**<City of Dana Point WQMP O&M Template>**

September 28, 2017 Version

A separate detailed, stand-alone, user-friendly Operation & Maintenance (O&M) Plan must be part of the Final WQMP submittal and approved prior to Grading Permit issuance or Certificate of Occupancy in certain circumstances. The O&M Plan must include detailed operations and maintenance instructions for all applicable BMPs and the as-built BMP site plan. Disregard previous versions of this template.

The red text and *highlighted yellow* is intended to be instructional and should be deleted before submittal of the document for review.

For questions, please contact the City Water Quality Engineer at 949-248-3584, [lzawaski@danapoint.org](mailto:lzawaski@danapoint.org).

**Operation & Maintenance (O&M) Plan for WQMP**

**Project Name:**

**Prepared for:**

**Insert Owner/Developer Name-then TAB.**

**Insert Address 1 then press ENTER to insert Address 2 or TAB to next field.**

**Insert City, State, ZIP-then TAB.**

**Insert Telephone-then TAB.**

**Insert email-then TAB.**

**Prepared by:**

**Insert Consulting/Engineering Firm Name-then TAB.**

|  |  |
| --- | --- |
| **Engineer: Insert Name-then TAB.**  **Registration No. Insert Number-then TAB.**  **Insert Address-then TAB.**  **Insert City, State, ZIP-then TAB.**  **Insert Telephone-then TAB**  **Insert email-then TAB.** | **Engineer’s Seal** |

**Prepared on:**

**Insert Date-then TAB.**

**Insert Revision Date(s) as appropriate-then TAB.**

**Contents Page No.**

Section 1 Project Description and BMP Overview 1

Section 2 Personnel, Documentation, and Reporting 1

2.1 Maintenance Roles and Responsibilities 1

2.2 Qualification and Training Requirements for Personnel 2

2.3 Maintenance Agreements and Funding Mechanisms 3

2.4 Record Keeping Requirements 3

2.5 Required Permits Associated with Maintenance Activities 4

2.6 Self-Reporting Requirements/WQMP Verification Form 4

2.7 City Inspections 4

2.8 Electronic Data Submittal 4

Section 3 Inspection and Maintenance Activities 5

3.1 Inspection and Maintenance of Source Control BMPs 5

3.2 Inspection and Maintenance of Hydrologic Source Controls 11

3.3 Inspection and Maintenance of Structural LID and Hydromodification BMPs 12

3.4 Emergency Response Plan 38

3.5 Sewer Spill Response 38

3.6 Vector Control 39

Attachment 1: BMP Site Plan, Details, Schematics, Photos and Other Exhibits 40

Attachment 2: Training Log Form 42

Attachment 3: Inspection and Maintenance Log Forms 44

Attachment 4: WQMP Verification Form 47

Attachment 5: Vendor O&M Information 48

Attachment 6: Maintenance Agreement and Funding Mechanism Documentation 41

*Guidance: Incorporate additional exhibits, reports, worksheets, and calculations, as needed.*

*Guidance: Highlighted text throughout the template provides guidance for use during WQMP preparation.* ***Delete this guidance prior to submission of WQMP.***

*Guidance: Prior to submittal, review Table of Contents, pages numbers, Attachment references, etc. to ensure that they are correct. Submittals may be returned as incomplete*

Section 1 Project Description and BMP Overview

This O&M Plan describes the designated responsible party for implementation of this WQMP, including: operation and maintenance of all the structural BMP(s), conducting the training/educational program and duties, and any other necessary activities. The O&M Plan includes detailed inspection and maintenance requirements for all structural BMPs, including copies of any maintenance contract agreements, manufacturer’s maintenance requirements, permits, etc.

*Guidance: This section is intended to introduce the user of the O&M plan to the project and the BMPs that are present. It should contain sufficient detail for the user to be familiar with the project without consulting the WQMP. It does not need to contain the same level of detail as the WQMP.*

| **General Project Attributes and Stormwater Control Measures** | | |
| --- | --- | --- |
| Site Location | *Guidance: Project location, address, boundaries.* | |
| APN |  |  |
| Project Area (ft2): \_\_\_\_\_\_\_ | Number of Dwelling Units: \_\_\_\_\_\_\_\_\_\_\_ | SIC Code: \_\_\_\_\_\_\_\_\_\_ |
| Narrative Project Description: | *Guidance: Briefly describe the development type, land uses, site activities,* | |
| Project-specific Source Control BMPs | *Guidance: Briefly list the source control BMPs specific to the project, including structural source control features and housekeeping activities.* | |
| Summary of Drainage Patterns | *Guidance: Briefly summarize how the site drains and where it discharges to.* | |
| Summary of Hydrologic Source Controls | *Guidance: Summarize any HSCs that are part of the overall stormwater control approach.* | |
| Structural Treatment and Hydromodification BMPs | *Guidance: Summarize the structural treatment and hydromodification BMPs (if applicable) found on the project site. This is intended to orient O&M personnel to the system of controls for the site.*  *The following table is intended to provide a BMP-specific introductoin* | |

*Guidance: Briefly describe all of the structural LID and/or hydromodification BMPs incorporated into the project. Suggest including a table similar to the one below to the BMP type, include a narrative description of the BMP including pretreatment, if applicable, location on the site, and any specific design considerations that maintenance personnel should be aware of. Example text shown in table. Include photos/maps/exhibits showing locations, designs, and details of each BMP in Attachment 1 to supplement this table. This table should help maintenance personnel identify the BMPs on the drainage map to ensure they understand what each is and have not missed any. See TGD Section 4 and 5 and the BMP fact sheets in TGD Appendix G for additional guidance.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| BMP ID | BMP Type | Narrative Description | Location | Other Considerations |
| *BMP 1* | *CDS Unit* | *Proprietary pre-treatment device located upstream of infiltration basin. Receives Flow from DMA 1.* | *Manhole 6W on west Carpenter St. near intersection with Via Andorra.* |  |
| *BMP 2* | *Infiltration Basin (INF-1)* | *Above-ground 3 -ft deep vegetated basin infiltrating flow into soil. Receives Flow from DMA 1 (after CDS treatment).* | *Just west of Carpenter St near western border of project.* | *Flow is pretreated by CDS unit prior to infiltration* |
| *BMP 3* | *Bioinfiltration Basin (BIO-1)* | *Above-ground 1 -ft deep bioretention basin with sedimentation forebay. Receives flow from DMA 2.* | *North of Via Andorra near northeastern border of project* | *Underdrain outlet is above gravel layer to provide retention/nutrient treatment.* |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Section 2 Personnel, Documentation, and Reporting

## **2.1** **Maintenance Roles and Responsibilities**

The roles related to O&M of the BMPs are defined as follows:

* ***Facility Owner*** *– The Facility Owner is the party who is ultimately responsible for the functionality of all BMPs. The maintenance agreement (Attachment 2) identifies the facility owner for each BMP, including the timing of any ownership transitions.*
* ***Responsible Party*** *– The Responsible Party is the party that shall have direct responsibility for the O&M of the BMPs. This party shall be the designated contact with inspectors and lead maintenance personnel. The Responsible Party shall sign self-inspection reports and any correspondence regarding the verification of inspections and required maintenance. The Responsible Party will establish a system to delegate general inquiries to the appropriate maintenance personnel concerning the operation and maintenance of the BMPs. The Responsible Party reports directly to the Facility Owner and operates and manages the BMPs on the Facility Owner’s behalf.*
* ***Designated Emergency Respondent*** *– The Designated Emergency Respondent is the party responsible for directing activities and communications during emergencies such as broken irrigation pipes, landslides, hazardous spill responses etc., that would require immediate response should they occur during off-hours. It is the responsibility of the Designated Emergency Respondent to communicate the emergent situation with the Responsible Party as soon as possible.*
* ***Key Maintenance Personnel*** *– Key Maintenance Personnel are the designated lead field manager(s) or supervisor(s) who directly oversee and delegate the maintenance activities, maintain the scheduling, and coordinate activities between all personnel. These tend to change more often than other personnel over time, so their names do not necessarily need to be included in the O&M Plan. However, they must be properly trained as recorded in the training logs (Section 2.2).*

*The table below lists the roles for this project. This table must be updated whenever changes occur.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Role | Name (Title and Affiliation) | Phone Number | Address | Email Address |
| Facility Owner |  |  |  |  |
| Responsible Party |  |  |  |  |
| Designated Emergency Respondent |  |  |  |  |

## **2.2 Qualification and Training Requirements for Personnel**

*Guidance: Template language is included. Update this section, as needed, based on the maintenance activities specific to the BMPs included in the project.*

Many of the activities presented in this O&M plan can be completed by personnel with basic landscaping and yard maintenance skills and project-specific orientation. However, there are activities that require a more experienced skillset to identify and remediate potential issues that could compromise the functionality of each BMP. The Responsible Party shall exercise discretion in determining the skillset required to complete each task.

Activities that can typically be completed by maintenance personnel with basic training and/or qualifications include:

* General landscaping activities (pruning, weeding, and raking)
* Routine sediment, trash and debris removal;
* Filling in minor scour or erosion areas, or replacing rip rap that has become displaced; and
* Watering or irrigation, as necessary.

Activities that typically require maintenance personnel with specialized qualifications, training, and/or engineering oversight include:

* Inspection and/or repair of inflow and outflow structures;
* Inspection and/or repair of underground elements;
* Large-volume sediment or media removal requiring specialized equipment;
* Inspection, diagnosis, and remediation of significant erosion issues potentially compromising function and/or structural stability; and
* Spill response and remediation.

Maintenance personnel who have identified a potential major issue with any facility should contact the designated key maintenance personnel for the facility immediately.

Training must be provided for all personnel performing maintenance tasks on or providing maintenance oversight of structural BMPs. The table below provides the personnel and relevant training topics.

Training Logs contained in Attachment 3 should be used to document training of maintenance personnel.

|  |  |  |  |
| --- | --- | --- | --- |
| Training Topic | Responsible Party | Designated Emergency Respondent | Key Maintenance Personnel |
| Proper Maintenance of all BMP components | **X** |  | **X** |
| Identification and clean-up procedures for spills and overflows | **X** | **X** | **X** |
| Safety concerns when maintaining devices and responding to emergency situations | **X** | **X** | **X** |

## **2.3 Maintenance Agreements and Funding Mechanisms**

*Guidance: Briefly describe the maintenance agreement and/or funding mechanism. Describe what agency, department, organization, or private company will operate the BMPs, and how the funding will be provided. Include the maintenance agreement as Attachment 2, as needed.*

## **2.4 Record Keeping Requirements**

*Guidance: Update this section, as necessary.*

Documentation of site conditions, maintenance activities performed, and any other remaining maintenance required is necessary during each inspection/maintenance visit. Inspection and maintenance records shall be retained in an accessible, secure location for the life of the facility, and not less than 10 years.

The following documentation mechanisms and procedures have been established for this O&M Plan:

* **Training Logs:** Personnel must document training activities as part of implementing this O&M Plan. Attachment 3 contains a sample training log.
* **Inspection and Routine Maintenance Logs:** Maintenance personnel are required to maintain logs of inspection and maintenance activities. Attachment 4 contain inspection and maintenance logs.
* **Rehabilitative and Corrective Maintenance Log and Reporting:** Rehabilitation and corrective maintenance activities should be documented at a degree of detail that is commensurate to the complexity/significance of the activity. Any significant changes to the BMP designs that arise from rehabilitation/corrective maintenance will be documented via an update to the Project WQMP and as-built drawings. Corrective maintenance that does not result in design changes will be documented as a special entry in the maintenance logs to provide pertinent details of that rehabilitative or corrective maintenance activity.

*The City or other agencies may also require a monitoring plan which has additional requirements for documentation. Details regarding the monitoring plan, such as parameters to be tested, frequency, testing locations, laboratory, etc. shall be included as appropriate, with the plan for meeting documentation requirements. This could include an attachment with a template form for sample collection, for example.*

*If no monitoring is required, a statement to that effect should be made.*

## **2.5 Required Permits Associated with Maintenance Activities**

*Guidance: List any permits required for implementation, operation, and maintenance of the BMPs. Possible examples are: permits for maintenance-related discharges to sanitary sewer, permits from California Fish and Game for access or maintenance that pertains to habitat, and Encroachment Permits. If no permits are required, state this in this section.*

## **2.6 Self-Reporting Requirements/WQMP Verification Form**

*Guidance: State any regular self-reporting requirements required by the local jurisdiction. Example from is below. Update, as needed. Include templates for any jurisdiction-specific forms in the attachment of this O&M Plan.*

The WQMP Verification Form (Attachment 4) shall be completed accurately and submitted, with associated documentation, to the City of Dana Point via email to [lzawaski@danapoint.org](mailto:lzawaski@danapoint.org) by September 30 of each year, or as requested by the City. Failure to complete and submit the verification form will result in a noncompliance and enforcement actions may be taken.

## **2.7 City Inspections**

The City of Dana Point may conduct a site inspection to evaluate compliance with the Project WQMP, at any time, in accordance with Dana Point Municipal Code Chapter 15.10 Storm Water / Surface Runoff Water Quality ([Chapter 15.10 STORM WATER/SURFACE RUNOFF WATER QUALITY](http://qcode.us/codes/danapoint/view.php?topic=15-15_10&frames=on)).

## **2.8 Electronic Data Submittal**

This document, along with the attachments, shall be provided to the City or County in PDF format. Autocad files and/or GIS coordinates of BMPs shall also be submitted to the City/County.

Section 3 Inspection and Maintenance Activities

This section identifies the inspection and O&M activities for each BMP incorporated into the project. Section 3.1 and 3.2 contain common maintenance activities and frequencies associated with Source Control BMPs and HSCs, respectively. Section 3.3 contains individual tables for each structural LID or hydromodification BMP with an explanation of the various types of maintenance activities associated with these BMPs.

## **3.1 Inspection and Maintenance of Source Control BMPs**

*Guidance: The tables below includes the recommended activities and frequencies for each source control BMP that has potential O&M requirements from the TGD. Delete rows for any unused BMPs, and add others, as needed. May tailor the table for site-specific considerations, as needed.*

| **Source Control BMP** | **Activity** | **Frequency** |
| --- | --- | --- |
| Dry Weather Flow Source Control  **Note: this is a South Orange County High Priority Water Quality Condition for All Projects** | Check for dry weather flows such as street washing, irrigation overspray, air conditioner condensate in areas of the project that do not drain to LID BMPs, the sanitary sewer, or landscaped pervious areas. Notify residents of any dry weather flows and follow up to correct. | Twice per year during dry season |
| Inspect project outfall or most-downstream project manhole for presence of dry weather flow. If present, conduct reconnaissance to determine source and implement actions to eliminate source. | Twice per year during dry season |
| N1. Education for Property Owner’s Tenants and Occupants | Distribute appropriate materials to owners, tenants, and/or occupants via contract language, mailings, website, or meetings. | Information provided to owners and tenants upon sale or lease. Reminders sent or posted as needed. |
| Check [www.ocwatersheds.com](http://www.ocwatersheds.com) and/or City website for updated educational materials. | Annually |
| N2. Activity Restrictions | Within the CC&R’s or lease agreement, restrict the following activities: *List the activities to be restricted for water quality source control, e.g. car washing outside of car wash areas, etc.* | Information provided to owners and tenants upon sale or lease. Reminders sent or posted as needed. |
| N3/S4. Common Area Landscape Management, Efficient Landscape Design, and Efficient Irrigation | Check that fertilizer and pesticide usage is in accordance wiN1th the Integrated Pest Management Program. Adjust, if needed. | Annually |
| Check the irrigation system water budget to ensure efficiency targets are being met and the system is in good condition. Adjust/repair irrigation system and controllers, if needed. | Annually prior to irrigation system activation |
| Check landscaping for presence of invasive species and remove, if needed. | Annually |
| N11. Common Area Litter Control | Remove trash from around trash enclosure, inspect to ensure lids closed, structurally sound, and not overflowing. Repair or replace, as needed. | Monthly |
| Inspect common area for litter and trash disposal violations by homeowners and reporting to the HOA or responsible party for investigation. Remove litter, as needed. | Weekly |
| N13/S6. Housekeeping of Loading Docks | Inspect loading dock for litter, spills, broken containers, and broken containers. Remove litter and debris and sweep docking area. | Monthly |
| Check that loading dock is covered and isolated with no run-on or run-off to other areas or the storm drain system. Repair, redesign, regrade, etc. to correct deficiencies. | Annually |
| If spills of hazardous materials occur, clean up spill, but prevent wash water from entering storm drain system. | As needed |
| N14. Common Area Catch Basin Inspection | Remove trash and debris from catch basins and grates. Check for damage, clogging, and standing water. Repair or mitigate clogging/standing water, as needed. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| N15. Street Sweeping Private Streets and Parking Lots | Sweep curb and gutter areas using a vacuum street sweeper. Report any significant or illicit debris in curb/gutter to HOA or responsible party, as needed. | Monthly |
| S1. Provide Storm Drain System Stenciling and Signage | Check that all catch basins in paved areas marked or stenciled with “No dumping-Drains to Ocean; No Descargue Basura” language. Replace/repaint markings if faded, damaged, removed, or otherwise illegible. | Annually |
| S2. Design and Construct Outdoor Material Storage Areas | Check outdoor material storage structure to ensure structural stability is sound and that no contact of the stored materials with rainfall or runoff is occurring. Check secondary containment for leaks. Repair leaks or damage, as needed and mitigate, if coming into contact with stormwater. | Twice per year |
| S3. Design and Construct Trash and Waste Storage Areas | Check that outdoor waste storage structure is consistently covered, that structural stability is sound, and that no run-on or contact of the trash with runoff is occurring. Repair leaks or damage and mitigate if trash coming into contact with stormwater, as needed. | Twice per year |
| Check that trash is removed by local waste management contractor on at least a weekly basis for proper disposal. | Weekly |
| S5. Protect Slopes and Channels and Provide Energy Dissipation | Check slopes, channels, riprap and other conveyance or energy dissipation areas for signs of erosion or scour. Replace material, repair channels, replant vegetation, and/or redesign, as needed for signs of erosion/scour. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| S7. Maintenance Bays | Check that no run-on or runoff is occurring to or from maintenance bays | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check berms, drop inlets, and other control devices for structural soundness and effectiveness. Repair or mitigate, as needed, if runoff occurring from maintenance bays. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Remove trash and debris and sweep maintenance areas | Monthly |
| S8. Vehicle Wash Areas | Check that no run-on or runoff is occurring to or from vehicle wash areas | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check berms, drop inlets, and other control devices for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Remove trash and debris from vehicle wash areas | Monthly |
| S9. Outdoor Processing Areas | Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check berms, drop inlets, and other control devices for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Remove trash and debris and sweep outdoor processing areas | Monthly |
| S10. Equipment Wash Areas | Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check berms, drop inlets, and other control devices for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Remove trash and debris and sweep equipment wash areas | Monthly |
| S11. Fueling Areas | Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check berms, drop inlets, and other control devices for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Remove trash and debris and sweep fueling areas | Monthly |
| S12. Hillside Landscaping | Check the vegetation on steep hillsides to ensure healthy, and check for signs of erosion. Replace eroded areas with deep-rooted, drought tolerant vegetation and remove invasives, as needed. | Twice per year |
| S13. Wash Water for Food Preparation Areas | Check that signs are present prohibiting the discharge of wash water from food preparation areas (including outdoor) to areas draining to a storm drain, is prohibited. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check sinks, berms, and other structures for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed. | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches |
| Remove trash and debris and sweep outdoor food preparation areas | Weekly |

## **3.2 Inspection and Maintenance of Hydrologic Source Controls**

*Guidance: Where HSCs are considered as part of BMP sizing, then HSCs must be maintained in order to maintain intended functionality. The table below includes the recommended activities and frequencies for each HSC from the TGD. Delete rows for any unused HSCs, and add others, as needed. May tailor the table for site-specific considerations, as needed.*

|  |  |  |
| --- | --- | --- |
| **HSCs** | **Activity** | **Frequency** |
| Localized On-Lot Infiltration (E.g. Rain Gardens, French Drains) | Confirm presence of HSC. Remove trash. Check facility for excessive sediment accumulation (>~ 1 inch), major erosion, damage, channelization, loss of vegetation, and standing water. Check downspout and flow spreader for damage or clogging. Remove sediment, restore vegetation, scarify soil, and/or otherwise mitigate, as needed, to restore functionality. | Annually |
| Impervious Area Dispersion (E.g. Downspout Disconnect, Sheet Flow Dispersion) | Confirm presence of HSC. Remove trash from pervious area. Check pervious area erosion, channelization, loss of vegetation. Check downspout and flow spreader for damage or clogging. Decompact, level, reseed, or other activities, as needed, to restore functionality. | Annually |
| Street Trees | Confirm presence of HSC. Check trees for damage, impaired health, insects, and growth. Prune and maintain trees to avoid impairment of traffic and replace/treat dead or damaged trees. | Annually |
| Green Roof/Brown Roof | Confirm presence of HSC. Check roof storage for excessive standing water. Check vegetation (if present) for health and coverage. Mitigate any detected issues to restore function, as needed. | Annually |
| Self-Retaining Areas | Confirm presence of HSC. Any self-retaining areas must be examined for excessive standing water and clogging (meaning they are no longer self-retaining). Mitigate, as needed, to provide full retention of the DCV. | Annually |

## **3.3 Inspection and Maintenance of Structural LID and Hydromodification BMPs**

The section is organized by type of structural LID or hydromodification BMP with separate tables for each BMP type included in the project. The section identifies four categories of activities related to O&M of the BMPs:

**General Inspections -** Evaluations conducted at regularly scheduled intervals to indicate the need for maintenance of structural BMPs.

**Routine Maintenance Activities** – Activities conducted at regularly scheduled intervals to sustain long-term performance of each BMP, including inspections and normal upkeep.

**Corrective (Major) Maintenance Activities** – Includes activities conducted to replace or rehabilitate system components at the end of their usable life as well as activities conducted to resolve major issues that are not anticipated.

**Emergency Response Activities** – Activities related to emergencies, primarily concerning spills, which may require immediate action and notifications (Section 3.4).

|  |  |  |
| --- | --- | --- |
| **BMP ID** | **BMP Type** | **Reference Maintenance Table** |
| *BMP 1* | *CDS Unit* | *Manufacturer O&M Manual (Attachment XX)* |
| *BMP 2* | *Infiltration Basin)* | *INF-1 (Page XX)* |
| *BMP 3* | *Bioinfiltration Basin* | *BIO-1 (Page XX)* |

*Guidance: This section is pre-populated with tables for each LID and HM BMP. These tables contain the recommended activities and frequencies based on the BMP Fact Sheets in Appendix G of the TGD.*

*Delete tables for any unused BMPs, and add others, as needed.*

*Add tables for any proprietary BMPs that do not fit into any of the categories below, such as proprietary BMPs used for pretreatment or trash control based on manufacturers recommendations.*

*May tailor the tables for site-specific considerations, as needed.*

*Section 1.4 should already list the BMPs associated with the project, but this section should assign each of these BMPs to a category with a table below.*

| **INF-1 Infiltration Basins** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Identify eroded facility areas | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches |  |
| Observe and record drawdown rate |  |
| Estimate degree of sediment accumulation in pretreatment system and infiltration basin |  |
| Identify areas of compromised plant health or density |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Sediment, Trash, and Debris** | |  |
| Remove trash from facility | Each visit; as needed |  |
| Remove sediment from forebay when estimated sediment accumulation exceeds 25% of the forebay volume | As needed |  |
| Remove sediment from pretreatment system per manufacturer’s recommendations or when sediment storage volume is more than 50% full | Per manufacturer recommendation, or as needed |  |
| **Vegetation and Infiltration Bed** |  |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation | Four times per year during wet season, including inspection just before the wet season |  |
| Replant or reseed areas of thin or missing vegetation | Annually |  |
| Scrape soil from top 3 to 6 inches of infiltration bed and reestablished vegetation; augment soil amendment if needed | When infiltration rate drops below design infiltration rate |  |
| **Inflow and Outflow Structures** | |  |
| Check energy dissipation function and add riprap | Four times per year during wet season, including inspection just before the wet season |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season |  |
| Repair structural damage to inlets and outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **INF-2 Infiltration Trench** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Identify eroded facility areas | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches |  |
| Observe and record drawdown rate via the observation port |  |
| Estimate degree of sediment accumulation in the pea gravel, thickness of surface layer or depth of penetration |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Pea Gravel Filter Layer** |  |  |
| Remove sediment via scraping of the top layers of this layer and replacement with clean washed pea gravel | Annually or when sediment has accumulated within more than 2 inches of the pea gravel layer |  |
| Replace full depth of pea gravel | When comingled with sediment and appears to be restricting inflow to system |  |
| **Gravel Bed** |  |  |
| Excavate the entire facility, rehabilitate bottom and sides via over-excavation, and replace aggregate layers. Aggregate layers can be reused if they are washed before replacement. | When infiltration rate drops below design infiltration rate |  |
| **Inflow and Outflow Structures** | |  |
| Repair structural damage to inlets and outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **INF-3 Bioretention Without Underdrain** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Remove trash and debris | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Repair eroded facility areas |  |
| Inspect and maintain access roads |  |
| Inspect and resolve areas of standing water |  |
| Remove minor sediment in facility bottom |  |
| Provide vector control if needed |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Vegetation** | |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation | Four times per year during wet season, including inspection just before the wet season. |  |
| Reseed or replant areas of thin or missing vegetation | Annually |  |
| **Mulch** | |  |
| Remove and replace mulch in areas where significant sediment (>1 inch) has accumulated | Annually |  |
| Add an additional 1-2 inches of mulch; replace any mulch that is removed | Annually |  |
| **Media Layer** |  |  |
| Scarify media to promote infiltration while removing mulch | Annually |  |
| Replace top 3-6 inches of media layer and replace vegetation | Estimated every 10 years (highly site specific) |  |
| Replace full depth of media and replace vegetation | Estimated every 30 years (highly site specific) |  |
| **Inflow, Underdrain and Outflow Structures** | |  |
| Check energy dissipation function and add riprap | Four times per year during wet season, including inspection just before the wet season. |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Flush underdrain | As needed |  |
| Repair structural damage to inlets, outlets, and underdrain | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| For the adaptable configuration, utilize results of downtown observations to determine the need for adjustment of the outlet structure (i.e., uncapping closed underdrain) | Based on twice-yearly drawdown observations following events 0.5 inch or larger |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **INF-4 Dry Well** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Identify and control sources if sediment in tributary areas | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches |  |
| Observe and record drawdown rate via the observation port |  |
| Estimate degree of sediment and/or trash and debris accumulation in the pre-treatment system |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Pre-treatment system** |  |  |
| Remove accumulated material from pre-treatment system | Annually or when material has accumulated to more than 50 percent of capacity of the pre-treatment system. If proprietary pre-treatment is used, then maintain per manufacturer guidance. |  |
| **Dry Well** |  |  |
| Excavate the entire facility, rehabilitate bottom and sides via over-excavation, and replace system components. | When infiltration rate drops below design infiltration rate |  |
| **Inflow and Outflow Structures** | |  |
| Repair structural damage to inlets and outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |

| **INF-5 Permeable Pavement** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Inspect for areas of sediment accumulation in the pavement surface | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| If sediment accumulation is elevated, inspect for potential sources of sediment in the tributary area and recommend control approaches |  |
| Observe and record drawdown rate via observation port following storm event |  |
| Periodically (every 2 to 5 years) measure the permeability of the surface of the permeable pavement |  |
| Identify any damage to pavement |  |
| Inspect overflow structures |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Permeable Surface Layer** | |  |
| Remove sediment and leaf litter using a mechanical sweeper (i.e., regenerative air or vacuum-assisted sweeper) | Two to four times per year during wet season including just before the wet season, depending on sediment and debris load |  |
| Manually remove weeds | Annually |  |
| Power wash surface layer (without using surfactants) | Annually |  |
| Patch pavement surface where needed | As needed |  |
| Other activities specific to pavement surface type | As needed |  |
| Coordinate with maintenance of adjacent pavement to ensure permeable pavement is protected | As needed |  |
| **Underdrain and Outflow Structures** | |  |
| Inspect outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Repair structural damage to outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **INF-6 Underground Infiltration** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Inspect condition of pretreatment BMP to determine need for maintenance | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Inspect degree of sediment accumulation in storage reservoir, if possible |  |
| Observe and record drawdown rate |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Pretreatment System** | |  |
| Remove accumulated trash and debris | Each visit; as needed |  |
| Remove sediment from pretreatment system per manufacturer’s recommendations or when sediment storage volume is more than 50% full | Per manufacturer recommendation, or as needed |  |
| **Storage Reservoir** |  |  |
| It is not typically practical to maintain the storage reservoir or infiltrating surface; plan for overall reconstruction when infiltration falls below the design infiltration rate | Estimate frequency of clogging maintenance using guidance in Appendix E.4 of the TGD. |  |
| If infiltration has declined and the system has the flexibility to be adapted to serve as a biotreatment BMP with partial infiltration (i.e., through use of a proprietary BMP as a pretreatment system), then adjust outlet to infiltrate a shallower depth of water and operate as biotreatment with partial infiltration system while infiltration rates allow. This can extend the period before rehabilitation is needed. | As needed and acceptable. |  |
| **Inflow and Outflow Structures** | |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Repair structural damage to inlets and outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **HU-1 Rainwater Harvesting Cisterns and Tanks** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Check for leaks | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Inspect for minor sediment in cistern bottom |  |
| Inspect for vector control issues |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| Clean out gutters, screening, and/or first-flush diverter | As-needed |  |
| Remove sediment, trash, debris, and oil accumulation from cistern | Semi-annually or as needed |  |
| Clean inside surfaces of cistern and disinfect | Annually |  |
| Maintain treatment systems per manufacturer or designer recommendations | As specified |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |

| **BIO-1/BIO-6 Bioinfiltration/Bioretention With Underdrain** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Remove trash and debris | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Repair eroded facility areas |  |
| Inspect and maintain access roads |  |
| Inspect and resolve areas of standing water |  |
| Remove minor sediment in facility bottom |  |
| Provide vector control if needed |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Vegetation** | |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation | Four times per year during wet season, including inspection just before the wet season. |  |
| Reseed or replant areas of thin or missing vegetation | Annually |  |
| **Mulch** | |  |
| Remove and replace mulch in areas where significant sediment (>1 inch) has accumulated | Annually |  |
| Add an additional 1-2 inches of mulch; replace any mulch that is removed | Annually |  |
| **Media Layer** |  |  |
| Scarify media to promote infiltration while removing mulch | Annually |  |
| Replace top 3-6 inches of media layer and replace vegetation | Estimated every 10 years (highly site specific) |  |
| Replace full depth of media and replace vegetation | Estimated every 30 years (highly site specific) |  |
| **Inflow, Underdrain and Outflow Structures** | |  |
| Check energy dissipation function and add riprap | Four times per year during wet season, including inspection just before the wet season. |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Flush underdrain | As needed |  |
| Repair structural damage to inlets, outlets, and underdrain | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **BIO-2 Vegetated Swale** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Remove trash and debris | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Repair eroded facility areas |  |
| Inspect and maintain access roads |  |
| Inspect and resolve areas of standing water |  |
| Remove minor sediment in facility bottom |  |
| Provide vector control if needed |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Vegetation** | |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation | Four times per year during wet season, including inspection just before the wet season. |  |
| Repair areas of thin or missing vegetation | Annually |  |
| **Topsoil/Amended Soils/Media Layer** |  |  |
| Replace top 3-6 inches of top soil or media layer and replace vegetation | Estimated every 10 years (highly site specific) |  |
| Replace full depth of top soil, media, aggregate storage (if provided) and replace vegetation | Estimated every 30 years (highly site specific) |  |
| **Inflow, Underdrain and Outflow Structures** | |  |
| Check energy dissipation function and add riprap | Four times per year during wet season, including inspection just before the wet season. |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Flush underdrain, if included in design | As needed |  |
| Repair structural damage to inlets, outlets, and underdrain | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **BIO-3 Vegetated Filter Strip** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Remove trash and debris | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Check for eroded facility areas or areas with sparse or dead vegetation |  |
| Inspect for signs of concentrated flow into level spreader or into filter strip |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| Repair eroded areas | Four times per year during wet season, including inspection just before the wet season. |  |
| Maintain level spreader by making local adjustments to elevations to improve flow distribution over filter strip | Annually |  |
| **Vegetation** | |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation (i.e., weeds) | Four times per year during wet season, including inspection just before the wet season. |  |
| Reseed areas of thin or missing vegetation | Annually |  |
| **Topsoil/Amended Soils** |  |  |
| Decompact/aerate to at least a 6-inch depth and reseed to maintain porosity and robust vegetation replace vegetation | Estimated every 10 to 15 years (highly site specific) |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **BIO-4 Dry Extended Detention Basin** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Remove trash and debris | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Areas of erosion or scour facility areas |  |
| Areas of standing water |  |
| Need for vegetation management |  |
| Need for vector control efforts |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| Repair areas of erosion, scour, or standing water | As needed |  |
| **Sediment** | |  |
| Remove sediment from forebay when sediment volume exceeds 25% of the sediment storage volume | As needed |  |
| **Vegetation** | |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation | Four times per year during wet season, including inspection just before the wet season. |  |
| Reseed or replant areas of thin or missing vegetation | Annually |  |
| **Inflow and Outflow Structures** | |  |
| Check energy dissipation function and add riprap as needed | Four times per year during wet season, including inspection just before the wet season. |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Repair structural damage to inlets and outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **BIO-5/7 Proprietary Biotreatment** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Remove trash and debris | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Identify excess erosion or scour |  |
| Identify sediment accumulation that requires maintenance |  |
| Inspect during storm event, when possible, to estimate treatment capacity and determine if premature bypass is occurring |  |
| Evaluate plant health and need for corrective action |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| OPERATION AND MAINTENANCE | |  |
| * O&M of proprietary BMPs must follow established manufacturer guidelines * O&M of accompanying retention BMPs should follow the guidelines established in the associated fact sheet for that BMP. | |  |

| **BIO-8 Wet Detention Basin** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Identify eroded facility areas | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Identify needs to improve vector control if needed |  |
| Estimate degree of sediment accumulation |  |
| Identify areas of compromised plant health or density |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Sediment, Trash, and Debris** | |  |
| Remove trash from facility | Each visit; as needed |  |
| Remove sediment from forebay when estimated sediment accumulation exceeds 25% of the forebay volume | As needed |  |
| Remove sediment from basin bottom when estimated sediment accumulation exceeds 10% of total volume. | As needed |  |
| **Vegetation** | |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation | Four times per year during wet season, including inspection just before the wet season. |  |
| Reseed or replant areas of thin or missing vegetation | Annually |  |
| Remove algae mats when algae coverage is more than 20% of the water surface | As needed |  |
| **Inflow and Outflow Structures** | |  |
| Check energy dissipation function and add riprap, as needed | Four times per year during wet season, including inspection just before the wet season. |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Repair structural damage to inlets and outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **BIO-9 Constructed Wetland** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Identify eroded facility areas | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches. |  |
| Identify needs to improve vector control if needed |  |
| Estimate degree of sediment accumulation |  |
| Identify areas of compromised plant health or density |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| ROUTINE MAINTENANCE | |  |
| **Sediment, Trash, and Debris** | |  |
| Remove trash from facility | Each visit; as needed |  |
| Remove sediment from forebay when estimated sediment accumulation exceeds 25% of the forebay volume | As needed |  |
| Remove sediment from basin bottom when estimated sediment accumulation exceeds 10% of total volume. | As needed |  |
| **Vegetation** | |  |
| Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation | As needed |  |
| Remove undesirable vegetation | Four times per year during wet season, including inspection just before the wet season. |  |
| Replant or reseed areas of thin or missing vegetation | Annually |  |
| Remove algae mats when algae coverage is more than 20% of the water surface | As needed |  |
| **Inflow and Outflow Structures** | |  |
| Check energy dissipation function and add riprap | Four times per year during wet season, including inspection just before the wet season. |  |
| Inspect inlets and outlets and remove accumulated sediment | Four times per year during wet season, including inspection just before the wet season. |  |
| Repair structural damage to inlets and outlets | As needed |  |
| CORRECTIVE (MAJOR) MAINTENANCE | |  |
| Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed. | Before major maintenance |  |
| Document major maintenance activities; record modified WQMP and as-built plan set if needed | After major maintenance |  |
| Take photographs before and after from the same vantage point | Before and after |  |

| **TRT-2 Proprietary Treatment Control BMPs** | | **Inspection Notes** |
| --- | --- | --- |
| **Activity** | **Frequency** |  |
| GENERAL INSPECTIONS | |  |
| Remove trash and debris | Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches |  |
| Identify excess erosion or scour |  |
| Identify sediment accumulation that requires maintenance |  |
| Inspect during storm event, when possible, to estimate treatment capacity and determine if premature bypass is occurring |  |
| Identify any needed corrective maintenance that will require site-specific planning or design |  |
| OPERATION AND MAINTENANCE | |  |
| O&M of proprietary treatment control BMPs must follow established manufacturer guidelines | |  |

## **3.4 Emergency Response Plan**

*Guidance: Update this section as needed for the development*

In some cases, adverse conditions may occur which could be an imminent threat to human or environmental health or severe damage to infrastructure or property. For example, a spill of hazardous substances in the contributing area to a BMP could cause harmful substances to enter the BMP and be released downstream, affecting environmental and public health. Other emergencies could arise related to the stormwater features or water quality protection, such as landsliding, major erosion, or burst pipes in the tributary area.

In the event of an actual or suspected hazardous material release, the following plan shall take effect.

The primary importance of initial response to an actual or suspected spill will be public safety, control of the source of pollution, and containment of spills that have occurred, as applicable. The table below provides the emergency contact information for hazardous materials spills affecting BMPs.

|  |  |  |
| --- | --- | --- |
| Name | Phone | When to Report |
| Local Emergency Response (Fire Department) | 911 | Immediately |
| Orange County 24-Hour Water Pollution Problem Reporting Hotline | 1-877-897-7455 | Immediately |
| CalOES State Warning Center | 1-800-852-7550 | Immediately |

The first number to call is emergency response (9-1-1), followed by the California Governor’s Office of Emergency Services (CalOES), formerly the California Emergency Management Agency (CalEMA). (CalOES) maintains guidance and instructions of what to do in the event of a spill of hazardous substances (<http://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting>). This plan is based on the guidance provided by CalOES (CalOES, 2014).

1. If an actual or suspected hazardous material incident exists, maintenance personnel will immediately call 911 and the CalOES State Warning Center (Table 6).
2. The Designated Emergency Respondent and Responsible Party assigned to the facility (from Section 2.1) must also be notified of any actual or potential spill.
3. Remediation of contamination in the water quality facility should be handled as a corrective maintenance issue per Section 3.2 of this O&M plan.

In the event that a potential spill is identified prior to it reaching the BMPs, the Designated Emergency Respondent will implement an isolation protocol to prevent the spill from entering the BMP. An inflatable plug, Hazmat Plug, or equivalent device as approved by the Designated Emergency Respondent will be installed within the storm drains or catch basins to block upstream flow from reaching and contaminating the BMP. The temporary plug will be an interim measure until the spill is properly maintained and remediated and the Designated Emergency Respondent has determined the risk to the BMP of contamination no longer exists.

Similar measures should be taken in the event of a landslide, mudslide, or major erosion within the tributary area of the BMP to prevent sediment from damaging the BMP to the extent possible.

## **3.5 Sewer Spill Response**

In the event that a sewer spill is observed is observed, a call should be made immediately to a plumbing professional and to the appropriate sewer agency.

Plumbing Contractor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sewer Agency: *Guidance: select appropriate agency that serves this project area.*

South Coast Water District: 949-499-4555

Moulton Niguel Water District: 949-831-2500

San Juan Capistrano Utilities: 949-443-6363, after hours: 949-234-4575

## **3.5 Vector Control**

*Guidance: Update, as needed.*

In addition to the inspection and maintenance activities listed in Section 3, all BMPs shall be inspected for standing water on a regular basis. Standing water which exists for longer than 72 hours may contribute to mosquito breeding areas. Standing water may indicate that the BMP is not functioning properly and proper action to remedy the situation shall be taken in a timely manner.

Elimination of standing water and managing garbage, lawn clippings, and pet droppings can help decrease the present of mosquitoes and flies in the area.

The Orange County Vector Control District may be contacted for more information and support at 714-971-2421 or 949-654-2421 or [www.ocvcd.org](http://www.ocvcd.org).

Attachment 1: BMP Site Plan, Details, Schematics, Photos and Other Exhibits

*Guidance: This attachment is referenced throughout the O&M Plan for visual information about the BMPs.*

*This attachment should include a copy of the BMP Site Plan from the WQMP (as-built) and relevant water quality details from the as-built construction drawings/grading plans.*

*Other exhibits should be included, as necessary, such as landscape, grading and/or architectural plans, to help maintenance staff locate and identify all BMPs associated with the project and identify the areas draining to them.*

*Schematics and cross sections should be included for each BMP to help maintenance staff identify the important features of each BMP to aid in inspection/maintenance.*

*Photos of each BMP in its constructed condition can provide useful reference for comparison with existing conditions at inspections and can help maintenance staff identify the BMPs.*

**Site plan is preferred on minimum 11” by 17” colored sheets, as long as legible.**

Attachment 2: Training Log Form

*Guidance: An example template for a training/educational log is included, here. Individual adaptation is allowed, and some jurisdictions may have separate templates they require to be used.*

training / educational log

|  |  |
| --- | --- |
| Date of Training/Educational Activity: |  |
| Name of Person Performing Activity (Printed): |  |
| Signature: |  |

Topic of Training/Educational Activity:

|  |  |
| --- | --- |
|  |  |

| **Name of Participant** | **Signature of Participant** |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

For newsletter or mailer educational activities, please include the following information:

* Date of mailing:
* Number distributed:
* Method of distribution:
* Topics addressed:

If a newsletter article was distributed, please include a copy of it.

Attachment 3: Inspection and Maintenance Log Forms

*Guidance: Unless a different form is preferred, suggest to reference the appropriate BMP Maintenance Tables from Section 3.3.*

Refer to the maintenance tables in Section 3.3 for maintenance checklists that can be used for the required inspections. Note that the date, inspection name and signature is required to be included on the forms.

The completed inspection forms shall be submitted to the City each year along with the WQMP Verification Form in Attachment 4.

Attachment 4: WQMP VERIFICATION FORM

**City of Dana Point**

**Water Quality Management Plan (WQMP) Verification Survey**

This form must be modified to reflect the all the BMPs in this Project WQMP

Project Name/Site Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Responsible Party : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Contact Phone: \_\_\_\_ Contact Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Have your contractors (landscape, maintenance, etc.) been educated regarding the applicable requirements to prevent pollution as outlined in the WQMP?

Yes  No Name of Landscape/Maintenance Contractor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Method of education (contract language, Copy of O&M, educational brochures, etc.): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Have the storm drains and inlets been inspected and maintained, at a minimum, annually prior to Oct 1?

Yes  No Date of Last Inspection/Maintenance: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Maintenance conducted by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Have you observed any runoff from the irrigation system?

Yes  No If yes, how was the problem resolved?: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What type of Integrated Pest Management (IPM) practices are used on site?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Are native and/or drought tolerant plants established and considered for any new landscaping?

Yes  No

1. Have the storm drain stencils been inspected annually for legibility prior to Oct. 1?

Yes  No Total number of stencils on site: \_\_\_\_\_\_\_\_\_\_

How many inlets required restenciling / date of restenciling? \_\_\_\_\_\_\_\_\_\_\_ /\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Have education materials been distributed to the residents/tenants/contractors within the past year?

Yes  No Topic / Date of Distribution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ / \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Method of Distribution: newsletter, billing insert, etc.: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Is street sweeping conducted weekly?

Yes  No Contractor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Are trash areas in common area inspected daily?

Yes  No

1. Have any vector concerns been observed (standing water, mosquito larvae, etc.). if yes, please contact Orange County Vector Control District at www.ocvcd.org.

Yes  No

1. Have the treatment BMPs been inspected and maintained per Manufacturer instructions? (attach invoices and inspection/maintenance forms).

Yes  No

1. Have there been any issues with operation and maintenance of the treatment BMPs units?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I certify that the above information is correct and that the BMPs for this project have been implemented and operated and maintained in accordance with the Operation and Maintenance (O&M) Plan on site and on file at the City.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Print Name of Responsible Party

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

Signature (required) Date

***This form must be completed and submitted to the City by September 30 each year.***

**City of Dana Point • 33282 Golden Lantern • Dana Point • 92629**

**Attn: Water Quality Engineer**

**Email:** [**lzawaski@danapoint.org**](mailto:lzawaski@danapoint.org)

Attachment 5: Vendor O&M Information

*Guidance: Include vendor O&M information for vendor-supplied proprietary BMPs.*

*Attach O&M criteria derived from Washington State TAPE approval of BMP technology.* [*http://www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html*](http://www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html)

Attachment 6: Maintenance Agreement and Funding Mechanism Documentation

*Guidance: Guidance about the maintenance agreement and funding mechanism is provided in TGD Section 2.8. The maintenance mechanism must assign responsibility for maintenance of the BMPs and describe the funding mechanism. This attachment should document any formal agreements between different owners, agencies, HOAs, etc. for providing the maintenance activities for the BMPs and funding for O&M (including eventual rehabilitation).*

*Delete if not used.*