sup>2</sup> of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	<input checked="" type="checkbox"/> Parking lots of 5,000 ft <sup>2</sup> or more exposed to storm water	<input type="checkbox"/> Retail gasoline outlets that are either 5,000 ft <sup>2</sup> or more, or have a projected average daily traffic of 100 or more vehicles per day		
<input type="checkbox"/> Non-Priority / Non-Category Project <i>May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements.</i>					
<b>2</b> Project Area (ft <sup>2</sup> ):	1,410,037	<b>3</b> Number of Dwelling Units:	N/A	<b>4</b> SIC Code:	1542
<b>5</b> Is Project going to be phased? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.</i>					
<b>6</b> Does Project include roads? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)</i>					

## 2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

### **Form 2.2-1 Property Ownership/Management**

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:

The property is currently owned and will be developed by a single entity. As part of the final WQMP, a Covenant and Agreement, or other mechanism will be executed and used to ensure the ongoing operation, maintenance, funding, transfer and implementation of the project-specific WQMP requirements. It is not anticipated that water quality infiltration trenches/basins will be transferred to public agencies upon completion of improvements. Operations and maintenance (O&M) will be performed, as necessary, by the owner, their agents, and/or their assignees. Routine inspection and required maintenance of all site design source control BMPs should begin immediately upon completion of construction and continue throughout the life of the project.

O&M staff should inspect the site and all drainage facilities regularly (suggested monthly/quarterly) to ensure that they are clear of trash and debris. This can be accomplished when staff is performing other routine maintenance onsite. At the same time, drainage facilities can be inspected to see if any minor repairs are required. Drainage facilities should be inspected quarterly (at a minimum) and prior to the beginning of the rainy season (October 1st). Records of all inspection and repair/modifications shall be kept by the owner. The final WQMP shall designate a person responsible for all O&M and inspections.

## 2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

<b>Form 2.3-1 Pollutants of Concern</b>			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	
Pathogens (Bacterial / Virus)	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Listed as impairment to Santa Ana River, Reach 3
Nutrients - Phosphorous	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Nutrients - Nitrogen	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Noxious Aquatic Plants	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Sediment	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Metals	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Listed as impairment to Santa Ana River, Reach 3
Oil and Grease	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Trash/Debris	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Pesticides / Herbicides	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Organic Compounds	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Not listed as impairment to Santa Ana River, Reach 3
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	

## 2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

<b>Form 2.4-1 Water Quality Credits</b>			
<b><sup>1</sup> Project Types that Qualify for Water Quality Credits: <i>Select all that apply</i></b>			
<input type="checkbox"/> Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects <input type="checkbox"/> Vertical density [20%] <input type="checkbox"/> 7 units/ acre [5%]	<input checked="" type="checkbox"/> Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	<input type="checkbox"/> Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
<input type="checkbox"/> Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	<input type="checkbox"/> Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	<input type="checkbox"/> In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	<input type="checkbox"/> Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]
<b><sup>2</sup> Total Credit % 20 (Total all credit percentages up to a maximum allowable credit of 50 percent)</b>			
Description of Water Quality Credit Eligibility (if applicable)	20% allowable for the Mixed Use. Site development has living quarters, library, dining quarters, and worship/learning centers to maximize site usage.		

## Section 3 Site and Watershed Description

Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example.

Then complete Forms 3.2 and 3.3 for each DA on the project site. ***If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.***

<b>Form 3-1 Site Location and Hydrologic Features</b>			
Site coordinates <i>take GPS measurement at approximate center of site</i>	Latitude 34.167575	Longitude -117.499541	Thomas Bros Map page 544
<p><sup>1</sup> San Bernardino County climatic region:   <input type="checkbox"/> Valley   <input checked="" type="checkbox"/> Mountain</p>			
<p><sup>2</sup> Does the site have more than one drainage area (DA): Yes <input checked="" type="checkbox"/>   No <input type="checkbox"/> <i>If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached</i></p>			
<pre> graph TD     DA1DMAA[DA1 DMA A] --&gt; Outlet1[Outlet 1]     DA1DMAB[DA 1 DMA B] --&gt; Outlet1     DA1DMAC[DA1 DMA C] --&gt; DA1DMAA     DA2[DA2] --&gt; Outlet2[Outlet 2]             </pre>			
<p><b>Example only – modify for project specific WQMP using additional form</b></p>			
Conveyance	Briefly describe on-site drainage features to convey runoff that is not retained within a DMA		
DA1 DMA C flows to DA1 DMA A	<i>Ex. Bioretention overflow to vegetated bioswale with 4' bottom width, 5:1 side slopes and bed slope of 0.01. Conveys runoff for 1000' through DMA 1 to existing catch basin on SE corner of property</i>		
DA1 DMA A to Outlet 1	Outlet 1 is the only project outlet . This outlet is located near the southwesterly end of the infiltration basins and is an emergency overflow directed to the Wardman Channel. All onsite runoff is directed to the infiltration trenches/basins. All runoff begins as overland flow from the roof/hardscape areas where it is directed to landscape areas for initial infiltration. The runoff that does not infiltrate in the landscape areas is collected in a series of inlets (with inlet filters) and storm drain piping where it is directed to the infiltration basins (Outlet 1). The infiltration basins are to be excavated with 4:1 side slopes. Bottom widths will vary based on grading and final grade elevations. Bottom and sides will be lined with riprap rock and gravel material to a thickness of 18-inches to allow infiltration. DMAA, DMAB, and DMAC will drain in the same manner. The drainage system is depicted on the WQMP map attached as part of this document.		

## Water Quality Management Plan (WQMP)

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DA1 DMA B to Outlet 1	
DA2 to Outlet 2	

<b>Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1</b>				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA A	DMA B	DMA C	DMA D
<b>1</b> DMA drainage area (ft <sup>2</sup> )	463,478	449,975	496,584	N/A
<b>2</b> Existing site impervious area (ft <sup>2</sup> )	0	0	0	
<b>3</b> Antecedent moisture condition <i>For desert areas, use <a href="http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf">http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf</a></i>	1.909	1.909	1.909	
<b>4</b> Hydrologic soil group <i>Refer to Watershed Mapping Tool – <a href="http://sbcounty.permitrack.com/WAP">http://sbcounty.permitrack.com/WAP</a></i>	A	A	A	
<b>5</b> Longest flowpath length (ft)	450	520	305	
<b>6</b> Longest flowpath slope (ft/ft)	0.08	0.08	0.10	
<b>7</b> Current land cover type(s) <i>Select from Fig C-3 of Hydrology Manual</i>	Grass	Grass	Grass	
<b>8</b> Pre-developed pervious area condition: <i>Based on the extent of wet season vegetated cover good &gt;75%; Fair 50-75%; Poor &lt;50% Attach photos of site to support rating</i>	Fair	Fair	Fair	

<b>Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1 (use only as needed for additional DMA w/in DA 1)</b>				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA E	DMA F	DMA G	DMA H
<b>1</b> DMA drainage area (ft <sup>2</sup> )	N/A	N/A	N/A	N/A
<b>2</b> Existing site impervious area (ft <sup>2</sup> )				
<b>3</b> Antecedent moisture condition <i>For desert areas, use <a href="http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf">http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf</a></i>				
<b>4</b> Hydrologic soil group <i>Refer to Watershed Mapping Tool – <a href="http://sbcounty.permitrack.com/WAP">http://sbcounty.permitrack.com/WAP</a></i>				
<b>5</b> Longest flowpath length (ft)				
<b>6</b> Longest flowpath slope (ft/ft)				
<b>7</b> Current land cover type(s) <i>Select from Fig C-3 of Hydrology Manual</i>				
<b>8</b> Pre-developed pervious area condition: <i>Based on the extent of wet season vegetated cover good &gt;75%; Fair 50-75%; Poor &lt;50% Attach photos of site to support rating</i>				

<b>Form 3-3 Watershed Description for Drainage Area</b>	
<p>Receiving waters</p> <p><i>Refer to Watershed Mapping Tool -</i>  <a href="http://sbcounty.permitrack.com/WAP">http://sbcounty.permitrack.com/WAP</a>  <i>See 'Drainage Facilities' link at this website</i></p>	<p>Santa Ana River, Reach 3</p>
<p>Applicable TMDLs</p> <p><i>Refer to Local Implementation Plan</i></p>	<p>Bacterial Indicator TMDLs-Pathogens</p> <p>Fecal Coliform: 180 organisms/100 ml;</p> <p>Ecoli: less than 113 organisms/100ml</p>
<p>303(d) listed impairments</p> <p><i>Refer to Local Implementation Plan and Watershed Mapping Tool –</i>  <a href="http://sbcounty.permitrack.com/WAP">http://sbcounty.permitrack.com/WAP</a> and State Water Resources Control Board website –  <a href="http://www.waterboards.ca.gov/santaana/water_iss ues/programs/tmdl/index.shtml">http://www.waterboards.ca.gov/santaana/water_iss ues/programs/tmdl/index.shtml</a></p>	<p>Pathogens and Metals</p>
<p>Environmentally Sensitive Areas (ESA)</p> <p><i>Refer to Watershed Mapping Tool –</i>  <a href="http://sbcounty.permitrack.com/WAP">http://sbcounty.permitrack.com/WAP</a></p>	<p>Coastal Sage Scrub</p>
<p>Unlined Downstream Water Bodies</p> <p><i>Refer to Watershed Mapping Tool –</i>  <a href="http://sbcounty.permitrack.com/WAP">http://sbcounty.permitrack.com/WAP</a></p>	<p>Partially lined and unlined channels (Wardman and Henderson Channels to the San Sevaine Basins</p>
<p>Hydrologic Conditions of Concern</p>	<p><input checked="" type="checkbox"/> Yes <i>Complete Hydrologic Conditions of Concern (HCOC) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal</i></p> <p><input type="checkbox"/> No</p>
<p>Watershed-based BMP included in a RWQCB approved WAP</p>	<p><input checked="" type="checkbox"/> Yes <i>Attach verification of regional BMP evaluation criteria in WAP</i></p> <ul style="list-style-type: none"> <li>• <i>More Effective than On-site LID</i></li> <li>• <i>Remaining Capacity for Project DCV</i></li> <li>• <i>Upstream of any Water of the US</i></li> <li>• <i>Operational at Project Completion</i></li> <li>• <i>Long-Term Maintenance Plan</i></li> </ul> <p><input type="checkbox"/> No</p>

## Section 4 Best Management Practices (BMP)

### 4.1 Source Control BMP

#### 4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Water Quality Management Plan (WQMP)

**Form 4.1-1-1 Non-Structural Source Control BMPs**

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The WQMP will include educational resources for the property owner. Continuing education will be the responsibility of the owner.
N2	Activity Restrictions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Service/repair of all vehicles and washing of vehicles will be restricted. Pesticide application shall be done by a State certified applicator.
N3	Landscape Management BMPs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall ensure that the irrigation systems within the project site are operating properly. Owner shall also ensure that the ground's landscaping is maintained regularly so that the project site is in compliance with all water quality requirements.
N4	BMP Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The WQMP will include a checklist and recommended schedule for maintaining project BMPs.
N5	Title 22 CCR Compliance (How development will comply)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Facility personnel will complete a program of classroom instruction that teaches them to perform their duties in a way that complies with this requirement or will hire licensed and professional individuals to perform said duties
N6	Local Water Quality Ordinances	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall be responsible for complying with local water quality ordinances including MS4 and NPDES permit requirements.
N7	Spill Contingency Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The use and storage of toxic substances is not anticipated onsite. However, owner shall be responsible for preparation and implementation of a spill contingency plan. Owner shall contact County Fire Department if hazardous materials are to be stored on site.
N8	Underground Storage Tank Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No underground water tanks anticipated, including septic tanks
N9	Hazardous Materials Disclosure Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No hazardous materials to be kept or used on site

**Form 4.1-1-1 Non-Structural Source Control BMPs**

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The 2013 California Fire Code and local amendments to the Fire Code including Rancho Cucamonga Fire Protection District will be implemented through the building permit process as permits are applied for and issued.
N11	Litter/Debris Control Program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall ensure that employees patrol the site on a daily basis in an effort to keep it free of litter so that the project site is in compliance with all water quality requirements.
N12	Employee Training	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall ensure that employees receive initial water quality training once the project is scheduled for construction in an effort to maintain the project site is in compliance with all water quality requirements. Upon completion of construction, employees will receive ongoing training as part of the water quality program.
N13	Housekeeping of Loading Docks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No loading docks anticipated
N14	Catch Basin Inspection Program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owners shall ensure that drainage facilities within the project area are regularly inspected (at least annually) and maintained properly so that the project site is in compliance with all water quality requirements. At a minimum, routine maintenance of drainage facilities should take place in the late summer or early fall prior to the start of the rainy season (October 1st). Drainage facilities must be cleaned if accumulated sediment/debris fills 25% or more of the storage capacity of the facility. This includes catch basins, storm pipe, drywells and retention basins.
N15	Vacuum Sweeping of Private Streets and Parking Lots	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall ensure that private streets/driveways and parking lots within the project area are regularly vacuum-swept so that the project site is in compliance with all water quality requirements. Streets/driveways and parking lots shall be swept at least quarterly, including just prior to start of the rainy season (October 1st). The frequency shall be no less than the frequency of street sweeping by the Co-Permittee on public streets.

**Water Quality Management Plan (WQMP)**

N16	Other Non-structural Measures for Public Agency Projects	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not a public agency project
N17	Comply with all other applicable NPDES permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall engage a qualified engineer to periodically review the WQMP and other applicable permits, including grading permits and general construction and building permits to ensure that owner is in compliance with the current water quality requirements. Qualified Engineer will perform site inspections of the water quality facilities prior to anticipated rainfall events, immediately after rainfall events, and weekly at a minimum.

Water Quality Management Plan (WQMP)

**Form 4.1-1-2 Structural Source Control BMPs**

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stenciling and signage (CASQA New Development BMP Handbook SD-13)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall proposed storm drain inlets are stenciled/signed as appropriate on top of curb/inlet stating "NO DUMPING - DRAINS TO RIVER" (see WQMP exhibit for location of inlets).
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No outdoor material storage anticipated
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project site will include trash storage areas. Trash dumpsters will have attached covers and shall be leak proof. The entire trash storage surface area will be concrete and have permanent roofing.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project will be designed to include native plants. These plants use less water, and help reduce the use of fertilizers and pesticides. The irrigation system will be programmable and utilize drip emitters, limiting excess irrigation runoff. The landscape and irrigation system will be designed in accordance with water quality requirements.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Owner shall ensure this note/detail is included on the final site landscape plans.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All slopes and channels will be protected using landscape cover and/or onsite rock for erosion protection (see WQMP exhibit map for details).
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No dock areas anticipated
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No maintenance bays anticipated
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No vehicle wash areas anticipated

**Water Quality Management Plan (WQMP)**

S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No outdoor processing areas anticipated
<b>Form 4.1-2 Structural Source Control BMPs</b>				
Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No equipment wash areas anticipated
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No fueling areas anticipated
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All proposed hillside landscaping will be designed to comply with CASQA New Development BMP Handbook SD-10 requirements. Final landscape plans to be reviewed .
S14	Wash water control for food preparation areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Food preparation areas are all indoor
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No community car wash racks anticipated

### 4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

<b>Form 4.1-3 Preventative LID Site Design Practices Checklist</b>
<p><b>Site Design Practices</b>  <i>If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets</i></p>
<p>Minimize impervious areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Parking areas provide the County-required parking stalls in areas that are in close proximity to access buildings to minimize paving requirements. Landscape is provided in non-paved areas. Developed pervious area is approximately 20%.</p>
<p>Maximize natural infiltration capacity: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Landscape areas with natural drainage and infiltration accommodations has been included in the landscape design of the common areas</p>
<p>Preserve existing drainage patterns and time of concentration: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Existing drainage washes and swales have been maintained where possible. Developed grading is designed to match existing drainage patterns as closely as possible. General site drainage is maintained and edge conditions remain.</p>
<p>Disconnect impervious areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Impervious areas will be separated where possible (see WQMP exhibit) by landscaped areas that include opportunities for infiltration. The landscaped areas are depressed from the adjacent hardscape where possible.</p>
<p>Protect existing vegetation and sensitive areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Existing vegetation will be protected where possible and protected in place by construction fencing or other suitable means.</p>
<p>Re-vegetate disturbed areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Disturbed areas will be revegetated as quickly as construction allows and provisions will be made for runoff protection during the rainy season.</p>
<p>Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: The site contains gravels and cobble that will be used as a base layer for landscape areas in order to promote infiltration where possible. Infiltration trenches/basins are excavated to reach grade and no compaction is anticipated.</p>
<p>Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Vegetated drainage swales will be utilized where possible (see WQMP exhibit for locations and sections) to minimize the use of underground piping.</p>
<p>Stake off areas that will be used for landscaping to minimize compaction during construction : Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                      Explanation: Landscape areas will be designated and staked during construction and compaction of these areas will be minimized.</p>

## 4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. ***If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.***

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P<sub>6</sub> method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi<sup>2</sup>), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

<b>Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1)</b>	
<b>1</b> Project area DA 1 (ft <sup>2</sup> ): 1,410,037	<b>2</b> Imperviousness after applying preventative site design practices (Imp%): 70
<b>3</b> Runoff Coefficient (Rc): <u>0.49</u> $R_c = 0.858(\text{Imp}\%)^3 - 0.78(\text{Imp}\%)^2 + 0.774(\text{Imp}\%) + 0.04$	
<b>4</b> Determine 1-hour rainfall depth for a 2-year return period P <sub>2yr-1hr</sub> (in): 0.797 <a href="http://hdsc.nws.noaa.gov/hdsc/pfds/so/sca_pfds.html">http://hdsc.nws.noaa.gov/hdsc/pfds/so/sca_pfds.html</a>	
<b>5</b> Compute P <sub>6</sub> , Mean 6-hr Precipitation (inches): 1.52 <i>P<sub>6</sub> = Item 4 * C<sub>1</sub>, where C<sub>1</sub> is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)</i>	
<b>6</b> Drawdown Rate <i>Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.</i>	24-hrs <input type="checkbox"/> 48-hrs <input checked="" type="checkbox"/>
<b>7</b> Compute design capture volume, DCV (ft <sup>3</sup> ): 171,795 $DCV = 1/12 * [\text{Item 1} * \text{Item 3} * \text{Item 5} * C_2]$ , where C <sub>2</sub> is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963) Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2	

## Form 4.2-2 Summary of HCOC Assessment (DA 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes  No

Go to: <http://sbcounty.permitrack.com/WAP>

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below  
(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft <sup>3</sup> )	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	<sup>1</sup> 170,298.98 <i>Form 4.2-3 Item 12</i>	<sup>2</sup> 13 <i>Form 4.2-4 Item 13</i>	<sup>3</sup> 111.28 <i>Form 4.2-5 Item 10</i>
Post-developed	<sup>4</sup> 178,707.98 <i>Form 4.2-3 Item 13</i>	<sup>5</sup> 7.63 <i>Form 4.2-4 Item 14</i>	<sup>6</sup> 148.20 <i>Form 4.2-5 Item 14</i>
Difference	<sup>7</sup> 8409 <i>Item 4 – Item 1</i>	<sup>8</sup> 6.63 <i>Item 2 – Item 5</i>	<sup>9</sup> 36.92 <i>Item 6 – Item 3</i>
Difference (as % of pre-developed)	<sup>10</sup> 4.9% <i>Item 7 / Item 1</i>	<sup>11</sup> 51% <i>Item 8 / Item 2</i>	<sup>12</sup> 33.1% <i>Item 9 / Item 3</i>

**Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1)**

<b>Weighted Curve Number Determination for: Pre-developed DA</b>	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
<b>1a</b> Land Cover type	Grass	Grass	Grass					
<b>2a</b> Hydrologic Soil Group (HSG)	A	A	A					
<b>3a</b> DMA Area, ft <sup>2</sup> sum of areas of DMA should equal area of DA	463,478	449,975	496,584					
<b>4a</b> Curve Number (CN) use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP	50	50	50					
<b>Weighted Curve Number Determination for: Post-developed DA</b>	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
<b>1b</b> Land Cover type	Turf/roof	Turf/roof	Turf/roof					
<b>2b</b> Hydrologic Soil Group (HSG)	A	A	A					
<b>3b</b> DMA Area, ft <sup>2</sup> sum of areas of DMA should equal area of DA	463,478	449,975	496,584					
<b>4b</b> Curve Number (CN) use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP	65	65	65					
<b>5</b> Pre-Developed area-weighted CN: 50	<b>7</b> Pre-developed soil storage capacity, S (in): 10 <i>S = (1000 / Item 5) - 10</i>				<b>9</b> Initial abstraction, I <sub>a</sub> (in): 0.2 <i>I<sub>a</sub> = 0.2 * Item 7</i>			
<b>6</b> Post-Developed area-weighted CN: 65	<b>8</b> Post-developed soil storage capacity, S (in): 5.38 <i>S = (1000 / Item 6) - 10</i>				<b>10</b> Initial abstraction, I <sub>a</sub> (in): 1.08 <i>I<sub>a</sub> = 0.2 * Item 8</i>			
<b>11</b> Precipitation for 2 yr, 24 hr storm (in): <b>4.80</b> Go to: <a href="http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html">http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html</a>								
<b>12</b> Pre-developed Volume (ft <sup>3</sup> ): 170,298.98 <i>V<sub>pre</sub> = (1 / 12) * (Item sum of Item 3) * [(Item 11 - Item 9)^2 / ((Item 11 - Item 9 + Item 7))]</i>								
<b>13</b> Post-developed Volume (ft <sup>3</sup> ): 178,707.98 <i>V<sub>pre</sub> = (1 / 12) * (Item sum of Item 3) * [(Item 11 - Item 10)^2 / ((Item 11 - Item 10 + Item 8))]</i>								
<b>14</b> Volume Reduction needed to meet HCOC Requirement, (ft <sup>3</sup> ): -526.40 <i>V<sub>HCOC</sub> = (Item 13 * 0.95) - Item 12</i>								

## Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1)

Compute time of concentration for pre and post developed conditions for each DA (For projects using the Hydrology Manual complete the form below)

Variables	Pre-developed DA1 <i>Use additional forms if there are more than 4 DMA</i>				Post-developed DA1 <i>Use additional forms if there are more than 4 DMA</i>			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
<b>1</b> Length of flowpath (ft) <i>Use Form 3-2 Item 5 for pre-developed condition</i>	447	520	305		630	480	480	
<b>2</b> Change in elevation (ft)	36.5	43	31		39	38	37	
<b>3</b> Slope (ft/ft), $S_o = \text{Item 2} / \text{Item 1}$	.081	.083	.102		.062	.079	.078	
<b>4</b> Land cover	Grass	Grass	Grass		Turf/Roof	Turf/Roof	Turf/Roof	
<b>5</b> Initial DMA Time of Concentration (min) <i>Appendix C-1 of the TGD for WQMP</i>	13	14.5	11		8	7	7	
<b>6</b> Length of conveyance from DMA outlet to project site outlet (ft) <i>May be zero if DMA outlet is at project site outlet</i>	0	729	1070		0	400	740	
<b>7</b> Cross-sectional area of channel (ft <sup>2</sup> )	Overland	Overland	Overland		3.14	3.14	3.14	
<b>8</b> Wetted perimeter of channel (ft)	N/A	N/A	N/A		6.28	6.28	6.28	
<b>9</b> Manning's roughness of channel (n)	N/A	N/A	N/A		.025	.025	.025	
<b>10</b> Channel flow velocity (ft/sec) $V_{fps} = (1.49 / \text{Item 9}) * (\text{Item 7} / \text{Item 8})^{0.67} * (\text{Item 3})^{0.5}$	N/A	N/A	N/A		9.35	10.55	10.48	
<b>11</b> Travel time to outlet (min) $T_t = \text{Item 6} / (\text{Item 10} * 60)$	0	5	10		0	0.63	1.18	
<b>12</b> Total time of concentration (min) $T_c = \text{Item 5} + \text{Item 11}$	13	19.5	21		8	7.63	8.18	
<b>13</b> Pre-developed time of concentration (min): 13 <i>Minimum of Item 12 pre-developed DMA</i>								
<b>14</b> Post-developed time of concentration (min): 7.63 <i>Minimum of Item 12 post-developed DMA</i>								
<b>15</b> Additional time of concentration needed to meet HCOC requirement (min): 4.72 $T_{C-HCOC} = (\text{Item 13} * 0.95) - \text{Item 14}$								

## Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1)

Compute peak runoff for pre- and post-developed conditions

Variables	Pre-developed DA to Project Outlet <i>(Use additional forms if more than 3 DMA)</i>			Post-developed DA to Project Outlet <i>(Use additional forms if more than 3 DMA)</i>		
	DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
<b>1</b> Rainfall Intensity for storm duration equal to time of concentration <i><math>I_{peak} = 10^{(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 / 60)}</math></i>	4.64	4.48	4.86	5.21	5.33	5.33
<b>2</b> Drainage Area of each DMA (Acres) <i>For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)</i>	10.64	10.33	11.40	10.64	10.33	11.40
<b>3</b> Ratio of pervious area to total area <i>For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)</i>	1	1	1	.42	.27	.46
<b>4</b> Pervious area infiltration rate (in/hr) <i>Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP</i>	.82	.82	.82	.62	.62	.62
<b>5</b> Maximum loss rate (in/hr) <i><math>F_m = Item 3 * Item 4</math>                      Use area-weighted <math>F_m</math> from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)</i>	.82	.82	.82	.26	.17	.28
<b>6</b> Peak Flow from DMA (cfs) <i><math>Q_p = Item 2 * 0.9 * (Item 1 - Item 5)</math></i>	36.58	34.03	41.45	47.40	47.97	51.81
<b>7</b> Time of concentration adjustment factor for other DMA to site discharge point <i>Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)</i>	DMA A	n/a	1	1	n/a	.95
	DMA B	.67	n/a	1	1	n/a
	DMA C	.62	.92	n/a	1	1
<b>8</b> Pre-developed $Q_p$ at $T_c$ for DMA A: 111.28 <i><math>Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB}) / (Item 1_{DMAB} - Item 5_{DMAB}) * Item 7_{DMAA/2}] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC}) / (Item 1_{DMAC} - Item 5_{DMAC}) * Item 7_{DMAA/3}]</math></i>	<b>9</b> Pre-developed $Q_p$ at $T_c$ for DMA B: 106.63 <i><math>Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA}) / (Item 1_{DMAA} - Item 5_{DMAA}) * Item 7_{DMAB/1}] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC}) / (Item 1_{DMAC} - Item 5_{DMAC}) * Item 7_{DMAB/3}]</math></i>		<b>10</b> Pre-developed $Q_p$ at $T_c$ for DMA C: 99.99 <i><math>Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA}) / (Item 1_{DMAA} - Item 5_{DMAA}) * Item 7_{DMAC/1}] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB}) / (Item 1_{DMAB} - Item 5_{DMAB}) * Item 7_{DMAC/2}]</math></i>			
<b>10</b> Peak runoff from pre-developed condition confluence analysis (cfs): 111.28 <i>Maximum of Item 8, 9, and 10 (including additional forms as needed)</i>						
<b>11</b> Post-developed $Q_p$ at $T_c$ for DMA A: 142.49 <i>Same as Item 8 for post-developed values</i>	<b>12</b> Post-developed $Q_p$ at $T_c$ for DMA B: 145.74 <i>Same as Item 9 for post-developed values</i>		<b>13</b> Post-developed $Q_p$ at $T_c$ for DMA C: 148.20 <i>Same as Item 10 for post-developed values</i>			
<b>14</b> Peak runoff from post-developed condition confluence analysis (cfs): 148.20 <i>Maximum of Item 11, 12, and 13 (including additional forms as needed)</i>						
<b>15</b> Peak runoff reduction needed to meet HCOC Requirement (cfs): 29.51 <i><math>Q_{p-HCOC} = (Item 14 * 0.95) - Item 10</math></i>						

## 4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is “Yes,” provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). **Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment.**

### Form 4.3-1 Infiltration BMP Feasibility (DA 1)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

**1** Would infiltration BMP pose significant risk for groundwater related concerns? Yes  No

*Refer to Section 5.3.2.1 of the TGD for WQMP*

If Yes, Provide basis: (attach)

**2** Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes  No

(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

**3** Would infiltration of runoff on a Project site violate downstream water rights? Yes  No

If Yes, Provide basis: (attach)

**4** Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes  No

If Yes, Provide basis: (attach)

**5** Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes  No

If Yes, Provide basis: (attach)

**6** Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes  No

*See Section 3.5 of the TGD for WQMP and WAP*

If Yes, Provide basis: (attach)

**7** Any answer from Item 1 through Item 3 is "Yes": Yes  No

*If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.*

**8** Any answer from Item 4 through Item 6 is "Yes": Yes  No

*If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP. If no, then proceed to Item 9, below.*

**9** All answers to Item 1 through Item 6 are "No":

*Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP. Proceed to Form 4.3-2, Hydrologic Source Control BMP.*

### 4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

<b>Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)</b>			
<b>1</b> Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, complete Items 2-5; If no, proceed to Item 6</i>	DA 1 DMA A BMP Type	DA 1 DMA B BMP Type	DA 1 DMA C BMP Type <i>(Use additional forms for more BMPs)</i>
<b>2</b> Total impervious area draining to pervious area (ft <sup>2</sup> )	265,280	327,135	269,200
<b>3</b> Ratio of pervious area receiving runoff to impervious area	.75	.38	.85
<b>4</b> Retention volume achieved from impervious area dispersion (ft <sup>3</sup> ) $V = \text{Item 2} * \text{Item 3} * (0.5/12)$ , assuming retention of 0.5 inches of runoff	8290	5180	9535
<b>5</b> Sum of retention volume achieved from impervious area dispersion (ft <sup>3</sup> ): 23,005 $V_{\text{retention}} = \text{Sum of Item 4 for all BMPs}$			
<b>6</b> Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>7</b> Ponding surface area (ft <sup>2</sup> )			
<b>8</b> Ponding depth (ft)			
<b>9</b> Surface area of amended soil/gravel (ft <sup>2</sup> )			
<b>10</b> Average depth of amended soil/gravel (ft)			
<b>11</b> Average porosity of amended soil/gravel			
<b>12</b> Retention volume achieved from on-lot infiltration (ft <sup>3</sup> ) $V_{\text{retention}} = (\text{Item 7} * \text{Item 8}) + (\text{Item 9} * \text{Item 10} * \text{Item 11})$			
<b>13</b> Runoff volume retention from on-lot infiltration (ft <sup>3</sup> ): 0 $V_{\text{retention}} = \text{Sum of Item 12 for all BMPs}$			

<b>Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1)</b>			
<b>14</b> Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 15-20. If no, proceed to Item 21</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>15</b> Rooftop area planned for ET BMP (ft <sup>2</sup> )			
<b>16</b> Average wet season ET demand (in/day) <i>Use local values, typical ~ 0.1</i>			
<b>17</b> Daily ET demand (ft <sup>3</sup> /day) <i>Item 15 * (Item 16 / 12)</i>			
<b>18</b> Drawdown time (hrs) <i>Copy Item 6 in Form 4.2-1</i>			
<b>19</b> Retention Volume (ft <sup>3</sup> ) <i>V<sub>retention</sub> = Item 17 * (Item 18 / 24)</i>			
<b>20</b> Runoff volume retention from evapotranspiration BMPs (ft <sup>3</sup> ): 0 <i>V<sub>retention</sub> = Sum of Item 19 for all BMPs</i>			
<b>21</b> Implementation of Street Trees: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, complete Items 22-25. If no, proceed to Item 26</i>	DA 1 DMA A BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>22</b> Number of Street Trees	10	20	20
<b>23</b> Average canopy cover over impervious area (ft <sup>2</sup> )	350	350	350
<b>24</b> Runoff volume retention from street trees (ft <sup>3</sup> ) <i>V<sub>retention</sub> = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches</i>	15	29	29
<b>25</b> Runoff volume retention from street tree BMPs (ft <sup>3</sup> ): 73 <i>V<sub>retention</sub> = Sum of Item 24 for all BMPs</i>			
<b>26</b> Implementation of residential rain barrel/cisterns: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 27-29; If no, proceed to Item 30</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>27</b> Number of rain barrels/cisterns			
<b>28</b> Runoff volume retention from rain barrels/cisterns (ft <sup>3</sup> ) <i>V<sub>retention</sub> = Item 27 * 3</i>			
<b>29</b> Runoff volume retention from residential rain barrels/Cisterns (ft <sup>3</sup> ): 0 <i>V<sub>retention</sub> = Sum of Item 28 for all BMPs</i>			
<b>30</b> Total Retention Volume from Site Design Hydrologic Source Control BMPs: 23,078 <i>Sum of Items 5, 13, 20, 25 and 29</i>			

### 4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

### Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

**1** Remaining LID DCV not met by site design HSC BMP (ft<sup>3</sup>): 148,717  $V_{unmet} = \text{Form 4.2-1 Item 7} - \text{Form 4.3-2 Item 30}$

BMP Type <i>Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs</i>	DA 1 DMA A-C BMP Type Basin	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>2</b> Infiltration rate of underlying soils (in/hr) <i>See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods</i>	2 (minimum-to be verified prior to final WQMP)		
<b>3</b> Infiltration safety factor <i>See TGD Section 5.4.2 and Appendix D</i>	2		
<b>4</b> Design percolation rate (in/hr) $P_{design} = \text{Item 2} / \text{Item 3}$	1 (minimum)		
<b>5</b> Poned water drawdown time (hr) <i>Copy Item 6 in Form 4.2-1</i>	48		
<b>6</b> Maximum ponding depth (ft) <i>BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details</i>	4		
<b>7</b> Ponding Depth (ft) $d_{BMP} = \text{Minimum of } (1/12 * \text{Item 4} * \text{Item 5}) \text{ or Item 6}$	4		
<b>8</b> Infiltrating surface area, $SA_{BMP}$ (ft <sup>2</sup> ) <i>the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP</i>	19,200 total for 4 basins		
<b>9</b> Amended soil depth, $d_{media}$ (ft) <i>Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details</i>	2		
<b>10</b> Amended soil porosity	1		
<b>11</b> Gravel depth, $d_{media}$ (ft) <i>Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details</i>	1.5		
<b>12</b> Gravel porosity	1		
<b>13</b> Duration of storm as basin is filling (hrs) <i>Typical ~ 3hrs</i>	3		
<b>14</b> Above Ground Retention Volume (ft <sup>3</sup> ) $V_{retention} = \text{Item 8} * [\text{Item 7} + (\text{Item 9} * \text{Item 10}) + (\text{Item 11} * \text{Item 12}) + (\text{Item 13} * (\text{Item 4} / 12))]$	148,717		
<b>15</b> Underground Retention Volume (ft <sup>3</sup> ) <i>Volume determined using manufacturer's specifications and calculations</i>	0		

**16** Total Retention Volume from LID Infiltration BMPs: 148,800 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

**17** Fraction of DCV achieved with infiltration BMP: 101%  $\text{Retention\%} = \text{Item 16} / \text{Form 4.2-1 Item 7}$

**18** Is full LID DCV retained on-site with combination of hydrologic source control and LID retention and infiltration BMPs? Yes  No

*If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the*

applicable category of development and repeat all above calculations.

### 4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

<b>Form 4.3-4 Harvest and Use BMPs (DA 1)</b>			
<b>1</b> Remaining LID DCV not met by site design HSC or infiltration BMP (ft <sup>3</sup> ): <0 <i>V<sub>unmet</sub> = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 - Form 4.3-3 Item 16</i>			
BMP Type(s) <i>Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs</i>	DA BMP Type	DMA BMP Type	DA    DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>2</b> Describe cistern or runoff detention facility			
<b>3</b> Storage volume for proposed detention type (ft <sup>3</sup> ) <i>Volume of cistern</i>			
<b>4</b> Landscaped area planned for use of harvested stormwater (ft <sup>2</sup> )			
<b>5</b> Average wet season daily irrigation demand (in/day) <i>Use local values, typical ~ 0.1 in/day</i>			
<b>6</b> Daily water demand (ft <sup>3</sup> /day) <i>Item 4 * (Item 5 / 12)</i>			
<b>7</b> Drawdown time (hrs) <i>Copy Item 6 from Form 4.2-1</i>			
<b>8</b> Retention Volume (ft <sup>3</sup> ) <i>V<sub>retention</sub> = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))</i>			
<b>9</b> Total Retention Volume (ft <sup>3</sup> ) from Harvest and Use BMPs <i>Sum of Item 8 for all harvest and use BMP included in plan</i>			
<b>10</b> Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest and use BMPs? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.</i>			



### 4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

<b>Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1)</b>		
<b>1</b> Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft <sup>3</sup> ): <0 Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9	List pollutants of concern Copy from Form 2.3-1.	
<b>2</b> Biotreatment BMP Selected <i>(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)</i>	Volume-based biotreatment <i>Use Forms 4.3-6 and 4.3-7 to compute treated volume</i>	Flow-based biotreatment <i>Use Form 4.3-8 to compute treated volume</i>
<input type="checkbox"/> Bioretention with underdrain <input type="checkbox"/> Planter box with underdrain <input type="checkbox"/> Constructed wetlands <input type="checkbox"/> Wet extended detention <input type="checkbox"/> Dry extended detention	<input type="checkbox"/> Vegetated swale <input type="checkbox"/> Vegetated filter strip <input type="checkbox"/> Proprietary biotreatment	
<b>3</b> Volume biotreated in volume based biotreatment BMP (ft <sup>3</sup> ): 0 Form 4.3-6 Item 15 + Form 4.3-7 Item 13	<b>4</b> Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft <sup>3</sup> ): Item 1 – Item 3	<b>5</b> Remaining fraction of LID DCV for sizing flow based biotreatment BMP: % Item 4 / Item 1
<b>6</b> Flow-based biotreatment BMP capacity provided (cfs): 0 Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)		
<b>7</b> Metrics for MEP determination: <ul style="list-style-type: none"> <li>• Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: <input type="checkbox"/> If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.</li> </ul>		

### Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type <i>(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)</i>	DA    DMA BMP Type	DA    DMA BMP Type	DA    DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>1</b> Pollutants addressed with BMP <i>List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP</i>			
<b>2</b> Amended soil infiltration rate <i>Typical ~ 5.0</i>			
<b>3</b> Amended soil infiltration safety factor <i>Typical ~ 2.0</i>			
<b>4</b> Amended soil design percolation rate (in/hr) $P_{design} = \text{Item 2} / \text{Item 3}$			
<b>5</b> Ponded water drawdown time (hr) <i>Copy Item 6 from Form 4.2-1</i>			
<b>6</b> Maximum ponding depth (ft) <i>see Table 5-6 of the TGD for WQMP for reference to BMP design details</i>			
<b>7</b> Ponding Depth (ft) $d_{BMP} = \text{Minimum of } (1/12 * \text{Item 4} * \text{Item 5}) \text{ or Item 6}$			
<b>8</b> Amended soil surface area (ft <sup>2</sup> )			
<b>9</b> Amended soil depth (ft) <i>see Table 5-6 of the TGD for WQMP for reference to BMP design details</i>			
<b>10</b> Amended soil porosity, <i>n</i>			
<b>11</b> Gravel depth (ft) <i>see Table 5-6 of the TGD for WQMP for reference to BMP design details</i>			
<b>12</b> Gravel porosity, <i>n</i>			
<b>13</b> Duration of storm as basin is filling (hrs) <i>Typical ~ 3hrs</i>			
<b>14</b> Biotreated Volume (ft <sup>3</sup> ) $V_{biotreated} = \text{Item 8} * [(\text{Item 7}/2) + (\text{Item 9} * \text{Item 10}) + (\text{Item 11} * \text{Item 12}) + (\text{Item 13} * (\text{Item 4} / 12))]$			
<b>15</b> Total biotreated volume from bioretention and/or planter box with underdrains BMP: <i>Sum of Item 14 for all volume-based BMPs included in this form</i>			

### Form 4.3-7 Volume Based Biotreatment (DA 1) – Constructed Wetlands and Extended Detention

Biotreatment BMP Type <i>Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.</i>	DA    DMA BMP Type		DA    DMA BMP Type <i>(Use additional forms for more BMPs)</i>	
	Forebay	Basin	Forebay	Basin
<b>1</b> Pollutants addressed with BMP forebay and basin <i>List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP</i>				
<b>2</b> Bottom width (ft)				
<b>3</b> Bottom length (ft)				
<b>4</b> Bottom area (ft <sup>2</sup> ) <i>A<sub>bottom</sub> = Item 2 * Item 3</i>				
<b>5</b> Side slope (ft/ft)				
<b>6</b> Depth of storage (ft)				
<b>7</b> Water surface area (ft <sup>2</sup> ) <i>A<sub>surface</sub> = (Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))</i>				
<b>8</b> Storage volume (ft <sup>3</sup> ) <i>For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details</i> <i>V = Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)<sup>0.5</sup>]</i>				
<b>9</b> Drawdown Time (hrs) <i>Copy Item 6 from Form 2.1</i>				
<b>10</b> Outflow rate (cfs) <i>Q<sub>BMP</sub> = (Item 8<sub>forebay</sub> + Item 8<sub>basin</sub>) / (Item 9 * 3600)</i>				
<b>11</b> Duration of design storm event (hrs)				
<b>12</b> Biotreated Volume (ft <sup>3</sup> ) <i>V<sub>biotreated</sub> = (Item 8<sub>forebay</sub> + Item 8<sub>basin</sub>) + (Item 10 * Item 11 * 3600)</i>				
<b>13</b> Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : <i>(Sum of Item 12 for all BMP included in plan)</i>				

### Form 4.3-8 Flow Based Biotreatment (DA 1)

Biotreatment BMP Type <i>Vegetated swale, vegetated filter strip, or other comparable proprietary BMP</i>	DA BMP Type	DMA BMP Type	DA    DMA BMP Type <i>(Use additional forms for more BMPs)</i>
<b>1</b> Pollutants addressed with BMP <i>List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5</i>			
<b>2</b> Flow depth for water quality treatment (ft) <i>BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details</i>			
<b>3</b> Bed slope (ft/ft) <i>BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details</i>			
<b>4</b> Manning's roughness coefficient			
<b>5</b> Bottom width (ft) <i><math>b_w = (\text{Form 4.3-5 Item 6} * \text{Item 4}) / (1.49 * \text{Item 2}^{1.67} * \text{Item 3}^{0.5})</math></i>			
<b>6</b> Side Slope (ft/ft) <i>BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details</i>			
<b>7</b> Cross sectional area (ft <sup>2</sup> ) <i><math>A = (\text{Item 5} * \text{Item 2}) + (\text{Item 6} * \text{Item 2}^2)</math></i>			
<b>8</b> Water quality flow velocity (ft/sec) <i><math>V = \text{Form 4.3-5 Item 6} / \text{Item 7}</math></i>			
<b>9</b> Hydraulic residence time (min) <i>Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details</i>			
<b>10</b> Length of flow based BMP (ft) <i><math>L = \text{Item 8} * \text{Item 9} * 60</math></i>			
<b>11</b> Water surface area at water quality flow depth (ft <sup>2</sup> ) <i><math>SA_{top} = (\text{Item 5} + (2 * \text{Item 2} * \text{Item 6})) * \text{Item 10}</math></i>			

### 4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

<b>Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)</b>	
<b>1</b>	Total LID DCV for the Project DA-1 (ft <sup>3</sup> ): 171,795 <i>Copy Item 7 in Form 4.2-1</i>
<b>2</b>	On-site retention with site design hydrologic source control LID BMP (ft <sup>3</sup> ): 23,078 <i>Copy Item 30 in Form 4.3-2</i>
<b>3</b>	On-site retention with LID infiltration BMP (ft <sup>3</sup> ): 148,800 <i>Copy Item 16 in Form 4.3-3</i>
<b>4</b>	On-site retention with LID harvest and use BMP (ft <sup>3</sup> ): 0 <i>Copy Item 9 in Form 4.3-4</i>
<b>5</b>	On-site biotreatment with volume based biotreatment BMP (ft <sup>3</sup> ): 0 <i>Copy Item 3 in Form 4.3-5</i>
<b>6</b>	Flow capacity provided by flow based biotreatment BMP (cfs): 0 <i>Copy Item 6 in Form 4.3-5</i>
<b>7</b>	<p>LID BMP performance criteria are achieved if answer to any of the following is "Yes":</p> <ul style="list-style-type: none"> <li>• Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, sum of Items 2, 3, and 4 is greater than Item 1</i></li> <li>• Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3-5 Item 6 and Items 2, 3 and 4 are maximized</i></li> <li>▪ On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, Form 4.3-1 Items 7 and 8 were both checked yes</i></li> </ul>
<b>8</b>	<p>If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:</p> <ul style="list-style-type: none"> <li>• Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: <input type="checkbox"/> <i>Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, <math>V_{alt} = (Item\ 1 - Item\ 2 - Item\ 3 - Item\ 4 - Item\ 5) * (100 - Form\ 2.4-1\ Item\ 2)\%</math></i></li> <li>• An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: <input type="checkbox"/> <i>Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed</i></li> </ul>

### 4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

<b>Form 4.3-10 Hydromodification Control BMPs (DA 1)</b>	
<p><b>1</b> Volume reduction needed for HCOC performance criteria (ft<sup>3</sup>): 95,961 <i>(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1</i></p>	<p><b>2</b> On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft<sup>3</sup>): 138375 <i>Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction</i></p>
<p><b>3</b> Remaining volume for HCOC volume capture (ft<sup>3</sup>): -42,414 <i>Item 1 – Item 2</i></p>	<p><b>4</b> Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft<sup>3</sup>): 0 <i>Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)</i></p>
<p><b>5</b> If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification <input type="checkbox"/> <i>Attach in-stream control BMP selection and evaluation to this WQMP</i></p>	
<p><b>6</b> Is Form 4.2-2 Item 11 less than or equal to 5%: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p><i>If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:</i></p> <ul style="list-style-type: none"> <li>• Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP <input type="checkbox"/> <i>BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)</i></li> <li>• Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities <input type="checkbox"/></li> <li>• Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California <input checked="" type="checkbox"/></li> </ul>	
<p><b>7</b> Form 4.2-2 Item 12 less than or equal to 5%: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p><i>If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:</i></p> <ul style="list-style-type: none"> <li>• Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs <input type="checkbox"/> <i>BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)</i></li> <li>• Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California <input checked="" type="checkbox"/></li> </ul>	

## 4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

## Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

<b>Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)</b>			
BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Inlets/Filters	Owner	Remove obstructions, debris, and/or trash from Filter and dispose of properly. Replace as necessary	Monthly and as needed after storm events
Drywell	Owner	Inspect system after storm event to assure proper drainage. May be cleaned by vacuum truck (upper chamber)	Monthly during wet season and as needed after storm events
Underground Retention/Infiltration	Owner	Inspect system after storm event to assure proper drainage. May be cleaned by vacuum truck or other manual methods.	Monthly during wet season and as needed after storm events
Infiltration Trenches	Owner	Remove obstructions, debris, and/or trash and dispose of properly.	Monthly or as needed after storm events
Landscape Swales	Owner	Remove obstructions, debris, and/or trash and dispose of properly.	Monthly or as needed after storm events

**Water Quality Management Plan (WQMP)**

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## Section 6 WQMP Attachments

### 6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

### 6.2 Electronic Data Submittal

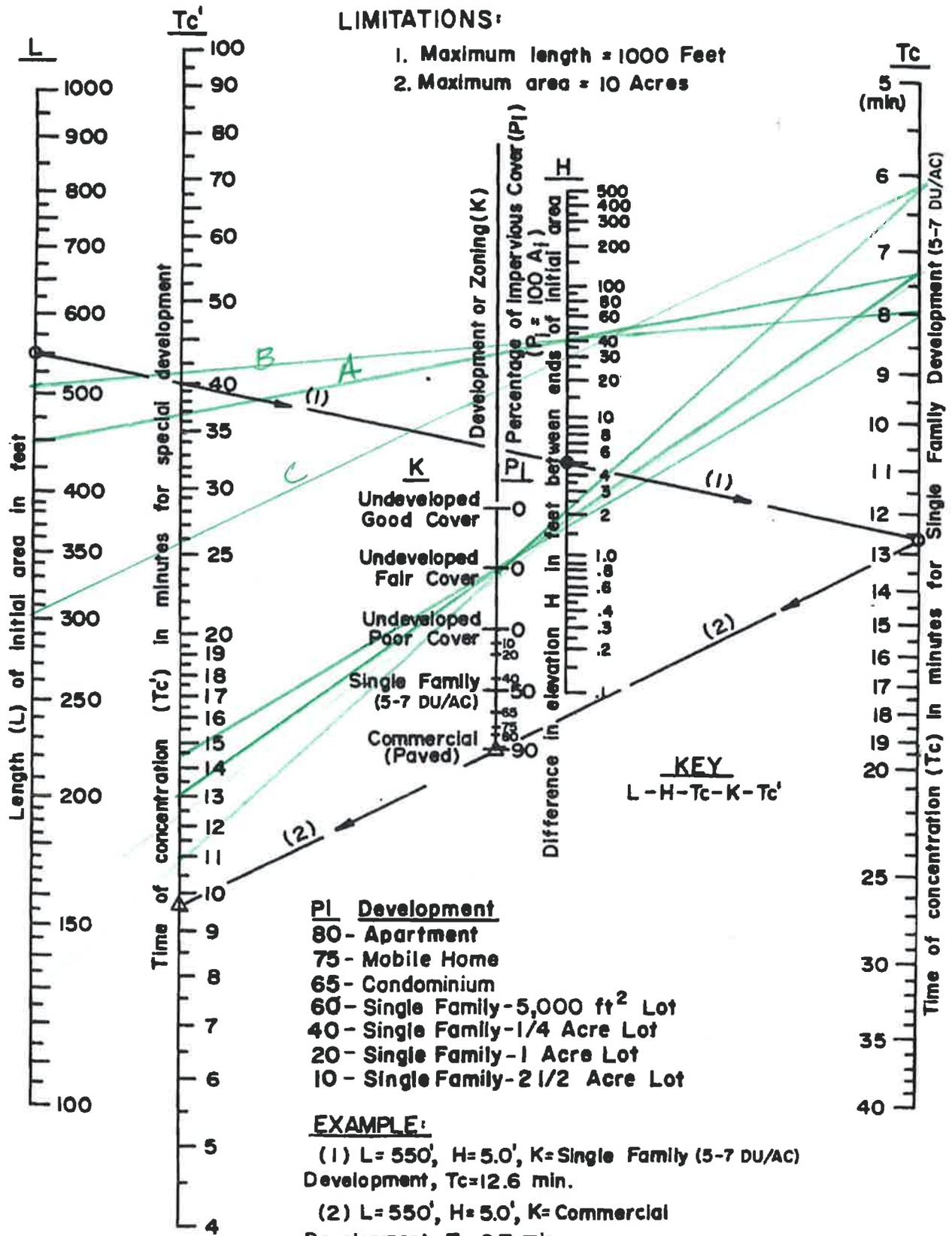
Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

### 6.3 Post Construction

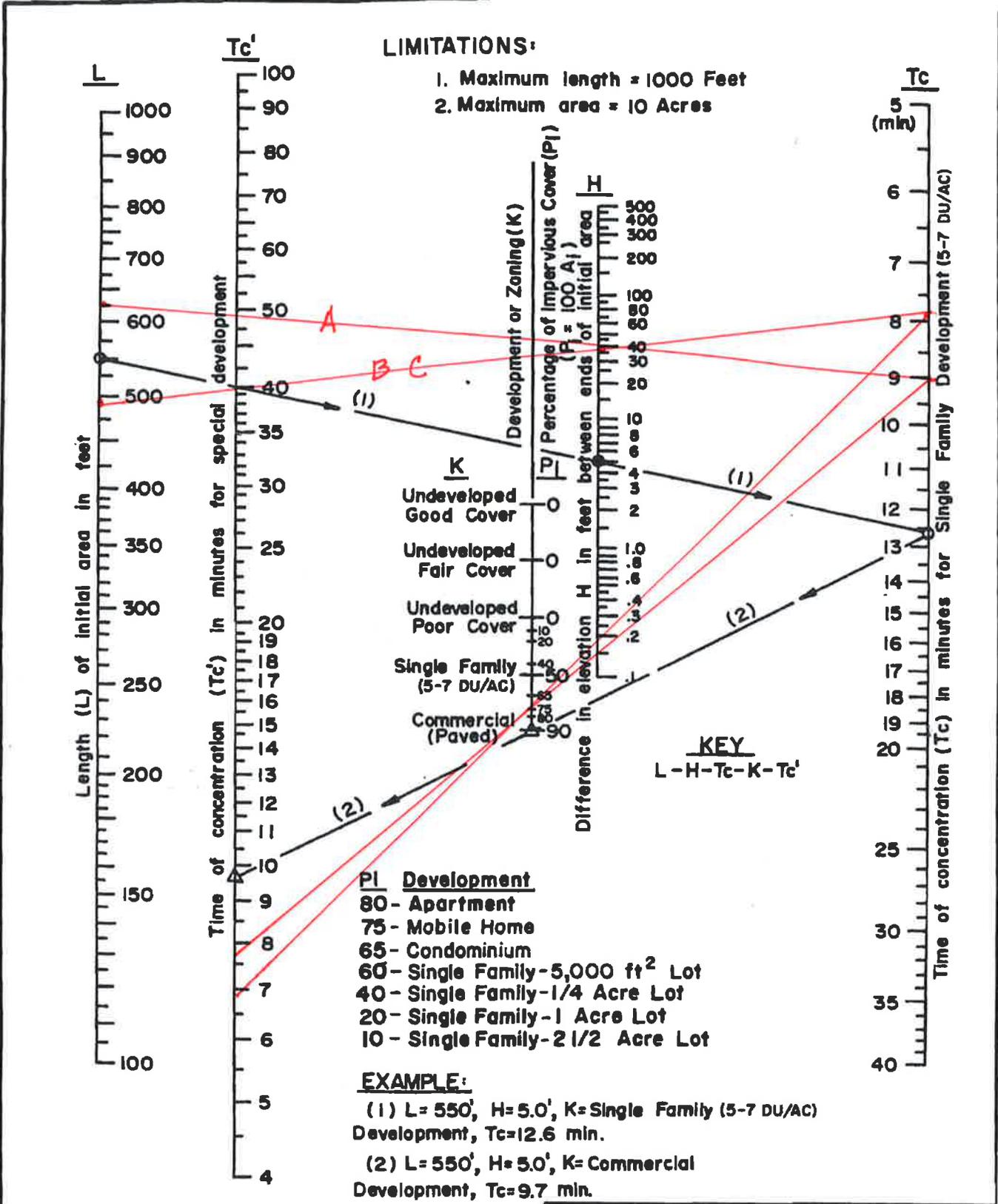
Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

### 6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements



*PRE*

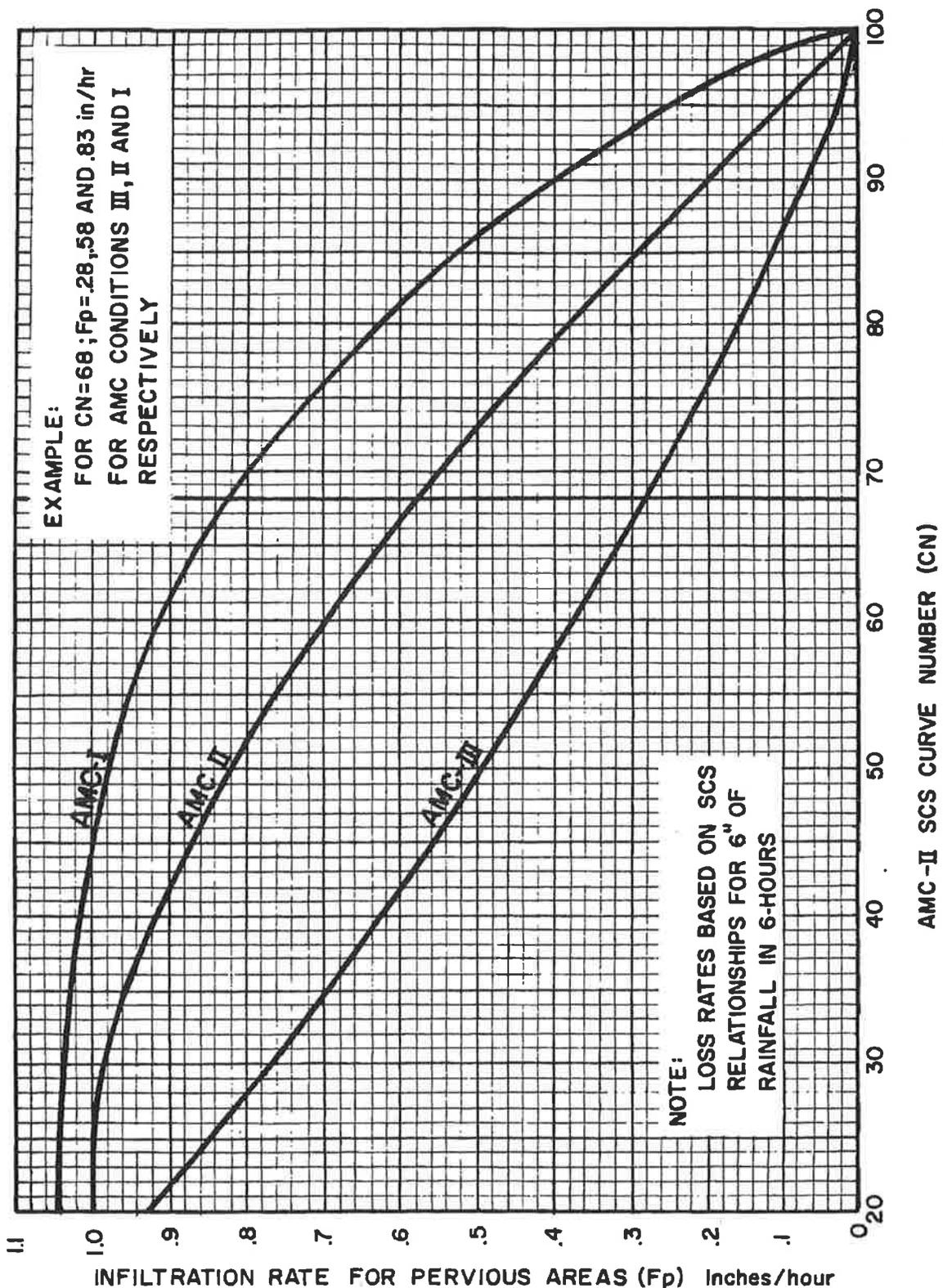


**SAN BERNARDINO COUNTY**  
HYDROLOGY MANUAL

**TIME OF CONCENTRATION**  
**NOMOGRAPH**  
**FOR INITIAL SUBAREA**

Figure D-1

Post



**SAN BERNARDINO COUNTY  
 HYDROLOGY MANUAL**

**INFILTRATION RATE FOR  
 PERVIOUS AREAS VERSUS  
 SCS CURVE NUMBERS**

**Curve (I) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II**

Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<b><u>NATURAL COVERS -</u></b>					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	71	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent.)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	25	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
<b><u>URBAN COVERS -</u></b>					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
<b><u>AGRICULTURAL COVERS -</u></b>					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

**SAN BERNARDINO COUNTY**  
**HYDROLOGY MANUAL**

**CURVE NUMBERS  
FOR  
PERVIOUS AREAS**

**Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II**

Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<b>AGRICULTURAL COVERS (Continued)</b>					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87

**Notes:**

1. All curve numbers are for Antecedent Moisture Condition (AMC) II.

2. Quality of cover definitions:

Poor-Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.

Good-Heavy or dense cover with more than 75 percent of the ground surface protected.

3. See Figure C-2 for definition of cover types.

**SAN BERNARDINO COUNTY**  
**HYDROLOGY MANUAL**

**CURVE NUMBERS**  
**FOR**  
**PERVIOUS AREAS**

# **BMP Education Materials**

# Stormwater Pollution Prevention

*Best Management Practices for Homeowner's Associations,  
Property Managers and Property Owners*



*Your Guide To Maintaining Water  
Friendly Standards In Your Community*

[sbcountystormwater.org](http://sbcountystormwater.org)

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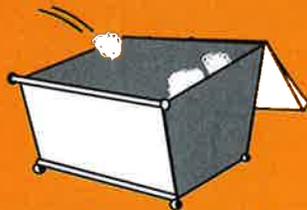
# COMMERCIAL TRASH ENCLOSURES

## FOLLOW THESE REQUIREMENTS TO KEEP OUR WATERWAYS CLEAN

Trash enclosures, such as those found in commercial and apartment complexes, typically contain materials that are intended to find their way to a landfill or a recycling facility. These materials are **NOT** meant to go into our local lakes and rivers.

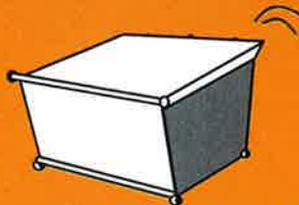
### PROTECT WATER QUALITY BY FOLLOWING THESE SIMPLE STEPS

#### PUT TRASH INSIDE



Place trash inside the bin (preferably in sealed bags)

#### CLOSE THE LID



Prevent rain from entering the bin in order to avoid leakage of polluted water runoff

#### KEEP TOXICS OUT



- Paint
- Grease, fats and used oils
- Batteries, electronics and fluorescent lights

### SOME ADDITIONAL GUIDELINES, INCLUDE

#### ✓ SWEEP FREQUENTLY

Sweep trash enclosure areas frequently, instead of hosing them down, to prevent polluted water from flowing into the streets and storm drains.

#### ✓ FIX LEAKS

Address trash bin leaks immediately by using dry clean up methods and report to your waste hauler to receive a replacement.

#### ✓ CONSTRUCT ROOF

Construct a solid cover roof over the existing trash enclosure structure to prevent rainwater from coming into contact with trash and garbage. Check with your local City/County for Building Codes.

In San Bernardino County, stormwater pollution is caused by food waste, landscape waste, chemicals and other debris that are washed into storm drains and end up in our waterways - untreated! You can be part of the solution by maintaining a water-friendly trash enclosure.

**THANK YOU FOR HELPING TO KEEP SAN BERNARDINO COUNTY CLEAN AND HEALTHY!**



In the event of a spill or discharge to a storm drain or waterway, contact San Bernardino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

[sbcountystormwater.org](http://sbcountystormwater.org)

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# HAZARDOUS WASTE

## CESQG PROGRAM

### Conditionally Exempt Small Quantity Generator

#### WHAT IS A CESQG?

Businesses that generate 27 gallons or 220 lbs. of hazardous waste, or 2.2 lbs. of extremely hazardous waste per month are called "Conditionally Exempt Small Quantity Generators," or CESQGs. San Bernardino County Household Hazardous Program provides waste management services to CESQG businesses. The most common CESQGs in San Bernardino County are painters, print shops, auto shops, builders, agricultural operators and property managers, but there are many others. When you call, be ready to describe the types and amounts of waste your business generates in a typical month. If you generate hazardous waste on a regular basis, you must:

- Register with San Bernardino County Fire Department (909) 386-8401 as a hazardous waste generator.
- To obtain an EPA ID# and application form from the State visit [www.dtsc.ca.gov](http://www.dtsc.ca.gov).
- Manage hazardous waste in accordance with all applicable local, state and federal laws and regulations.

#### HOW DO I GET SERVICE?

To arrange an appointment for the CESQG Program, call 1-800-OILY CAT or 909-382-5401. Be ready to describe the type and amount of hazardous waste your business is ready to dispose of, and the types and size(s) of containers that the waste is in.

#### Waste Type and Cost

There is a small handling fee involved in the collection of hazardous waste from your business. Disposal costs depend on the type of waste.

Aerosols	\$1.29/lb.
Automobile motor oil	\$.73/gal.
Anti-freeze	\$1.57/gal.
Contaminated oil	\$4.48/gal.
Car batteries	\$.62/ea.
Corrosive liquids, solids	\$2.80/lb.
Flammable solids, liquids	\$1.57/lb.
Latex Paint	\$.73/lb.
Mercury	\$10.08/lb.
NiCad/Alkaline Batteries	\$2.13/lb.
Oil Base Paints	\$1.00/lb.
Oil Filters	\$.56/ea.
Oxidizers	\$9.63/lb.
PCB Ballasts	\$5.94/lb.
Pesticides (most)	\$2.91/lb.
Photofixer, developer	\$4.31/gal.
Television & Monitors	\$11.20/ea.
Additional Handling	\$138.00/hr.

\*Rates subject to change without notice\*

#### WE CANNOT ACCEPT

- \* Radioactives
- \* Water reactives
- \* Explosives
- \* Compressed gas cylinders
- \* Medical or biohazardous waste
- \* Asbestos
- \* Remediation wastes



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcounystormwater.org/report](http://sbcounystormwater.org/report)

[sbcounystormwater.org](http://sbcounystormwater.org)

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# HAZARDOUS WASTE

## WHY IS THE FIRE DEPARTMENT COLLECTING HAZARDOUS WASTE?

Small Quantity Generators often have difficulty disposing of small quantities of hazardous waste. Hazardous waste companies usually have a minimum amount of waste that they will pick up, or charge a minimum fee for service. Typically, the minimum fee exceeds the cost of disposal for the hazardous waste. This leaves the small quantity generator in a difficult situation. Some respond by storing hazardous waste until it becomes economical for the hazardous waste transporter to pick it up, putting the business out of compliance by exceeding regulatory accumulation time limits. Other businesses simply store their hazardous wastes indefinitely, creating an unsafe work environment and exceeding accumulation time limits. Yet other businesses attempt to illegally dispose of their waste at household hazardous waste collection facilities. These facilities are not legally permitted to accept commercial wastes, nor are prepared to provide legal documentation for commercial hazardous waste disposal. In answer to the problems identified above, the San Bernardino County Fire Department Household Hazardous Program instituted the Conditionally Exempt Small Quantity Generator Program.

## PAYMENT FOR SERVICES

The CESQG Program will prepare an invoice for your business at the time of service. You can pay at the time of service with cash or a check, or you can mail your payment to the Fire Department within 30 days. Please note that we do not accept credit card payments. The preferred method of payment is to handle payment at time of service. Additional charges may apply for accounts not paid within 30 days.

## ARE THERE ANY OTHER WAYS THAT I CAN SAVE MONEY ON HAZARDOUS WASTE DISPOSAL?

Yes! First, start by reducing the amount of waste that you produce by changing processes or process chemicals, at your business. Next, examine if there is a way that you can recycle your waste back into your processes. Network with similar businesses or trade associations for waste minimization and pollution prevention solutions.

## WHAT IF YOUR BUSINESS DOES NOT QUALIFY?

Call the San Bernardino County Fire Department Field Services Division for assistance with hazardous waste management at 909-386-8401. If you reduce the amount of waste you generate each month to 27 gallons or less, you may qualify in the future.

## WHAT HAPPENS TO YOUR HAZARDOUS WASTE?

Hazardous waste collected by the CESQG Program is transported to a state permitted processing facility in San Bernardino. The waste is further processed at this point and packaged for off-site recycling (oil filters, oil, latex paint, antifreeze, and batteries) or destructive incineration (pesticides, corrosives, flammables, oil based paint).

San Bernardino County Fire Department  
CESQG Program  
2824 East "W" Street  
San Bernardino, CA 92415-0799  
Phone: 909-382-5401  
Fax: 909-382-5413  
[www.sbcfire.org/hazmat/hhw.asp](http://www.sbcfire.org/hazmat/hhw.asp)  
Email: [jschwab@sbcfire.org](mailto:jschwab@sbcfire.org)



In the event of a spill or discharge to a storm drain or waterway, contact San Bernardino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

[sbcountystormwater.org](http://sbcountystormwater.org)

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# WORKING OUTDOORS & HANDLING SPILLS

## WHEN WORKING OUTDOORS USE THE 3Cs

CUANDO TRABAJE AL AIRE LIBRE UTILICE LAS 3Cs

### CONTROL | CONTROL



Locate the nearest storm drain and ensure nothing can enter or be discharged into it.

*Ubique el desagüe de aguas pluviales más cercano y asegúrese de que nada pueda ingresar a éste ni descargarse en él.*

### CONTAIN | CONTENER



Isolate your area to prevent material from potentially flowing or being blown away.

*Aísle su área para evitar que el material pueda discurrirse o ser llevado por el viento.*

### CAPTURE | CAPTURAR



Sweep up debris and place it in the trash. Clean up spills with an absorbent material (e.g. kitty litter) or vacuum with a Wet-Vac and dispose of properly.

*Recoja los restos y colóquelos en la basura. Limpie los derrames con un material absorbente (como la arena para gatos) o aspírelos con una Wet-Vac (aspiradora de humedad) y deséchelos correctamente.*



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

[sbcountystormwater.org](http://sbcountystormwater.org)

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# COMMERCIAL LANDSCAPE

DISCHARGE TO THE STORM DRAIN, ACCIDENTAL OR NOT, COULD LEAD TO ENFORCEMENT ACTIONS, WHICH COULD INCLUDE FINES.

Follow the best practices below to **prevent water pollution from landscaping activities.**

## RECYCLE YARD WASTE



- ✓ Recycle leaves, grass clippings and other yard waste.
- ✓ Do not blow, sweep, rake or hose yard waste into the street or catch basin.
- ✓ **Try grasscycling:** the natural recycling of grass by leaving clippings on the lawn when mowing.

For more information, please visit:  
[www.calrecycle.ca.gov/organics/grasscycling](http://www.calrecycle.ca.gov/organics/grasscycling)

## USE FERTILIZERS, HERBICIDES AND PESTICIDES SAFELY



- ✓ Fertilizers, herbicides and pesticides are often carried into the storm drain system by sprinkler runoff. Use natural and non-toxic alternatives as often as possible.
- ✓ If you must use chemical fertilizers, herbicides or pesticides:
  - Spot apply, rather than blanketing entire areas.
  - Avoid applying near curbs and driveways, and **never** before a rain.
  - Apply fertilizers as needed: when plants could best use it and when the potential runoff would be low.
  - Follow the manufacturer's instructions carefully—this will not only give the best results, but will save money.

## USE WATER WISELY



- ✓ Control the amount of water and direction of sprinklers. Sprinklers should only be on long enough to allow water to soak into the ground, but not so long as to cause runoff.
- ✓ Periodically inspect, fix leaks and realign sprinkler heads.
- ✓ Plant native vegetation to reduce the need of water, fertilizers, herbicides and pesticides.



## HOMEOWNERS

KEEP THESE TIPS IN MIND WHEN HIRING PROFESSIONAL LANDSCAPERS AND REMIND AS NECESSARY.



Leftover pesticides, fertilizers, and herbicides contaminate landfills and should be disposed of through a Hazardous Waste Facility.

For more information on proper disposal call,

(909) 382-5401 or 1-800-OILY CAT.

\*FREE for San Bernardino County residents only. Businesses can call for cost inquiries and to schedule an appointment.



In the event of a spill or discharge to a storm drain or waterway, contact San Bernardino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

[sbcountystormwater.org](http://sbcountystormwater.org)

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# SIDEWALK, PLAZA, ENTRY MONUMENT & FOUNTAIN MAINTENANCE

Pollutants on sidewalks and other pedestrian traffic areas and plazas are typically due to littering and vehicle use. Fountain water containing chlorine and copperbased algaecides is toxic to aquatic life. Proper inspection, cleaning, and repair of pedestrian areas and HOA owned surfaces and structures can reduce pollutant runoff from these areas. Maintaining these areas may involve one or more of the following activities:

1. Surface Cleaning
2. Graffiti Cleaning
3. Sidewalk Repair
4. Controlling Litter
5. Fountain Maintenance

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for sidewalk, plaza, and fountain maintenance and cleaning include:

- Use dry cleaning methods whenever practical for surface cleaning activities.
- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal).
- Once per year, educate HOA staff and tenants on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Surface Cleaning

**Discharges of wash water to the storm water drainage system from cleaning or hosing of impervious surfaces is prohibited.**

#### Sidewalks, Plazas

- ✓ Use dry methods (e.g. sweeping, backpack blowers, vacuuming) whenever practical to clean sidewalks and plazas rather than hosing, pressure washing, or steam cleaning. DO NOT sweep or blow material into curb; use devices that contain the materials.
- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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# SIDEWALK, PLAZA, ENTRY MONUMENT & FOUNTAIN MAINTENANCE

## **Parking Areas, Driveways, Drive-thru**

- ✓ Parking facilities should be swept/vacuumed on a regular basis. Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.
- ✓ Sweep all parking lots at least once before the onset of the wet season.
- ✓ Use absorbents to pick up oil; then dry sweep.
- ✓ Appropriately dispose of spilled materials and absorbents.

### OPTIONAL:

- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc.

## **Building Surfaces, Decks, etc., without loose paint**

- ✓ Use high-pressure water, no soap.
- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.

## **Unpainted Building Surfaces, Wood Decks, etc.**

- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.
- ✓ Use biodegradable cleaning agents to remove deposits.
- ✓ Make sure pH is between 6.5 and 8.5 THEN discharge to landscaping (if cold water without a cleaning agent) otherwise dispose of properly.

## 2. Graffiti Cleaning

### **Graffiti Removal**

- ✓ Avoid graffiti abatement activities during rain events.
- ✓ When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal in the Roads, Streets, and Highway Operation and Maintenance procedure sheet.
- ✓ Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.



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# SIDEWALK, PLAZA, ENTRY MONUMENT & FOUNTAIN MAINTENANCE

- ✓ Note that care should be taken when disposing of waste since it may need to be disposed of as hazardous waste.

## OPTIONAL:

- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

## 3. Sidewalk Repair

### Surface Removal and Repair

- ✓ Schedule surface removal activities for dry weather if possible.
- ✓ Avoid creating excess dust when breaking asphalt or concrete.
- ✓ Take measures to protect nearby storm drain inlets prior to breaking up asphalt or concrete (e.g. place hay bales or sand bags around inlets). Clean afterwards by sweeping up material.
- ✓ Designate an area for clean up and proper disposal of excess materials.
- ✓ Remove and recycle as much of the broken pavement as possible.
- ✓ When making saw cuts in pavement, use as little water as possible. Cover each storm drain inlet with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains shovel or vacuum the slurry, remove from site and dispose of properly.
- ✓ Always dry sweep first to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains. Once dry sweeping is complete, the area may be hosed down if needed. Discharge wash water to landscaping, pump to the sanitary sewer if permitted to do so or contain and dispose of properly.

### Concrete Installation and Repair

- ✓ Avoid mixing excess amounts of fresh concrete or cement mortar on-site. Only mix what is needed for the job.
- ✓ Wash concrete trucks off-site or in designated areas on-site, such that there is no discharge of concrete wash water into storm drain inlets, open ditches, streets, or other storm water conveyance structures. (See Concrete Waste Management BMP WM – 8)



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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# SIDEWALK, PLAZA, ENTRY MONUMENT & FOUNTAIN MAINTENANCE

- ✓ Store dry and wet concrete materials under cover, protected from rainfall and runoff and away from drainage areas. After job is complete remove temporary stockpiles (asphalt materials, sand, etc.) and other materials as soon as possible.
- ✓ Return leftover materials to the transit mixer. Dispose of small amounts of excess concrete, grout, and mortar in the trash.
- ✓ When washing concrete to remove fine particles and expose the aggregate, contain the wash water for proper disposal.
- ✓ Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stock pile, or dispose in the trash.
- ✓ Protect applications of fresh concrete from rainfall and runoff until the material has hardened.

## 4. Litter Control

- ✓ Enforce anti-litter laws.
- ✓ Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.
- ✓ Cover litter receptacles and clean out frequently to prevent leaking/spillage or overflow.

### OPTIONAL:

- Post "No Littering" signs.

## 5. Fountain Maintenance

- ✓ Do not use copper-based algaecides. Control algae with chlorine or other alternatives, such as sodium bromide.
- ✓ Allow chlorine to dissipate for a few days and then recycle/reuse water by draining it gradually onto a landscaped area. Water must be tested prior to discharge to ensure that chlorine is not present (concentration must be less than 0.1 ppm).
- ✓ Contact local agency for approval to drain into sewer or storm drain.
- ✓ Avoid mixing excess amounts of fresh concrete or cement mortar on-site. Only mix what is needed for the job.



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# EQUIPMENT MAINTENANCE & REPAIR

Vehicle or equipment maintenance has the potential to be a significant source of stormwater pollution. Engine repair and service (parts cleaning, spilled fuel, oil, etc.), replacement of fluids, and outdoor equipment storage and parking (dripping engines) can all contaminate stormwater. Conducting the following activities in a controlled manner will reduce the potential for stormwater contamination:

1. General Maintenance and Repair
2. Vehicle and Machine Repair
3. Waste Handling/Disposal

Related vehicle maintenance activities are covered under the following program headings in this manual: “Vehicle and Equipment Cleaning”, “Vehicle and Equipment Storage”, and “Vehicle Fueling”.

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for equipment maintenance and repair include:

- Review maintenance activities to verify that they minimize the amount of pollutants discharged to receiving waters. Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.
- Minimize use of solvents. Clean parts without using solvents whenever possible. Recycle used motor oil, diesel oil, and other vehicle fluids and parts whenever possible.
- Once per year, educate HOA staff and tenants on pollution prevention measures.



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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# EQUIPMENT MAINTENANCE & REPAIR

## MODEL PROCEDURES:

### 1. General Maintenance and Repair

#### General Guidelines

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewerage agency.*

- ✓ Review maintenance activities to verify that they minimize the amount of pollutants discharged to receiving waters. Keep accurate maintenance logs to evaluate materials removed and improvements made.
- ✓ Regularly inspect vehicles and equipment for leaks.
- ✓ Move activity indoors or cover repair area with a permanent roof if feasible.
- ✓ Minimize contact of stormwater with outside operations through berming the local sewerage and drainage routing.
- ✓ Place curbs around the immediate boundaries of the process equipment.
- ✓ Clean yard storm drain inlets regularly and stencil them.

#### Good Housekeeping

- ✓ Avoid hosing down work areas. If work areas are washed and if discharge to the sanitary sewer is allowed, treat water with an appropriate treatment device (e.g. clarifier) before discharging. If discharge to the sanitary sewer is not permitted, pump water to a tank and dispose of properly.
- ✓ Collect leaking or dripping fluids in drip pans or container. Fluids are easier to recycle or dispose of properly if kept separate.
- ✓ Keep a drip pan under the vehicle while you unclip hoses, unscrew filters, any discharge of or remove other parts. Place a drip pan under any vehicle that might leak while you work on it to keep splatters or drips off the shop floor.
- ✓ Educate employees on proper handling and disposal of engine fluids.
- ✓ Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- ✓ Do not pour liquid waste to floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.
- ✓ Post signs at sinks and stencil outdoor storm drain inlets.

### 2. Vehicle Repair

#### General Guidelines

- ✓ Perform vehicle fluid removal or changing inside of a building or in a contained covered area, where feasible, to prevent the run-on of stormwater and the runoff of spills.
- ✓ Regularly inspect vehicles and equipment for leaks, and repair as needed.



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# EQUIPMENT MAINTENANCE & REPAIR

- ✓ Use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- ✓ Immediately drain all fluids from wrecked vehicles. Ensure that the drain pan or drip pan is large enough to contain drained fluids (e.g. larger pans are needed to contain antifreeze, which may gush from some vehicles).
- ✓ Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- ✓ Recycle used motor oil, diesel oil, and other vehicle fluids and parts whenever possible.
- ✓ Oil filters disposed of in trash cans or dumpsters can leak oil. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.
- ✓ Store cracked batteries in a non-leaking secondary container and dispose of properly at recycling facilities or at County hazardous waste disposal site.

## Vehicle Leak and Spill Control

- ✓ Use absorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
- ✓ Place a stockpile of spill cleanup materials where it will be readily accessible.
- ✓ Sweep floor using dry absorbent material.

## 3. Machine Repair

- ✓ Keep equipment clean; don't allow excessive build-up of oil or grease.
- ✓ Minimize use of solvents.
- ✓ Use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- ✓ Perform major equipment repairs at the corporation yard, when practical.
- ✓ Following good housekeeping measures in Vehicle Repair section.

## 4. Waste Handling/Disposal

### Waste Reduction

- ✓ Prevent spills and drips of solvents and cleansers to the shop floor.
- ✓ Do liquid cleaning at a centralized station so the solvents and residues stay in one area. Recycle liquid cleaners when feasible.



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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# EQUIPMENT MAINTENANCE & REPAIR

- ✓ Locate drip pans, drain boards, and drying racks to direct drips back into a solvent sink or fluid holding tank for reuse.

## OPTIONAL:

- If possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous material:

- Use non-caustic detergents instead of caustic cleaning for parts cleaning.
- Use a water-based cleaning service and have tank cleaned. Use detergent-based or water-based cleaning systems in place of organic solvent degreasers.
- Replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check list of active ingredients to see whether it contains chlorinated solvents.
- Choose cleaning agents that can be recycled.

## Recycling

### OPTIONAL:

- Separate wastes for easier recycling. Keep hazardous and non-hazardous wastes separate, do not mix used oil and solvents, and keep chlorinated solvents separate from non-chlorinated solvents.
- Label and track the recycling of waste material (e.g. used oil, spent solvents, batteries).
- Purchase recycled products to support the market for recycled materials.

## LIMITATIONS:

Space and time limitations may preclude all work being conducted indoors. It may not be possible to contain and clean up spills from vehicles/equipment brought on-site after working hours. Dry floor cleaning methods may not be sufficient for some spills – see spill prevention and control procedures sheet. Identification of engine leaks may require some use of solvents.



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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# POOL MAINTENANCE

**Pool chemicals and filter solids, when discharged to the City streets, gutters or storm drains, DO NOT GET TREATED before reaching the Santa Ana River. Chlorine, acid cleaning chemicals and metal-based algaecides used in pools can kill beneficial organisms in the food chain and pollute our drinking water.**

**When emptying your swimming pool, spa or fountain, please use one of the following best management practices to prevent water pollution:**

- Reuse the water as landscape irrigation
- Empty the water into the sewer between midnight and 6:00 am
- Remove solids and floating debris and dispose of in the trash, de-chlorinate the water to a chlorine residual = 0, wait 24 hours, then discharge the water to the street or storm drain
- Try not to use metal-based algaecides (i.e. copper sulfate) in your pool or spa. If you have, empty your pool or spa into the sewer. Prior to discharging pool water into the sanitary sewer system, contact your local agency.
- If the pool contains algae and mosquito larvae, discharge the water to the sewer

**When acid cleaning or other chemical cleaning:**

- Neutralize the pool water to pH of 6.5 to 8.5, then discharge to the sewer

**For swimming pool and spa filter backwash:**

- Dispose of solids into trash bag, then wash filter into a landscape area
- Settle, dispose of solids in trash and discharge water to the sewer, never to the storm drain



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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## » For Residents

The following is a preview of the information we have available to residents. For more fact sheets, visit [sbcountystormwater.org](http://sbcountystormwater.org)

### Household Hazardous Waste Center Locations

# TOO TOXIC TO TRASH

Dispose of your **HOUSEHOLD HAZARDOUS WASTE (HHW)** at a **FREE** HHW Center near you. Examples of items collected: pesticides, fertilizers, paints, cleaners, antifreeze, batteries, motor oil, oil filters, and electronic waste.

SERVICE AREA	LOCATION	DAYS OPEN	HOURS
<b>Big Bear Lake</b> <small>(does not accept E-waste)</small>	42040 Garstin Dr. (cross: Big Bear Blvd.)	Saturdays	9 a.m. - 2 p.m.
<b>Chino</b>	5050 Schaefer Ave. (cross: 4th St.)	2 <sup>nd</sup> & 4 <sup>th</sup> Sat.	8 a.m. - 1 p.m.
<b>Fontana</b> <small>(Fontana residents only)</small>	16454 Orange Way (cross: Cypress Ave.) <small>Note: Provide a trash bill and a driver's license as proof of residency.</small>	Saturdays	8 a.m. - 12 p.m.
<b>Ontario</b>	1430 S. Cucamonga Ave. (cross: Belmont St.)	Fri. & Sat.	9 a.m. - 2 p.m.
<b>Rancho Cucamonga</b>	8794 Lion Street. (Off 9th St, between Vineyard and Hellman)	Saturdays	8 a.m. - 12 p.m.
<b>Redlands</b>	500 Kansas St. (cross: Park Ave.)	Saturdays	9:30 a.m. - 12:30 p.m.
<b>Rialto</b> <small>(does not accept E-waste)</small>	246 Willow Ave. (cross: Rialto Ave.)	2 <sup>nd</sup> & 4 <sup>th</sup> Fri. & Sat.	8 a.m. - 12 p.m.
<b>San Bernardino</b>	2824 East 'W' St., 302 (cross: Victoria Ave.)	Mon. - Fri.	9 a.m. - 4 p.m.
<b>Upland</b>	1370 N. Benson Ave. (cross: 14th St.)	Saturdays	9 a.m. - 2 p.m.

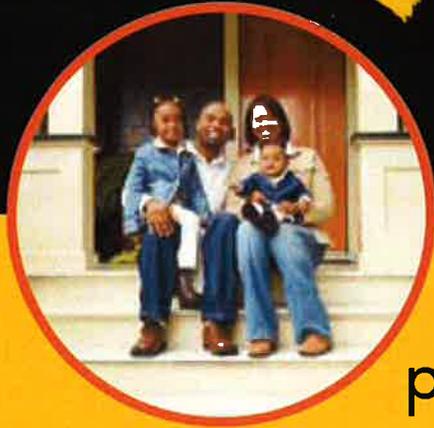


To report illegal dumping, call **(877) WASTE18**  
or visit [sbcountystormwater.org](http://sbcountystormwater.org)

Artwork Courtesy of the City of Los Angeles Stormwater Program. Printed on recycled paper.

**TAKE ONE**

# PAINT



## WE DID IT OURSELVES AND WE DID IT RIGHT

When painting your home,  
protect your family and community.

- **PAINTS** that are water-based are less toxic and should be used whenever possible.
- **BRUSHES** with water-based paint should be washed in the sink. Those with oil-based paint should be cleaned with paint thinner.
- **SAFELY** dispose of unwanted paint and paint thinner. The County of San Bernardino offers 9 HHW Centers that accept paint and other household hazardous waste from residents **FREE** of charge. For a list of acceptable materials, location information, and hours of operation call 1-800-OILY CAT.



In the event of a spill or discharge to a storm drain or waterway, contact San Bernardino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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# VEHICLE MAINTENANCE

Oil, grease, anti-freeze and other toxic automotive fluids often make their way into the San Bernardino County storm drain system, and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.

## **Cleaning Auto Parts**

Scrape parts with a wire brush or use a bake oven rather than liquid cleaners. Arrange drip pans, drying racks and drain boards so that fluids are directed back into the parts washer or the fluid holding tank. Do not wash parts or equipment in a sink, parking lot, driveway or street.

## **Storing Hazardous Waste**

Keep your liquid waste segregated. Many fluids can be recycled via hazardous waste disposal companies if they are not mixed. Store all materials under cover with spill containment or inside to prevent contamination of rainwater runoff.

## **Preventing Leaks and Spills**

Conduct all vehicle maintenance inside of a garage. Place drip pans underneath vehicle to capture fluids. Use absorbent materials instead of water to clean work areas.

## **Cleaning Spills**

Use dry methods for spill cleanup (sweeping, absorbent materials). To report accidental spills into the street or storm drain call (877) WASTE18 or 911.

## **Proper Disposal of Hazardous Waste**

Dispose of household hazardous waste by taking it to your nearest household hazardous waste center. For more information, call 1-800-OILY CAT or check out [sbcountystormwater.org/Disposal.html](http://sbcountystormwater.org/Disposal.html)



In the event of a spill or discharge to a storm drain or waterway, contact San Bernardino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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# PET WASTE DISPOSAL

## FREE DOGGIE WASTE BAGS

Remember to pick up after your pet **every time** to keep San Bernardino County clean and healthy!

To RECEIVE your  
**FREE CONTAINER**  
visit us online at  
[sbcountystormwater.org/dog](http://sbcountystormwater.org/dog)



In the event of a spill or discharge to a storm drain or waterway, contact San Bernadino County Stormwater immediately: (877) WASTE18 | [sbcountystormwater.org/report](http://sbcountystormwater.org/report)

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## » Get In Touch With Us Online!



### » Website

[sbcountystormwater.org](http://sbcountystormwater.org)



### » eUpdates

[sbcountystormwater.org/newsletter](http://sbcountystormwater.org/newsletter)



### » Facebook

[facebook.com/sbcountystormwater](https://facebook.com/sbcountystormwater)



### » YouTube

[youtube.com/sbcountystormwater](https://youtube.com/sbcountystormwater)



### » Report Pollution Violations

[sbcountystormwater.org/report](http://sbcountystormwater.org/report)

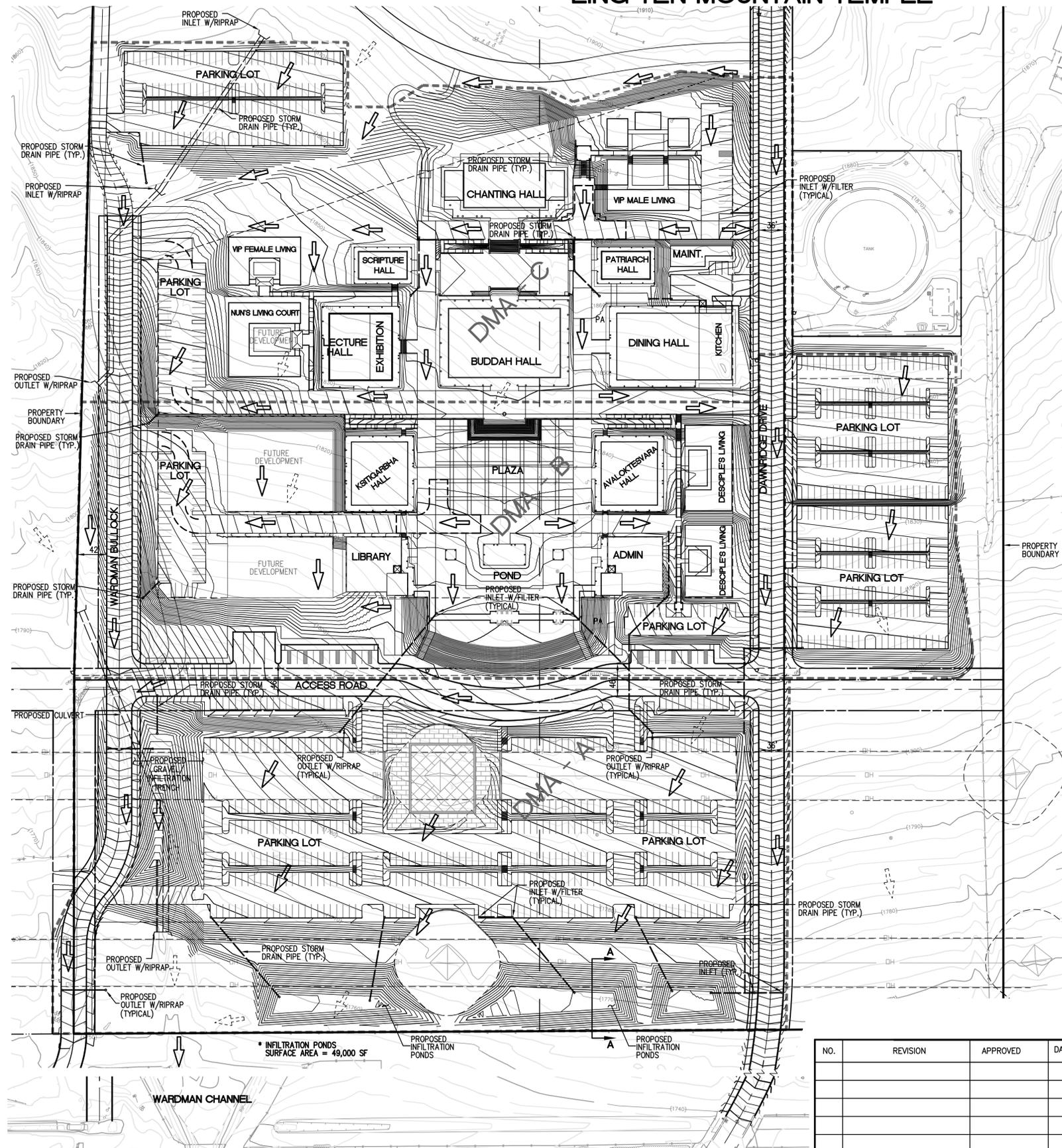


### » Email

[info@sbcountystormwater.org](mailto:info@sbcountystormwater.org)

# Water Quality Management Plan

IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA  
 BEING A SURVEY PORTION OF THE SOUTHWEST QUARTER OF SECTION 15, TOWNSHIP 1 NORTH, RANGE 6 WEST, S.B.B.M.  
**PRELIMINARY WATER QUALITY MANAGEMENT PLAN**  
**LING YEN MOUNTAIN TEMPLE**



OFFICIAL USE ONLY

**BMPs (BEST MANAGEMENT PRACTICES)**

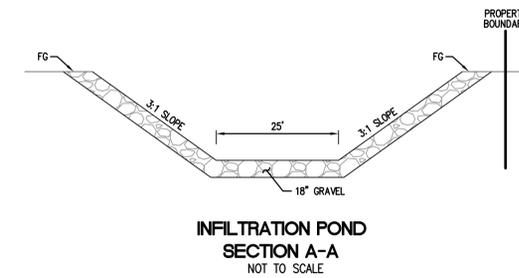
TYPE	DESCRIPTION
SITE DESIGN	RETENTION/INFILTRATION
TREATMENT CONTROL	RETENTION/INFILTRATION
NON-STRUCTURAL SOURCE CONTROL	SEE DESCRIPTION IN WQMP DOCUMENT.
STRUCTURAL SOURCE CONTROL	LANDSCAPE AND IRRIGATION SYSTEM DESIGN, PROTECTION OF SLOPES AND CHANNELS.

**LEGEND/ABBREVIATIONS**

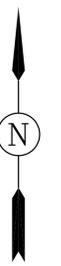
PA	PLANTER AREA W/ LANDSCAPED SWALE
DA	DRAINAGE AREA
---	DRAINAGE AREA BOUNDARIES
---	HISTORIC DRAINAGE PATH
→	PROPOSED DRAINAGE PATH
---	PROPOSED STORM DRAIN
□	PROPOSED INLET W/FILTER INSERT
○	OUTLET W/ RIPRAP

**DRAINAGE AREAS**

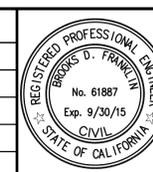
DMA - A	= 10.6 ACERS
DMA - B	= 10.3 ACERS
DMA - C	= 11.4 ACERS



\* INFILTRATION PONDS SURFACE AREA = 49,000 SF



NO.	REVISION	APPROVED	DATE



**AG** The Altum Group  
 73-710 Fred Waring Drive, Suite 219, Palm Desert, CA 92260  
 T. 760.346.4750 TheAltumGroup.com F. 760.340.0089  
 PREPARED UNDER THE SUPERVISION OF:  
 RCE NO. 61887 EXP 9/30/15 DATE \_\_\_\_\_  
 BROOKS D. FRANKLIN

COUNTY OF SAN BERNARDINO  
**PRELIMINARY WQMP**  
**LING YEN MOUNTAIN TEMPLE**

SHEET <b>1</b>
OF <b>1</b> SHTS
CADD FILE NAME WQMP1094101

DWG: L:\projects\CI04\_Ling\_Yen\_Mountain\_Temple\engineering\drawings\sanbern\wqmp.dwg  
 Plotdate: Feb 25, 2016 - 5:13pm

Feb 25, 2016 - CONCEPTUAL SUBMITTAL

# Letter of Purpose

May 14, 2014

San Bernardino County Government Center  
Land Use Services Department  
385 N. Arrowhead Avenue  
San Bernardino, CA. 92415-0182

Attention: Planning Services

Subject: Ling Yen Mountain Temple – Preliminary WQMP

To Whom It May Concern:

The attached Preliminary Water Quality Management Plan (WQMP) was prepared in support of the Conditional Use Permit application for the Ling Yen Mountain Temple project located on APN's 0226-061-47, 73, 74, and 76 in San Bernardino County near the existing Temple site located at 13938 DeCliff Drive in Etiwanda, California.

The Preliminary WQMP was prepared using the September 19, 2013 edition of the Technical Guidance Document for Water Quality Management Plans (TGD) prepared for San Bernardino County by CDM Smith, Inc.

It is our understanding that the TGD is intended for final WQMP preparation for projects within the areawide stormwater program (NPDES No. CAS618036, Order No.R8-2010-0036). While prepared using the TGD, the Preliminary WQMP document may be incomplete for those items specific to final design of the project, but is a substantial representative of the overall concept for the project. Upon approval of the Conditional Use Permit, and in conjunction with preparation of final PS&E's for the project, a Final WQMP will be prepared using the latest version of the abovementioned TGD.

The Preliminary WQMP utilized separate computer software for the hydrologic calculations (as deemed acceptable in the TGD) and those calculations are included as Appendix G.

Please contact us should you have any questions regarding our Preliminary WQMP submittal.

Sincerely,



Doug Franklin, PE  
Vice President

760-346-4750  
doug.franklin@thealtumgroup.com