

VENTURA COUNTYWIDE STORMWATER QUALITY PROGRAM POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSMP)

INSTRUCTIONS

- ▶ The following set of spreadsheets are intended to assist project applicants in meeting the Planning and Land Development requirements contained in Part 4, Section E of the Los Angeles Regional Water Quality Control Board's municipal separate storm sewer system (MS4) permit (Order R4-2010-0108) for new development and redevelopment projects.
- ▶ The spreadsheets are not intended to replace the Technical Guidance Manual (TGM). The TGM is referenced in multiple locations and should be consulted for additional guidance on complying with the Planning and Land Development requirements. Specifically, definitions and details on site assessment and BMP selection can be found in the TGM.
- ▶ The 0.75-inch storm event (TGM Methodology #3) is used as the stormwater quality design volume (SQDV) throughout the workbook; applicants should not use this workbook if using a methodology other than Methodology #3.
- ▶ Project applicants should fill out each applicable spreadsheet; when complete, make sure to print "entire workbook."
- ▶ A few additional tips:
 - All green boxes denote a numeric input.
 - Blue cells indicate that text should be included.
 - Follow prompts where applicable.
 - When finished filling out the applicable steps, go to "Submittal List" for additional required project submittals.
 - The spreadsheet is locked, restricting input only to certain cells. Unlocking the spreadsheet is not recommended and may lead to errors, but if necessary, the password to unlock all sheets is "PCSMP" (case sensitive).

**VENTURA COUNTYWIDE STORMWATER QUALITY PROGRAM
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSMP)**

FOR

[Insert Project Name in General Info.]

PARCEL #: [REDACTED]

Project Name: [REDACTED]

Preparation/Revision Date: [REDACTED]

Prepared for:

Name of Owner/Developer: [REDACTED]

Stress Address: [REDACTED]

City, State, Zip Code: [REDACTED]

Telephone: [REDACTED]

Prepared by:

Name and Title of Preparer: [REDACTED]

Company Name: [REDACTED]

Stress Address: [REDACTED]

City, State, Zip Code: [REDACTED]

Telephone: [REDACTED]

I hereby certify that the information provided in this Application is correct.

Application Prepared by: _____
Print Name and Firm

Signed _____
Signature of Project Engineer in the Firm Named Above

Title _____
Affix Professional registration stamp of the person named above with signature and expiration date

Project Name: [Insert Project Name in General Info.]

STEP 1: DETERMINE PROJECT APPLICABILITY

Instructions:

For new development projects, answer yes, no, or NA to questions (1) - (10) below.

For redevelopment projects, answer yes, no, or NA to questions (11) - (13) below.

NEW DEVELOPMENT PROJECTS	
<i>Does the new development project fall within categories (1) - (10) below?</i>	
Project Type and/or Characteristics	Y/N/NA
1) Development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area → go to Step 2	
2) Industrial parks with 10,000 square feet or more of total altered surface area → go to Step 2	
3) Commercial strip malls with 10,000 square feet or more of impervious surface area → go to Step 2	
4) Retail gasoline outlets with 5,000 square feet or more of total altered surface area → go to Step 2	
5) Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of total altered surface area → go to Step 2	
6) Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces → go to Step 2	
7) Streets, roads, highways, and freeway construction of 10,000 square feet or more of impervious surface area → go to Roadway Projects	
8) Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) of 5,000 square feet or more of total altered surface area → go to Step 2	
9) Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will: a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and b. Create 2,500 square feet or more of impervious surface area → go to Step 2	
10) Single-family hillside homes (see Section 2 of the TGM for specific requirements) → go to SF Hillside	

Project Name: [Insert Project Name in General Info.]

PROJECT APPLICABILITY, CONT.

REDEVELOPMENT PROJECTS	
<p><i>For redevelopment projects that fall within categories (1) through (9) above, and that conduct land-disturbing activities that result in the creation, or addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site, answer questions 11-13 below. Existing single-family dwelling and accessory structures are exempt from redevelopment projects unless such projects create, add, or replace 10,000 square feet of impervious surface area.</i></p>	
Project Type and/or Characteristics	Y/N/NA
<p>11) Projects where redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development <u>was not</u> subject to the post development stormwater quality control requirements of Board Order 00-108, these projects must mitigate the entire redevelopment project area →go to Step 2</p>	
<p>12) Projects where redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development <u>was</u> subject to the post development stormwater quality control requirements of Board Order 00-108, the project must mitigate only the altered portion of the redevelopment project area and not the entire project area →go to Step 2</p>	
<p>13) Projects where redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development these projects must mitigate only the altered portion of the redevelopment project area and not the entire project area →go to Step 2</p>	

Project Name:

[Insert Project Name in General Info.]

STEP 2: ASSESS SITE CONDITIONS

Provide an assessment of the project site using the following tables

New Development Project General Characteristics

General Project Characteristics	Area (acres)
Total Project Site Area	
Total Disturbed Area	
Total Existing (Pre-Project) Impervious Area	
Post-Project Impervious Area [1]	
Area of Green Roof (ET-1) [1]	
Area Draining to Hydrologic Source Controls (ET-2) [1]	
Revised Post-Project Impervious Area	0.00
Project Imperviousness (%)	

Redevelopment Project General Characteristics

General Project Characteristics	Area (acres)
Total Project Site Area	
Total Altered Area [6]	
Total Existing (Pre-Project) Impervious Area	
Was existing (pre-project) impervious area subject to post-development stormwater quality control requirements? [2]	
Amount of Existing Impervious Area Altered [3]	
Amount of Impervious Area Added	
% Alteration of Existing Impervious Area [4]	N/A
Post-Project Impervious Area (Impervious Area to be Mitigated) [1], [4]	0.00
Area of Green Roof (ET-1) [1]	
Area Draining to Hydrologic Source Controls (ET-2) [1]	
Revised Post-Project Impervious Area	0.00
Project Imperviousness (%) [5]	

Project Name:

[Insert Project Name in General Info.]

Project Description

Briefly describe project:

[Redacted area]

Describe current and proposed zoning and land use designation:

[Redacted area]

Describe topography of project area. Identify low and high points and the location of steep slopes (provide a range of grades):

[Redacted area]

Describe the site's soil types (A, B, C, D) and geological conditions:

[Redacted area]

Attach soil type information

Project Name:

[Insert Project Name in General Info.]

Project Description, cont'd

Describe the site's groundwater conditions (e.g. depth to seasonal high groundwater):

[Redacted area]

Is there offsite drainage on the site? If so, identify the location(s) and source(s) of offsite drainage and the volume of water running onto the site:

[Redacted area]

Describe any existing utilities within the project area that would limit the possible locations of certain BMPs:

[Redacted area]

Describe any environmentally sensitive areas (e.g. riparian areas, wetlands) within the project area:

[Redacted area]

Geotechnical considerations:

<i>Does the site contain any of the following characteristics:</i>	Y/N/NA
Collapsible Soil	
Expansion Soil	
Potential for seismically-induced soil liquefaction	

Additional considerations:

[Redacted area]

Attach relevant geotechnical information

Project Name:

[Insert Project Name in General Info.]

STEP 2: POLLUTANTS OF CONCERN

Pollutants of Concern (See Section 3.3 of TGM)

Activity / Potential Land Uses	Potential Pollutant*								
	Sediment	Nutrients	Metals	Pesticides	Oxygen Demanding Substances	Toxic Organics	Oil & Grease	Bacteria	Trash and Debris
Other [fill in if necessary]									
Other [fill in if necessary]									

*Denote potential pollutant with "x"

Receiving Waterbody Listings (see Section 3.3. of TGM)

Receiving Waterbody (watershed indicated in parentheses)	Constituent Group [7]	Distance to Project (ft)
Other [fill in if necessary]		

[1] Applicant should enter post-project impervious cover prior to accounting for green roof and hydrologic source control (HSC) credits. Volume reduction provided by green roofs and HSCs are accounted for implicitly in the sizing calculations for BMPs by assuming the roof area covered by a green roof or the area draining to a HSC is pervious rather than impervious when calculating the runoff coefficient for the site. Green roofs and HSCs are not required to be considered for all project locations and types. In order to obtain credit, Green Roofs and HSCs must be designed as specified in the TGM. Additional detail on Green Roofs (ET-1) and HSCs (ET-2) can be found in Section 6 of the TGM.

[2] Land-disturbing activity that results in the creation or addition or replacement of less than 5,000 square feet of impervious surface area on an already developed site, or that results in a decrease in impervious area which was subject to the post development stormwater quality control requirements of Board Order 00-108, is not subject to mitigation unless so directed by the local permitting agency

[3] Redevelopment does not include routine maintenance activities that are conducted to maintain the original line and grade, hydraulic capacity, or original purpose of the facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways, that does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Agencies' flood control, drainage, and wet utilities projects that maintain original line and grade or hydraulic capacity are considered routine maintenance. Redevelopment also does not include the repaving of existing roads to maintain original line and grade.

[4] "% Alteration of Existing Impervious Area" determines the 50% threshold which is key in determining portion of site that must comply with post-construction requirements - see Step 1 redevelopment categories for more detail. The amount of "Post Project Impervious Area" that must adhere to post-construction requirements is dependant on 50% threshold

[5] "Project Imperviousness" is calculated using the "Total Project Area" except when redevelopment projects that must mitigate only the altered portion of the redevelopment project area. In this case, the "Total Disturbed Area" is used to calculate "Project Imperviousness"

[6] For the purposes of this calculation, Total Altered Area shall mean any area that is altered as a result of land disturbance, such as clearing, grading, grubbing, and excavation. This excludes areas used exclusively for temporary stockpiling.

[7] If a waterbody is listed for "toxicity" and the cause and/or contribution to toxicity is known, then the constituent group known to contribute to toxicity are listed here (in lieu of listing "toxicity")

Project Name: [Insert Project Name in General Info.]

STEP 3: APPLY SITE DESIGN PRINCIPLES AND TECHNIQUES

Provide a brief description of site design principles and techniques included within the proposed project site.

Site Design Measures [1]	Included? Y/N/NA	Brief Description of the Site Design Measure
Site Planning		
Protect and Restore Natural Areas		
Minimize Land Disturbance		
Minimize Impervious Cover		
Apply LID at Various Scales		
Implement Integrated Water Resource Management Practices		

[1] Refer to Section 4.2 - 4.7 of the TGM for applicable Design Criteria.

Project Name: [Insert Project Name in General Info.]

STEP 4: APPLY SOURCE CONTROL MEASURES

Provide a brief description of the source control measures included in the proposed project site.

Site-Specific Source Control Measures[1]	Included? Y/N/NA	Brief Description of the Source Control Measure
S-1: Storm Drain Message and Signage		
S-2: Outdoor Material Storage Area Design		
S-3: Outdoor Trash Storage and Waste Handling Area Design		
S-4: Outdoor Loading/Unloading Dock Area Design		
S-5: Outdoor Repair/Maintenance Bay Design		
S-6: Outdoor Vehicle /Equipment/ Accessory Washing Area Design		
S-7: Fueling Area Design		
S-8: Proof of Control Measure Maintenance		

[1] Refer to Fact Sheets in Section 5 of the TGM for detailed information and design criteria

Project Name: [Insert Project Name in General Info.]

STEP 5: APPLY BMPS TO REDUCE EIA TO <=5%

New development and redevelopment projects (Categories 1-6, 8, and 9) must reduce EIA to <=5%

Step 5a: Calculate Allowable EIA

EIA is defined as impervious area that is hydrologically connected via sheet flow over a hardened conveyance or impervious surface without any intervening medium to mitigate flow volume.

The allowable "EIA" for a project is calculated as:

$$EIA_{\text{allowable}} = (A_{\text{project}}) * (\%_{\text{allowable}}) \quad \text{Equation 2-1}$$

Where:

$EIA_{\text{allowable}}$ = The maximum impervious area from which runoff can be treated and discharged offsite (and not retained onsite) [acres]

A_{project} = The total project area [acres] [1]

$\%_{\text{allowable}}$ = 5 percent

Input:		Units
A_{project} [1]	0.00	Acres
$\%_{\text{allowable}}$	5.00%	Percent
$EIA_{\text{allowable}}$	0.00	Acres

Step 5b: Calculate Impervious Area to be Retained

The impervious area from which runoff must be retained onsite is the total impervious area minus the EIA allowable, which should be calculated as follows:

$$A_{\text{retain}} = TIA - EIA_{\text{allowable}} = (IMP * A_{\text{project}}) - EIA_{\text{allowable}} \quad \text{Equation 2-2}$$

Where:

A_{retain} = the drainage area from which runoff must be retained [acres]

TIA = total impervious area [acres]

IMP = imperviousness of project area (%)

Input:		Units
Imperviousness		
A_{project} [1]	0.00	Acres
$EIA_{\text{allowable}}$	0.00	Acres
A_{retain}		Acres

Project Name: [Insert Project Name in General Info.]

BMPS TO REDUCE EIA TO <=5%, CONT.

Step 5c: Calculate the Volume to be Retained (SQDV)

The runoff volume that is to be retained onsite should be calculated using Equation 2-3 below:

$$V_{\text{retain}} = C * (0.75/12) * A_{\text{retain}} \quad \text{Equation 2-3}$$

Where:

V_{retain} = The stormwater quality design volume (SQDV) that must be retained onsite [ac-ft]

C = runoff coefficient (equals 0.95 for impervious surfaces)

Input:		Units
C	0.95	
A_{retain}		Acres
V_{retain}		ac-ft gallons cu.ft.

Continue to Step 5d

Project Name: [Insert Project Name in General Info.]

STEP 5d: SELECT RETENTION BMPs

Select and size Retention BMPs to meet the 5% EIA Requirement. Retention BMPs include INF1-6, RWH-1, and ET 1 and 2. See TGM, Section 6 for more information.

Retention BMPs	Included?	Drainage Area Retained (acres) [2]	Drainage Area Runoff Coefficient	Volume Retained (SQDV) (ac-ft) [1],[2]	If not applicable, state brief reason		
	Y/N						
<i>Infiltration BMPs</i>							
INF-1: Infiltration Basin			0.95				
INF-2: Infiltration Trench			0.95				
INF-3: Bioretention			0.95				
INF-4: Drywell			0.95				
INF-5: Permeable Pavement			0.95				
INF-6: Proprietary Infiltration			0.95				
INF-7: Bioinfiltration			0.95				
<i>Rainwater Harvesting BMPs</i>							
RWH-1: Rainwater Harvesting			2				
TOTAL Volume Retained				0.000	ac-ft		
				0.0	gallons		
				0.0	cu.ft.		
REMAINING Volume to meet 5% EIA requirement					ac-ft		
					gallons		
					cu.ft.		

[1] SQDV Methodology #3 used here.

[2] If a Retention BMP is used more than once on a site (i.e., 2 Infiltration Trenches implemented on one site) then drainage area and volume retained shown here should be additive. A separate BMP sizing worksheet (see Appendix E of the TGM) should be submitted for each BMP.

ADDITIONAL INSTRUCTIONS: Retention BMPs must be used onsite to the maximum extent practicable. If the remaining volume to meet 5% EIA cannot be met, then project applicants must demonstrate technical infeasibility. Consult Section 3.2 of the 2011 TGM for infeasibility criteria. A technical infeasibility site-specific analysis must be submitted. Projects that cannot prove technical infeasibility must reduce EIA to <=5% using Retention BMPs.

If onsite Retention BMPs cannot feasibly be used to meet the 5% EIA Requirement, move onto Step 5e; if 5% EIA Requirement is met go to Step 7

	Y/N/NA
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A completed copy of the applicable "BMP Sizing Worksheet(s)" for the project's Retention BMPs from Appendix E of the TGM is included as an attachment. BMPs must be sized to meet the SQDV or SQDF (See Section 2 Step 7 of the TGM).



Project Name: [Insert Project Name in General Info.]

STEP 5e: SELECT AND SIZE BIOFILTRATION BMPs TO REDUCE EIA TO <=5%

New development and redevelopment projects that demonstrate technical infeasibility (see Section 3.2 of TGM) for reducing EIA to <= 5% using Retention BMPs are eligible to use Biofiltration BMPs to achieve the 5% EIA Requirement.

	Y/N
Is it technically infeasible for Retention BMPs to meet the 5% EIA Requirement?	
If yes, volume-based biofiltration BMPs shall be sized to treat 1.5 times the volume not retained using Retention BMPs.	

The onsite biofiltered volume ($V_{\text{biofilter}}$), should be calculated as follows:

$$V_{\text{biofilter}} = (V_{\text{retain}} - V_{\text{achieved}}) * 1.5 \quad \text{Equation 2-4}$$

Where:

- $V_{\text{biofilter}}$ = the volume that must be captured and treated in a Biofiltration BMP [ac-ft]
- V_{retain} = the stormwater quality design volume (SQDV) that must be retained [ac-ft]
- V_{achieved} = the volume retained onsite using Retention BMPs [ac-ft]

Input		Units
V_{achieved}	0.000	ac-ft
V_{retain}		ac-ft
$V_{\text{biofilter}}$		ac-ft
		gallons
		cu.ft.

BIOFILTRATION BMPs, CONT.

Biofiltration BMPs	Included? Y/N	Drainage Area Biofiltered (acres) [3]	Drainage Area Runoff Coefficient	Volume Biofiltered (1.5xSQDV) (ac-ft) [2],[3]	If not applicable, state brief reason
BIO-1: Bioretention with Underdrain			0.95		
BIO-2: Planter Box			0.95		
BIO-3: Vegetated Swale [1]			0.95		
BIO-4: Vegetated Filter Strip [1]			0.95		
BIO-5: Proprietary Biotreatment [1]			0.95		
TOTAL Volume Biofiltered				0.00	ac-ft
				0.0	gallons
				0.0	cu.ft
REMAINING Volume to be addressed by Alternative Compliance					ac-ft
					gallons
					cu.ft

[1] BIO-3 and BIO-4 are flow-based and should be calculated using SQDF for sizing (see Table 2-1 of the TGM for the applicable design criteria for sizing). The SQDV is shown here for 5% EIA Requirement compliance purposes only.

[2] SQDV Methodology #3 used here.

[3] If a Biofiltration BMP is used more than once on a site (e.g., 2 Planter Boxes implemented on one site) then drainage area and volume biofiltered shown here be additive. A separate BMP sizing worksheet (see Appendix E of the TGM) should be submitted for each BMP.

ADDITIONAL INSTRUCTIONS: Certain new development and redevelopment project types are eligible for alternative compliance measures if onsite Retention and/or Biofiltration BMPs cannot feasibly be used to meet the 5% EIA requirement. Infeasibility is described in Section 3.2 of the TGM. A technical feasibility site-specific analysis must be submitted. Projects that cannot prove infeasibility must reduce EIA to <=5%.

If onsite Retention BMPs and/or Biofiltration BMPs cannot feasibly be used to meet the 5% EIA standard, move onto Step 6, otherwise, skip Step 6.

	Y/N/NA
A completed a copy of the applicable "BMP Sizing Worksheet(s)" for the project's Biofiltration BMPs from Appendix E of the TGM is included as an attachment.. BMPs must be sized to meet the 1.5 times SQDV or SQDF (see Section 2, Step 7 of the TGM) requirement. Guidance on flow based design for 150% sizing provided in Table 2-1 of the TGM.	

Project Name: [Insert Project Name in General Info.]

STEP 6: ALTERNATIVE COMPLIANCE [1], [2]

Mitigation Volume

- ▶ *Alternative compliance options will be based on the "mitigation volume." The mitigation volume is the difference between the volume of runoff associated with 5% EIA and the volume of runoff associated with the actual EIA achieved onsite less than or equal to 30% EIA.*
- ▶ *The offsite mitigation requirement for EIA is excess of 30% (>30%) is 1.5 times the amount of stormwater not managed onsite.*
- ▶ *Applicants must contact the local approval agency before proceeding with Alternative Compliance*

6a) Determine the volume of runoff that is retained and biofiltered onsite ($V_{ret/bio}$) using the equation below:

$$V_{ret/bio} = (V_{achieved} + (V_{biofiltered}/1.5)) \quad \text{Equation 2-5}$$

Where:

$V_{ret/bio}$ = the total volume of runoff retained and/or biofiltered onsite using Retention and Biofiltration BMPs [ac-ft]

$V_{achieved}$ = the runoff volume retained onsite [ac-ft]

$V_{biofiltered}$ = the runoff volume biofiltered onsite [ac-ft]

Eqn. 2-5		Units
$V_{achieved}$	0.000	ac-ft
$V_{biofiltered}$	0.000	ac-ft
$V_{ret/bio}$	0.000	ac-ft
	0.0	gallons
	0.0	cu.ft.

6b) Determine the Mitigation Volume ($V_{mitigation}$) @ 1:1 ratio, using the equation below:

$$V_{mitigation} = V_{retain} - V_{ret/bio} \quad \text{Equation 2-6}$$

Where:

$V_{mitigation}$ = the volume of runoff that must be mitigated offsite [ac-ft]

V_{retain} = the SQDV that must be retained onsite per the 5% EIA requirement calculated in Equation 2-3 [ac-ft]

$V_{ret/bio}$ = the total volume of runoff retained and/or biofiltered onsite using Retention and Biofiltration BMPs calculated in Equation 2-5 [ac-ft]

Eqn. 2-6		Units
V_{retain}		ac-ft
$V_{ret/bio}$	0.000	ac-ft
$V_{mitigation}$		ac-ft
		gallons
		cu.ft.

Project Name: [Insert Project Name in General Info.]

ALTERNATIVE COMPLIANCE, CONT.

6c) Determine whether EIA is reduced to <= 30% EIA

6c-1: Calculate area associated with 30% EIA ($A_{30\%eia}$)

$$A_{30\%eia} = (IMP * A_{project}) - (30\% * A_{project}) \quad \text{Equation 2-7}$$

Where:

$A_{30\%eia}$ = the impervious portion of the drainage area retained or biofiltered at 30% EIA [acres]

IMP = total imperviousness of project area (%)

$A_{project}$ = the total project area [acres]

Eqn. 2-7		Units
IMP		
$A_{project}$	0.00	acres
$A_{30\%eia}$		acres

6c-2: Calculate volume retained or biofiltered onsite at 30% EIA ($V_{30\%eia}$):

$$V_{30\%eia} = C * (0.75/12) * A_{30\%eia} \quad \text{Equation 2-8}$$

Where:

$V_{30\%eia}$ = SQDV retained or biofiltered at 30% EIA [ac-ft]

(note: for the purposes of this calculation, the biofiltered volume does not include the 1.5 multiplier)

C = runoff coefficient (equals 0.95 for impervious surfaces)

$A_{30\%eia}$ = the impervious area from which runoff would have been retained or biofiltered at 30% EIA [acres]

Eqn. 2-8		Units
C	0.95	
$A_{30\%eia}$		acres
$V_{30\%eia}$		ac-ft
		gallons
		cu.ft.

Project Name: [Insert Project Name in General Info.] _____

ALTERNATIVE COMPLIANCE, CONT.

6d) Determine if the project's current EIA is greater than, equal to, or less than the volume at 30% EIA ($V_{30\%eia}$)

$V_{ret/bio}$ = the total volume of runoff retained and/or biofiltered onsite using Retention and Biofiltration BMPs [ac-ft]
 $V_{30\%eia}$ = SQDV retained or biofiltered at 30% EIA [ac-ft]

$V_{30\%eia}$		ac-ft
$V_{ret/bio}$	0.000	ac-ft
Your project's EIA is GREATER THAN 30%		

Less than or equal to (\leq) 30% EIA → go to Step 6e
Greater than ($>$) 30% EIA → go to Step 6f-g

- [1] In order to simplify the use of the spreadsheet, these steps deviate from those presented in the 2011 TGM
- [2] References to equations (e.g., Equation 2-5) refer to equations contained within the 2011 TGM

Projects w/ EIA \leq 30%

6e) Pursue Alternative Compliance for $V_{mitigation}$ at 1:1 Ratio

$V_{mitigation}$ = the volume of runoff that must be mitigated offsite [ac-ft] calculated in Equation 2-6

$V_{mitigation}$	N/A	ac-ft
		gallons
		cu.ft.

The site is required to mitigate the following volume:

<u>N/A</u>	ac-ft
	gallons
	cu.ft.

Continue to Step 7

Project Name: [Insert Project Name in General Info.]

ALTERNATIVE COMPLIANCE, CONT.

Projects with EIA > 30%

When the EIA of the project exceeds 30% due to infeasibility, the runoff volume associated with the EIA up to 30% must be mitigated offsite at a one-to-one ratio and the runoff volume associated with the EIA greater than 30% must be mitigated offsite at 1.5 times the volume.

6f) Determine the Mitigation Volume for 30% EIA ($V_{mitigation30\%}$), using the equation below:

$$V_{mitigation30\%} = V_{Retain} - V_{30\%EIA} \quad \text{Equation 2-11}$$

Where:

$V_{mitigation30\%}$ = the mitigation volume for 30% EIA [ac-ft]

V_{retain} = the SQDV that must be retained onsite per the 5% EIA requirement calculated in Equation 2-3 [ac-ft]

$V_{30\%eia}$ = SQDV at 30% EIA [ac-ft]

		Units
V_{retain}		ac-ft
$V_{30\%eia}$		ac-ft
$V_{mitigation30\%}$		ac-ft
		gallons
		cu.ft.

6g) Determine the Mitigation Volume for >30% EIA ($V_{mitigation>30\%}$), using the equation below:

$$V_{mitigation>30\%} = (V_{30\%eia} - V_{ret/bio}) * 1.5$$

Where:

$V_{mitigation>30\%}$ = the mitigation volume for >30% EIA [ac-ft]

$V_{30\%eia}$ = SQDV at 30% EIA [ac-ft]

$V_{ret/bio}$ = the total volume of runoff retained and/or biofiltered onsite using Retention and Biofiltration BMPs calculated in

		Units
$V_{30\%eia}$		ac-ft
$V_{ret/bio}$	0.000	ac-ft
$V_{mitigation>30\%}$		ac-ft
		gallons
		cu.ft.

6h) Determine the Total Mitigation Volume ($V_{mitigationtotal}$), using the equation below:

$$V_{mitigationtotal} = V_{mitigation>30\%} + V_{mitigation30\%}$$

Equation 2-13

Where:

$V_{mitigationtotal}$ = the total mitigation volume for 30% EIA [ac-ft]

$V_{mitigation>30\%}$ = the mitigation volume for >30% EIA, calculated using Equation 2-11 [ac-ft]

$V_{mitigation30\%}$ = the mitigation volume for 30% EIA calculated using Equation 2-10 [ac-ft]

Eqn. 2-13		Units
$V_{mitigation30\%}$		ac-ft
$V_{mitigation>30\%}$		ac-ft
$V_{mitigationtotal}$		ac-ft
		gallons
		cu.ft.

The site is required to mitigate the following volume:

	ac-ft
	gallons
	cu.ft.

Continue to Step 7

Project Name: [Insert Project Name in General Info.]

STEP 7: APPLY TREATMENT CONTRL MEASURES

- ▶ *Stormwater runoff from EIA and developed pervious surfaces must be mitigated using Retention BMPs, Biofiltration BMPs, or Treatment Control Measures (See Chapter 6 of TGM).*
- ▶ *Treatment Control Measures should be selected per the BMP selection process outlined in Section 3.3 of the TGM.*
- ▶ *BMPs must be sized to meet the SQDV or SQDF. See Section 2, Step 7 of the for guidance on calculating the SQDV and SQDF.*

	Y/N
Completed copy of the applicable “BMP Sizing Worksheet(s)” for the project’s stormwater BMP(s) from Appendix E of the Technical Guidance Manual is included.	

Project Name:

[Insert Project Name in General Info.]

SINGLE FAMILY HILLSIDE HOMES: ASSESS SITE CONDITIONS

- ▶ This tab only applies to projects proposing the development of a Single Family Hillside Home
- ▶ Provide an assessment of the project site using the following tables

General Characteristics

General Project Characteristics	Area (acres)
Total Project Site Area	
Estimated Disturbed Area	
Total Pre-Project Impervious Area	
Post-Project Impervious Area [1]	
Area of Green Roof (ET-1) [1]	
Area Draining to Hydrologic Source Controls (ET-2) [1]	
Revised Post-Project Impervious Area	0.00
Project Imperviousness (%)	

Project Description

Briefly describe project:
Describe current and proposed zoning and land use designation:
Describe topography of project area. Identify low and high points and the location of steep slopes (provide a range of grades):
Describe the site's soil types (A, B, C, D) and geological conditions:
<i>Attach soil type information</i>
Describe the site's groundwater conditions (e.g. depth to seasonal high groundwater):
<i>Attach source of groundwater information</i>

Project Name:

[Insert Project Name in General Info.]

SINGLE FAMILY HILLSIDE HOMES: ASSESS SITE CONDITIONS, CONT.

Is there offsite drainage on the site? If so, identify the location(s) and source(s) of offsite drainage and the volume of water running onto the site:

[Redacted area]

Describe any existing utilities within the project area that would limit the possible locations of certain BMPs:

[Redacted area]

Describe any environmentally sensitive areas (e.g. riparian areas, wetlands) within the project area:

[Redacted area]

Geotechnical considerations:

<i>Does the site contain any of the following characteristics:</i>	Y/N/NA
Collapsible Soil	
Expansion Soil	
Potential for seismically-induced soil liquefaction	

Additional considerations:

[Redacted area]

Attach relevant geotechnical information

Project Name:

[Insert Project Name in General Info.]

SINGLE FAMILY HILLSIDE HOMES: POLLUTANTS OF CONCERN

Identify pollutants of concern using the tables below

Pollutants of Concern (See Section 3.3 of TGM)

Activity / Potential Land Uses	Potential Pollutant*								
	Sediment	Nutrients	Metals	Pesticides	Oxygen Demanding Substances	Toxic Organics	Oil & Grease	Bacteria	Trash and Debris
[fill in if necessary]									
[fill in if necessary]									

* Denote potential pollutant with "x"

Receiving Waterbody Listings (see Section 3.3. of TGM)

Receiving Water Body (watershed indicated in parentheses)	Constituent Grouping [2]	Distance to Project (ft)
[fill in if necessary]		

Project Name:

[Insert Project Name in General Info.]

SINGLE FAMILY HILLSIDE HOMES: PERFORMANCE STANDARDS

► *The following measures are required and should be included in the lot layout, consistent with applicable local policies and if appropriate/feasible with the given site conditions.*

► *Additional guidance on performance standards can be found in Section 2.2 of the TGM.*

► *Identify and describe the performance standards included within the proposed site in the table below.*

Performance Standard	Included? Y/N/NA	Brief description of Performance Standard
Conserve Natural Areas		
Improvements are clustered on the least-sensitive portions of the lot		
Clearing and grading of native vegetation is limited		
Trees and other vegetation at the site are maximized		
Protect Slopes		
Slopes are protected from erosion by safely conveying runoff from the tops of slopes		
Native and drought-tolerant species are considered		
Protect Channels		
Natural drainage systems are used to the maximum extent practicable, but runoff discharge is minimized to the maximum extent practicable		
Permanent channel crossings are stabilized		
Energy dissipaters are installed at the outlets that discharge into unlined channels		
Provide Storm Drain System Stenciling and Signage		
Storm drain inlets within the project boundary include storm drain message markers or placards		
Divert Roof Runoff and Surface Flows to Vegetated Area(s) or Collection System(s)		
Disconnected downspouts divert water to (1) vegetated pervious areas of the site in order to allow for infiltration, storage, evapotranspiration, and treatment, or (2) a rainwater collection system		
Runoff diversion(s) meet the requirements as specified in Step 1b of TGM (e.g., vegetated flow paths are 25 ft or more in length)		

[1] Applicant should enter post-project impervious cover prior to accounting for green roof and hydrologic source control (HSC) credits. Volume reduction provided by green roofs and HSCs are accounted for implicitly in the sizing calculations for BMPs by assuming the roof area covered by a green roof or the area draining to a HSC is pervious rather than impervious when calculating the runoff coefficient for the site. Green roofs and HSCs are not required to be considered for all project locations and types. In order to obtain credit, Green Roofs and HSCs must be designed as specified in the TGM. Additional detail on Green Roofs (ET-1) and HSCs (ET-2) can be found in Section 6 of the TGM.

[2] If a waterbody is listed for "toxicity" and the cause and/or contribution to toxicity is known, then the constituent group known to contribute to toxicity are listed here (in lieu of listing "toxicity")

Project Name:

[Insert Project Name in General Info.]

ROADWAY PROJECTS: ASSESS SITE CONDITIONS

- ▶ *This tab only applies to Roadway Projects*
- ▶ *Provide an assessment of the project site using the following tables*

General Characteristics

General Project Characteristics	Area (acres)
Total Project Site Area	
Estimated Disturbed Area	
Total Pre-Project Impervious Area	
Post-Project Impervious Area [1]	
Area Draining to Hydrologic Source Controls (ET-2) [1]	
Revised Post-Project Impervious Area	0.00
Project Imperviousness (%)	

Project Description

Briefly describe project:
Describe current and proposed zoning and land use designation:
Describe topography of project area. Identify low and high points and the location of steep slopes (provide a range of grades):
Describe the site's soil types (A, B, C, D) and geological conditions:
<i>Attach soil type information</i>
Describe the site's groundwater conditions (e.g. depth to seasonal high groundwater):
<i>Attach source of groundwater information</i>

Project Name:

[Insert Project Name in General Info.]

ROADWAY PROJECTS: ASSESS SITE CONDITIONS, CONT.

Is there offsite drainage on the site? If so, identify the location(s) and source(s) of offsite drainage and the volume of water running onto the site:

[Redacted area]

Describe any existing utilities within the project area that would limit the possible locations of certain BMPs:

[Redacted area]

Describe any environmentally sensitive areas (e.g. riparian areas, wetlands) within the project area:

[Redacted area]

Geotechnical considerations:	
<i>Does the site contain any of the following characteristics:</i>	Y/N/NA
Collapsible Soil	
Expansion Soil	
Potential for seismically-induced soil liquefaction	
Additional considerations:	
[Redacted area]	
<i>Attach relevant geotechnical information</i>	

Project Name:

[Insert Project Name in General Info.]

ROADWAY PROJECTS: POLLUTANTS OF CONCERN

Identify pollutants of concern using the tables below

Pollutants of Concern Assoc. with Project Activities (See Section 3.3 of TGM)

Activity / Potential Land Uses	Potential Pollutant*								
	Sediment	Nutrients	Metals	Pesticides	Oxygen Demanding Substances	Toxic Organics	Oil & Grease	Bacteria	Trash and Debris
[fill in if necessary]									
[fill in if necessary]									

*Denote potential pollutant with "x"

Receiving Waterbody Listings (See Section 3.3 of TGM)

Receiving Water Body (watershed indicated in parentheses)	Constituent Grouping [2]	Distance to Project (ft)
[fill in if necessary]		

Project Name: [Insert Project Name in General Info.]

ROADWAY PROJECTS: PERFORMANCE STANDARDS

- ▶ *Street, roadway, highway, and freeway projects that construct 10,000 square feet or more of impervious surface area must incorporate the USEPA guidance, "Managing Wet Weather with Green Infrastructure: Green Streets", to the maximum extent practicable.*
- ▶ *Identify and describe the performance standards included within the proposed site in the table below.*

Performance Standard [1]	Included? Y/N/NA	Brief description of Performance Standard
Retention and/or biofiltration BMPs are sized to capture and treat SQDV or the SQDF. Also see BMP Sizing below		
Street width is minimized		
Porous pavement or pavers are used for low traffic roadways, on-street parking, shoulders or sidewalks		
Tree canopy is added by planting or preserving trees and shrubs		

[1] Additional guidance on performance standards can be found in Section 2.2 of the TGM.

Project Name: [Insert Project Name in General Info.]

ROADWAY PROJECTS: BMP SIZING

Roadway projects must utilize retention or biofiltration BMPs as specified in the TGM (INF-1-7, RWH-1, ET 1- 2, or BIO-1-5). BMPs must be sized to meet the SQDV or SQDF. See Section 2, Step 7 of the for guidance on calculating the SQDV and SQDF.

BMP Sizing	Y/N
A completed copy of the applicable "BMP Sizing Worksheet(s)" for the project's stormwater BMP(s) from Appendix E of the Technical Guidance Manual is included as an attachment.	

[1] Applicant should enter post-project impervious cover prior to accounting for green roof and hydrologic source control (HSC) credits. Volume reduction provided by green roofs and HSCs are accounted for implicitly in the sizing calculations for BMPs by assuming the roof area covered by a green roof or the area draining to a HSC is pervious rather than impervious when calculating the runoff coefficient for the site. Green roofs and HSCs are not required to be considered for all project locations and types. In order to obtain credit, Green Roofs and HSCs must be designed as specified in the TGM. Additional detail on Green Roofs (ET-1) and HSCs (ET-2) can be found in Section 6 of the TGM.

[2] If a waterbody is listed for "toxicity" and the cause and/or contribution to toxicity is known, then the constituent group known to contribute to toxicity are listed here (in lieu of listing "toxicity")

Project Name: [Insert Project Name in General Info.]

ADDITIONAL REQUIRED SUBMITTALS

Yes	<p>Site map that includes:</p> <ul style="list-style-type: none"> o Property boundary o Major roadways or landmarks o Scale and north arrow o Drainage areas o Surrounding land uses o Presence of Environmentally Sensitive Areas o Open space preservation areas o Impervious areas o Natural hydrologic features o Location of discharge(s) o Existing and planned utilities o Topography (including steep slopes) o Key activities such as outdoor material storage, parking, food preparation, etc. o Potential pollutant areas (e.g., fueling island) o Location of nearby (within 2,000 ft of development project) bus or train station(s) o Location and type of source control measures o Location and type of stormwater BMPs
	BMP Sizing Worksheet(s) (see Appendix E of TGM); design specifications and details must also be provided for Green Roofs and Hydrologic Source Controls (ET-1 & 2)
	Stormwater Treatment Device Access and Maintenance Agreement (see Appendix H of TGM for template)
	Maintenance Plan (See Appendix I of TGM for guidance)
Yes	<p>Technical Infeasibility Analysis – if Retention BMPs cannot be used, the applicant must submit a site-specific analysis showing technical infeasibility as described in Section 3.2 of the TGM. Technical infeasibility may include some (or all) of the components submitted with soil, groundwater and/or geotechnical reports. Technical infeasibility must also account for Rainwater Harvesting. Rainwater Harvesting is not required to be used if the available demands do not meet the volume required for 80% capture using a 72-hour drawdown time (See RWH-1 in Section 6 of the TGM for more detail).</p>
	Soil Type Information (may include site specific analyses, available geologic or geotechnical reports and/ or the Ventura Hydrology Manual Soil Map zoomed into site level)
	Groundwater Information (may include available groundwater data, site specific redoximorphic analytical/groundwater monitoring results, or known groundwater impacts such as contaminated sites registered with the State Water Board)
	Geotechnical Reports (may include site specific analyses with information on collapsible soils, expansive soil, liquefaction, or groundwater mounding analysis)
	Rainwater Harvesting - Include calculations and justification for rainwater harvesting demand. Section 3.2 for guidance of the TGM.