# Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

**Applicability:** Required for projects that create and/or replace 5,000 square feet or greater of impervious surface (i.e. asphalt roads, concrete structures, building area, sidewalks, etc.). Impervious surfaces are those that water cannot infiltrate/soak into.

To ensure that required site design measures are implemented in accordance with UC San Diego's Phase II Small MS4 General Permit 2013-0001-DWQ, submit working versions of this checklist (electronic or hard copy) to the UC San Diego Project Manager, to Environmental Planning, and to the FD&C Civil Engineering Group for review during the following project design phases (as applicable):

1. Conceptual Design Phase
2. 100% Schematic Design
3. Design Development
4. 100% Construction Drawings
5. At Project Close-out (final and complete version of checklist) (also submit final and complete version of checklist to EH&S)

<table>
<thead>
<tr>
<th>Is Project Exempt?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Exemptions:** The following projects are exempt from the Phase II Small MS4 permit storm water site design measures and low impact design requirements:

1. Projects completed before July 1, 2014.
2. Regulated projects that have been designed, approved, and funded prior to July 1, 2014.
3. Interior remodels.
4. Routine maintenance or repair projects such as:
   a. Maintenance, repair, and replacement work on existing underground utilities such as sanitary sewer lines or other utilities.
   b. Exterior wall surface replacement.
   c. Roof replacement.
   d. Pavement or asphalt resurfacing within the existing footprint.
   e. Sidewalk replacement within an existing footprint to replace concrete that is causing a trip hazard.
   f. Routine replacement/repair of damaged pavement/asphalt such as pothole repair.
5. Bicycle lanes or pedestrian ramps on existing roads or sidewalks within existing footprint (e.g., no new impervious area).
6. Sidewalks built as a part of new streets or roads and built to direct storm water runoff to adjacent vegetated areas.
7. Bicycle lanes that are built as part of new streets or roads that direct storm water runoff to adjacent vegetated areas.
8. Impervious trails build to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas.
9. Sidewalks, bicycle lanes or trails constructed with permeable surfaces.

*NOTE: If the project meets the exemption requirements, applicable portions of the checklist must still be completed.*

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Project #:</th>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Street Address:</th>
<th>Cross Streets:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Watershed (circle): See Attached Map if unsure which watershed your project lies within.</th>
<th>Scripps</th>
<th>Miramar Reservoir</th>
<th>Miramar</th>
<th>Other: ____________</th>
</tr>
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</table>
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<table>
<thead>
<tr>
<th>Project Type:</th>
<th>New Development</th>
<th>Re-Development</th>
<th>Road</th>
<th>Landscaping</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Circle)</td>
<td>Retrofit</td>
<td>Utility</td>
<td>Other: ______________________</td>
<td></td>
</tr>
</tbody>
</table>

**Description of Project:**

<table>
<thead>
<tr>
<th>Areas (in square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total: __________</td>
</tr>
</tbody>
</table>

Will more than 50% of Impervious Surface be Replaced?*

[ ] Yes  [ ] No

*If Yes then runoff from the entire project consisting of all existing, new, and/or replaced impervious surface must be included in the storm water treatment and design calculations

**For projects that are Redevelopment or Road Widening Projects**

Total pre-project impervious surface area: ________________  Total post-project impervious area: ________________

**Status of Project**

Application Date: __________  Application Deemed Complete Date: ________________  Project approval Date: __________
Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

PART A - SITE DESIGN MEASURES: Which site design measures have been implemented to reduce project site runoff? Applicant must select one or more of the following options below (check all that apply). In addition, the State Water Board's SMARTS Post-Construction Calculator (or equivalent) must be used to quantify the runoff reduction resulting from implementation of any site design measures specified below and attach the calculations to this checklist. If post-construction water balance cannot be achieved with site design measures only, then additional storm water treatment BMPs must be designed for the project as described in PART B below. An electronic copy of the Post-Construction Calculator is available on the UC San Diego Storm Water Management Program website: http://stormwater.ucsd.edu or request an electronic copy from EH&S Environmental Affairs at: ehsea@ucsd.edu

- Stream Setbacks and Buffers
  (A vegetated area including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake reservoir, or coastal estuarine area)

- Soil Quality Improvement and Maintenance
  (Improvements and maintenance through soil amendments and creation of microbial community)

- Tree Planting and Preservation
  (Planting and preservation of healthy established trees that include both evergreens and deciduous, as applicable)

- Rooftop and Impervious Area Disconnection
  (Rerouting of rooftop drainage pipes to drain rainwater to rain barrels, cisterns, or permeable areas instead of to the storm water system)

- Porous Pavement
  (Pavement that allows runoff to pass through it, thereby reducing the runoff from a site and surrounding areas and filtering pollutants)

- Green Roofs
  (A vegetative layer grown on a roof (rooftop garden))

- Vegetated Swales
  (A vegetated, open-channel management practice designed specifically to treat and attenuate storm water runoff)

- Rain Barrels and Cisterns
  (System that collects and stores storm water runoff from a roof or other impervious surface)

Description of Site Design Measures Implemented for Project:

Volume of runoff that will be treated:

Size of area that will drain to BMP:

Pollutants that will be captured by BMP: (check all that apply)
- Trash/Litter
- Sediment
- Dry weather flows (e.g. irrigation runoff)
- Other
### Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

#### PART B - SOURCE CONTROL MEASURES:
Projects that will create and/or replace 5,000 square feet or more of impervious surface must implement standard permanent and/or operational source control measures for pollutant generating activities and sources associated with the project. Source control measures shall be designed consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment (https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook). Please check all pollutant generating activities or sources that apply to this project below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>Accidental spills or leaks</td>
<td>Fire sprinkler test water</td>
</tr>
<tr>
<td>Interior floor drains</td>
<td>Loading docks</td>
</tr>
<tr>
<td>Parking/Storage area maintenance</td>
<td>Vehicle and equipment cleaning</td>
</tr>
<tr>
<td>Indoor and structural pest control</td>
<td>Fuel dispensing areas</td>
</tr>
<tr>
<td>Landscape/outdoor pesticide use</td>
<td>Storage and handling of solid waste</td>
</tr>
<tr>
<td>Pools, spas, ponds, decorative fountains, and other water</td>
<td>Restaurants, grocery stores, and other food service operations</td>
</tr>
<tr>
<td>features</td>
<td>Unauthorized non-storm water discharges</td>
</tr>
<tr>
<td>Outdoor storage of equipment or materials</td>
<td>Building and grounds maintenance</td>
</tr>
<tr>
<td>Vehicle and equipment repair and maintenance</td>
<td></td>
</tr>
<tr>
<td>Drain or wash water from boiler drain lines, condensate</td>
<td></td>
</tr>
<tr>
<td>lines, rooftop equipment, drainage sumps, and other</td>
<td></td>
</tr>
<tr>
<td>sources</td>
<td></td>
</tr>
</tbody>
</table>

Describe the source control BMPs that will be implemented for the project for all pollutant generating activities checked above:
### Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

**PART C - STORM WATER TREATMENT/BASELINE HYDROMODIFICATION MEASURES:** Only required if site design measures listed above cannot fully meet Permit requirements (i.e., Calculations on SMARTS calculator show that post-construction water balance is not achieved). All stormwater treatment BMPs shall be designed based on the flow-based or volume-based criteria specified in Section F.5.g.2.b (Numeric Sizing Criteria) of the Permit. Treatment BMPs must be designed for each Drainage Management Area (DMA). Bioretention facilities are preferred for treatment but alternative treatment BMPs can be used if the proper documentation and supporting calculations are provided and attached to this checklist. If Alternative BMPs are selected then all sizing and calculations should be prepared by a Registered Civil Engineer.

### STEP 1: Calculating What is Required for Treatment BMPs:

If you have a concept plan or design drawings for the proposed project which clearly define impervious and pervious areas you will be able to calculate the amount of area, volume, or flow that is required to be treated by stormwater treatment/hydromodification measures. If your project has more than one discharge point then you will need to divide your project into individual drainage management areas (DMA's) and calculate the required treatment for each DMA. If Bioretention is specified as the treatment control BMP of choice then skip to the Step 2 below for sizing BMPs. If alternative BMPs (BMPs other than bioretention) are utilized then depending on the type of BMP that will be designated for each DMA either volume-based or flow-based calculations should be performed to determine the required treatment volumes or rates. These calculations should be performed by a Registered Civil Engineer. The following sizing criteria should be used when determining volumes and rates for BMPs:

**Volume-Based BMP Sizing Criteria:**
- a) The maximized stormwater capture volume for the tributary are based on historical rainfall records and determined in accordance with Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (1998), pages 175-178 (the 85th percentile, 24-hour storm event) **OR:** b) The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with CASQA's Stormwater BMP Handbook for New and Redevelopment (2003) using local rainfall.

**Flow-Based BMP Sizing Criteria:**
- a) The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity **OR:** b) The flow of runoff produced from a rain event equivalent to at least 2 time the 85th percentile hourly rainfall intensity as determined from local rainfall records.

#### Treatment Rate or Volume Required for Project:
(If multiple DMA's please attach additional calculations to this checklist )

\[ \text{___________ ft}^3 \text{ or ft./s} \]
Step 2: Selecting Treatment/Hydromodification BMPs

Bioretention Facilities or Flow-Through Planters (Suggested BMP by Permit)

- Vegetated areas that can be designed as swales, basins, or flow-through planters. Bioretention facilities should be sized based on 4% of the total impervious tributary area to the bioretention facility and in accordance with the typical section below:

Additional Design Requirements for Bioretention:
- Bioretention facilities located in areas with highly infiltrative soils or high groundwater tables may omit the underdrain.
- The 18’ Soil layer (Planting layer) shall be comprised of a mixture of sand (60-70%) and compost (30-40%) and shall meet ASTM C33 Standards.
- The 12” Storage layer shall be comprised of gravel and underdrain shall be placed near the top of this layer.
- No liners or other barriers shall be used unless there is a structure or other geotechnical hazard located within 10 feet of facility.
- The appropriate plant palette should be selected based on the soil type and max. available water use.

Total Bioretention Area Required (based on 4% of impervious area) ________ ft²

Total Bioretention Area Provided: ________ ft²

If the Total Bioretention Area is less than the area required please explain why in the space below:

Other BMPs as listed below (check all that apply)

- Extended Detention Basin
- Infiltration Basin or Infiltration Trench
- High-Rate Biofilters (e.g. Tree wells or other) (1)
- High-Rate Media Filter (e.g. Vault unit with replaceable cartridges) (1)
- Other equally effective as bioretention BMP

(1) High-rate Biofilters or Media Filters are only allowed if bioretention or equivalent facility is proven to be infeasible for the project and if the following conditions apply: 1) project is creating or replacing an acre or less and is located in an area that has at least 85% of the site covered by permanent structures; 2) The proposed facility is receiving runoff solely from existing (pre-project) impervious areas.
### Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

Has the Excel File for the State Water Boards SMARTS Post-Construction Calculator been completed and attached to the back of this document for all Site Design Measures (Part A)?

- [ ] Yes
- [ ] No

Has all documentation for any source control measure that will be implemented on project been attached to this checklist (e.g., CASQA Fact Sheets)?

- [ ] Yes
- [ ] No

Have all calculations for design of Storm water Treatment Facilities (bioretention facilities, etc.) been performed and attached to this report?

- [ ] Yes
- [ ] No

### PART D - RUNOFF CONTROL

Does the project increase storm water runoff for the 10 year 6 hour storm?

- [ ] Yes
- [ ] No

If YES, describe the mitigation measures that will be implemented to reduce runoff from pre-development to post-development:

### PART E - POST-CONSTRUCTION BMP FOLLOW-UP (to be completed after construction)

Where was the post-construction storm water treatment system installed (Circle all that apply):

- [ ] Onsite
- [ ] Joint storm water treatment facility
- [ ] Offsite

O&M Responsibility of the Site Design and Treatment BMPs for the life of the project:

- [ ] HDH
- [ ] FM
- [ ] Contractor
- [ ] Other: ______________________________

BMP O&M procedures/guidance provided to UC San Diego?

- [ ] Yes
- [ ] No

Date of Installation:

Date of post-construction inspection: Inspected by:

- [ ] Proper Installation? Yes
- [ ] No
- [ ] Corrective actions needed: