Tips for a Successful O&M Inspection Program

Jennifer Lee, City of Burlingame Public Works Department

C.3 Workshop June 22, 2022

Agenda

Updating the Standard O&M Templates

Executing the Agreement

Annual Inspections Reminders

Trust, but Verify

Q&A

MRP C.3.h. Requirements

O&M Verification Program shall include…

1. Conditions of approval or other legally enforceable agreements
2. Establish protocol for notifying mosquito and vector control agency
3. Ability to grant site access to Permittee representatives, mosquito and vector control staff, and Water Board staff
4. Database of all stormwater treatment systems, including name, location, installation date, enforcement date, etc.
5. O&M Inspection Plan
6. Enforcement Response Plan

O&M Inspection Plan must specify the following for each fiscal year…

- Newly installed pervious pavement over 3,000 sf
- Minimum inspection of 15% of total number of Regulated Projects
- Inspect all Regulated Projects at least once every 5 years
- For vault-based systems, annual 3rd party inspection reports can be counted

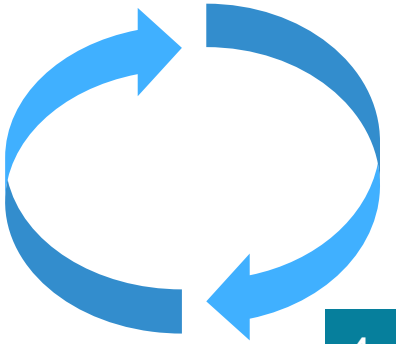
Themes

Don’t reinvent the wheel

Set them up for success

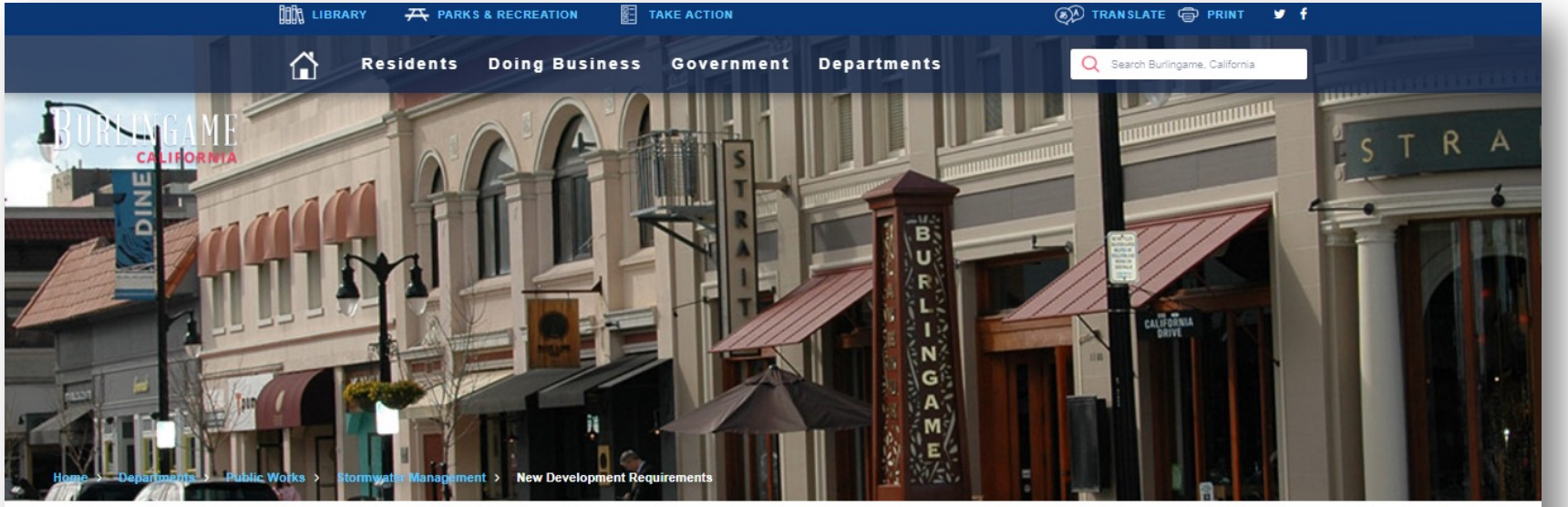
Put yourself in their shoes

Continuous improvement



Updating O&M Templates

Dedicated Page for Stormwater Requirements



Stormwater Management

- Burlingame Watersheds
- Flood Protection
- Green Infrastructure
- New Development Requirements
- Pollution Prevention
- Storm Drain Murals

Stormwater Requirements for New Development Projects

Urban development is a major contributor to stormwater-caused pollution. Development or redevelopment of a property presents an opportunity to incorporate post-construction controls that can reduce water quality impacts over the life of the project. The California Regional Water Quality Control Board has issued a county-wide Municipal Regional Stormwater Permit (also referred as the MRP) to regulate stormwater discharges from municipalities and local agencies in San Mateo County. As a result of this permit, the City of Burlingame has implemented stormwater control measures for large new development and redevelopment projects. This page provides resources to help project applicants comply with the City of Burlingame's stormwater requirements in development project designs.

Before Construction

Stormwater Control Plan Resources:

- Biotreatment Soil Mix Supplier List (updated May 2021)
- C.3 Regulated Projects Guide version 1.0 (formerly known as the C.3 Technical Guidance, updated February 2020)
- Green Infrastructure Design Guide

www.burlingame.org/stormwaterdevelopment

Set Them Up for Success

List out items

From civil and landscape plans

Operations and Maintenance Agreement

For projects that are over 10,000 square feet, an **Operation and Maintenance (O&M) Agreement** must be completed and recorded with the San Mateo County Assessor-County Clerk-Recorder's Office. The O&M Agreement will consist of the following five items:

1. A completed and signed Operation and Maintenance Agreement (download the O&M template here)
2. Exhibit A: Legal Description of Property
3. Exhibit B: Stormwater Management Plan with BMP section details and planting plan (if installing plants)
4. Exhibit C: Maintenance Plan
5. Exhibit D: Operation and Maintenance Verification Form

Maintenance Plan Templates (for Exhibit C)	O&M Verification Form Templates (for Exhibit D)
• Bioretention Area (Word) • Flow-through Planter (Word) • Infiltration Trench (Word) • Media Filter (Word) • Permeable Pavement (Word) • Rainwater Harvesting System (Word) • Tree Well Filter (Word)	• Bioretention Area (Word / PDF) • Flow-Through Planter (Word / PDF) • Green Roof (Word / PDF) • Infiltration Trench (Word / PDF) • Media Filter (Word / PDF) • Permeable Pavement (Word / PDF) • Proprietary Vault (Word / PDF) • Rainwater Harvesting System (Word / PDF) • Tree Well Filter (Word / PDF)

Changes to Template O&M Agreement

- Fillable PDF
- Section 22 Notice:

  Added property owner's email and phone number
- Section 23 Exhibits:

  Require the Stormwater Management Plan

  Separated Maintenance Plan from O&M Verification Form

STORMWATER TREATMENT MEASURES MAINTENANCE AGREEMENT

Address: _____

Burlingame, CA 94010

APN: _____

RECITALS

This Stormwater Treatment Measures Maintenance Agreement ("Agreement") is

SECTION 22: NOTICE

All notices or other communications shall be deeded given when: (a) personally delivered or (b) mailed by postage to the parties at the addresses set forth below:

City:	Property Owner:
City of Burlingame Public Works Engineering 501 Primrose Road Burlingame, CA 94010	Owner Name: _____ Attention: _____ Mailing Address: _____ City, State, & Zip Code: _____ Email Address: _____ Phone Number: _____

Agreement, and incorporated herein by reference; and

SECTION 23: EXHIBITS

The following exhibits are attached hereto and fully incorporated by reference herein:

Exhibit A: Legal Description of Property
Exhibit B: Stormwater Management Plan
Exhibit C: Maintenance Plan
Exhibit D: Operation and Maintenance Verification Form

amendments thereto are on file with the City and incorporated by reference into the Agreement, must be installed and permanently maintained as indicated in this Agreement and as required by the NPDES Permit; and

WHEREAS, the City and the Property Owner agree that the health, safety and welfare of the citizens of the City require that the stormwater treatment measure(s) described in the Stormwater Management Plan in Exhibit B be constructed and permanently maintained on the

Updating Maintenance Plan Templates

- SMCWPPP Templates are available at **www.flowstobay.org/newdevelopment**

Section 5 – O&M Inspections

Last Updated	Title
Jan 2022	Bioretention Area Template
Jan 2022	Flow-Thru Template
Jan 2022	Treewell Template
Jan 2022	Infiltration Trench Template
Jan 2022	Extended Detention Basin Template
Jan 2022	Pervious Pavement Template
Jan 2022	Rainwater Harvesting Template
Jan 2022	Non-Proprietary Media Template
Jan 2022	Manufactured Treatment Template
May 2018	Example Udated Bay-Friendly Flow-Thru Planter Template Alameda County
Jul 2016	O&M Inspection Report

Updating Maintenance Plan Templates

Bioretention Area[1] Maintenance Plan for
[[== Insert Project Name ==]]

[[== Insert Date ==]]

Bioretention areas function as soil and plant-based filtration devices that remove pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a ponding area, mulch layer, vegetation and biotreatment soil mix.

Project Address and Cross Streets _____

_____

Assessor's Parcel No. _____

Property Owner: _____

Phone No.: _____

Designated Contact: _____

Phone No.: _____

Mailing Address: _____

The property contains [[== insert number ==]] bioretention area(s), located as described below and as shown in the attached site plan[1].

- **Bioretention Area No. 1** is located at [[== describe location ==]].
- [[== Add descriptions of other bioretention areas, if applicable. ==]]

I. Routine Maintenance Activities

The principal maintenance objective is to prevent sediment buildup and clogging, which reduces pollutant removal efficiency and may lead to bioretention area failure. Routine maintenance activities, and the frequency at which they will be conducted, are shown in Table 1.

Table 1
Routine Maintenance Activities for Bioretention Areas

No.	Maintenance Task	Frequency of Task
1	Remove obstructions, debris and trash from bioretention area and dispose of properly.	Monthly, or as needed after storm events
2	Inspect bioretention area to ensure that it drains between storms and within five days after rainfall. If ponded water does not drain within five days, check if drains are clogged or consider removing the surface biotreatment soil and replacing with the approved soil mix and replant	Monthly, or as needed after storm events
3	Inspect inlets for channels, soil exposure or other evidence of erosion. Clear obstructions and remove sediment.	Monthly, or as needed after storm events
4	Remove and replace all dead and diseased vegetation.	Twice a year

[1] Bioretention areas include linear treatment measures designed to filter water through biotreatment soils. A bioretention area that has no waterproof liner beneath it and has a raised underdrain in the underlying rock layer to promote infiltration, as shown in

SMCWPPP Template

No changes to content

BIORETENTION AREA[1] MAINTENANCE PLAN
PROJECT ADDRESS
BURLINGAME, CA 94010
ENTER TODAY'S DATE

1 Contact Information

Property Owner's Name: *Enter Property Owner's Name here.*
Property Owner's Address: *Enter Property Owner's Address here.*
Property Owner's E-mail Address: *Enter Property Owner's E-mail Address here.*

Designated Contact's Name: *Enter Designated Contact's Name here.*
Designated Contact's Mailing Address: *Enter Designated Contact's Mailing Address here.*
Designated Contact's E-mail Address: *Enter Designated Contact's E-mail Address here.*

2 Project Description

This property contains *select number of bioretention area(s)* bioretention area(s), located as described below and as shown in the attached site plan:

- **Bioretention Area No. 1** is located at *describe location*.
- *Add descriptions of other bioretention areas, as-needed.*

3 Routine Maintenance Activities

The principal maintenance objective is to prevent sediment buildup and clogging, which reduces pollutant removal efficiency and may lead to stormwater treatment failure. Routine maintenance activities, and the frequency at which they will be conducted, are shown in Table 1.

Table 1. Routine Maintenance Activities for Bioretention Areas

No.	Maintenance Task	Frequency of Task
1	Remove obstructions, accumulated sediment, debris and trash from bioretention area and dispose of properly.	Monthly, or as needed after storm events

[1] Bioretention areas include linear treatment measures designed to filter water through biotreatment soils. A biotreatment area that has no waterproof liner beneath it and has a raised underdrain in the underlying rock layer to promote infiltration, as shown in Section 6.1 of the C.3 Technical Guidance, may also be called

City of Burlingame Template

Updated look and formatting

Inserted fillable fields

Updating O&M Verification Form

Directions on where to submit form

Bioretention Area
Inspection and Maintenance Checklist

Property Address: _____ Property Owner: _____

Treatment Measure No.: _____ Date of Inspection: _____ Type of Inspection: ☐ Monthly ☐ Pre-Wet Season ☐ After heavy runoff ☐ End of Wet Season ☐ Other: _____

Inspector(s): _____

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Y/N)	Comments (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)	Results Expected When Maintenance Is Performed
1. Standing Water	When water stands in the bioretention area between storms and does not drain within five days after rainfall.			There should be no areas of standing water once inflow has ceased. Any of the following may apply: sediment or trash blockages removed, improved grade from head to foot of bioretention area, or added underdrains.
2. Trash and Debris Accumulation	Trash and debris accumulated in the bioretention area.			Trash and debris removed from bioretention area and disposed of properly.
3. Sediment	Evidence of sedimentation in bioretention area.			Material removed so that there is no clogging or blockage. Material is disposed of properly.
4. Erosion	Channels have formed around inlets, there are areas of bare soil, and/or other evidence of erosion.			Obstructions and sediment removed so that water flows freely and disperses over a wide area. Obstructions and sediment are disposed of properly.
5. Vegetation	Vegetation is dead, diseased and/or overgrown.			Vegetation is healthy and attractive in appearance.
6. Mulch	Mulch is missing or patchy in appearance. Areas of bare earth are exposed, or mulch layer is less than 3 inches in depth.			All bare earth is covered, except mulch is kept 6 inches away from trunks of trees and shrubs. Mulch is even in appearance, at a depth of 3 inches.
7. Miscellaneous	Any condition not covered above that needs attention in order for the bioretention area to function as designed.			Meet the design specifications.

SMCWPPP Template

SUBMIT CHECKLIST AND PHOTO DOCUMENTATION TO STORMWATER@BURLINGAME.ORG OR BY MAIL TO ADDRESS BELOW

City of Burlingame
Public Works Department
501 Primrose Road
Burlingame, CA 94010
stormwater@burlingame.org

Bioretention Area
Stormwater Control Device Operation and Maintenance Verification Form

Date of Inspection: _____ Property Address: _____

Name of person to contact regarding this report: _____ Phone: _____

Email: _____ ☐ Property Owner ☐ Site Manager ☐ Contractor ☐ Other: _____

Issue	Conditions When Maintenance Is Needed	Conditions Present? (Yes/No)	Comments (Describe maintenance action taken including date completed or if maintenance was not conducted, note when it is scheduled to be done)	Expected Results When Maintenance Is Performed
1. Standing Water	When water stands in the bioretention area between storms and does not drain within five days after rainfall.			There should be no areas of standing water once inflow has ceased. Any of the following may apply: sediment or trash blockages removed, improved grade from head to foot of bioretention area, or added underdrains.
2. Mosquitos present*	Evidence of mosquito or mosquito larvae in bioretention area.			No signs of mosquito or mosquito larvae.
3. Trash and Debris Accumulation	Trash and debris accumulated in the bioretention area.			Trash and debris removed from bioretention area and disposed of properly.
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Inserted fillable fields

City of Burlingame Template

Executing the O&M Agreement

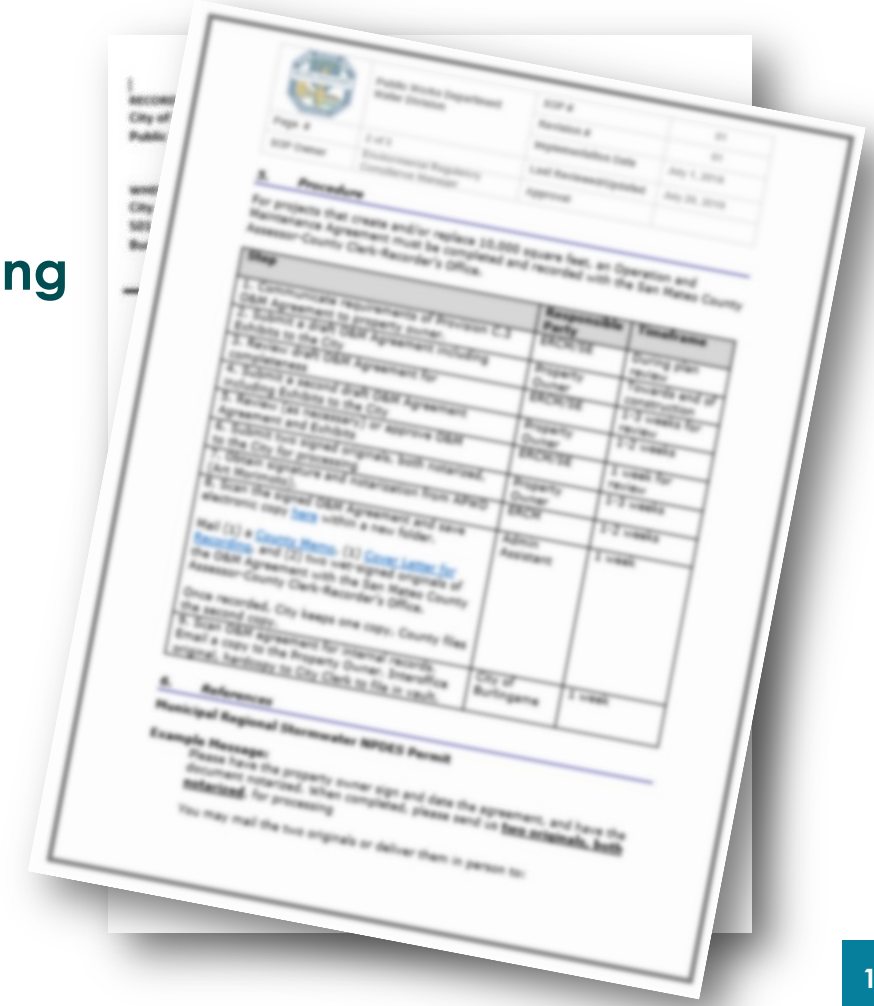
Tips for Executing the O&M Agreement

Tip #1: Remind property owner to submit a draft near end of construction

Tip #2: Require two signed originals, both notarized

Tip #3: Don't forget to prepare a cover letter for recording

Tip #4: Create a Standard Operating Procedure to document these steps



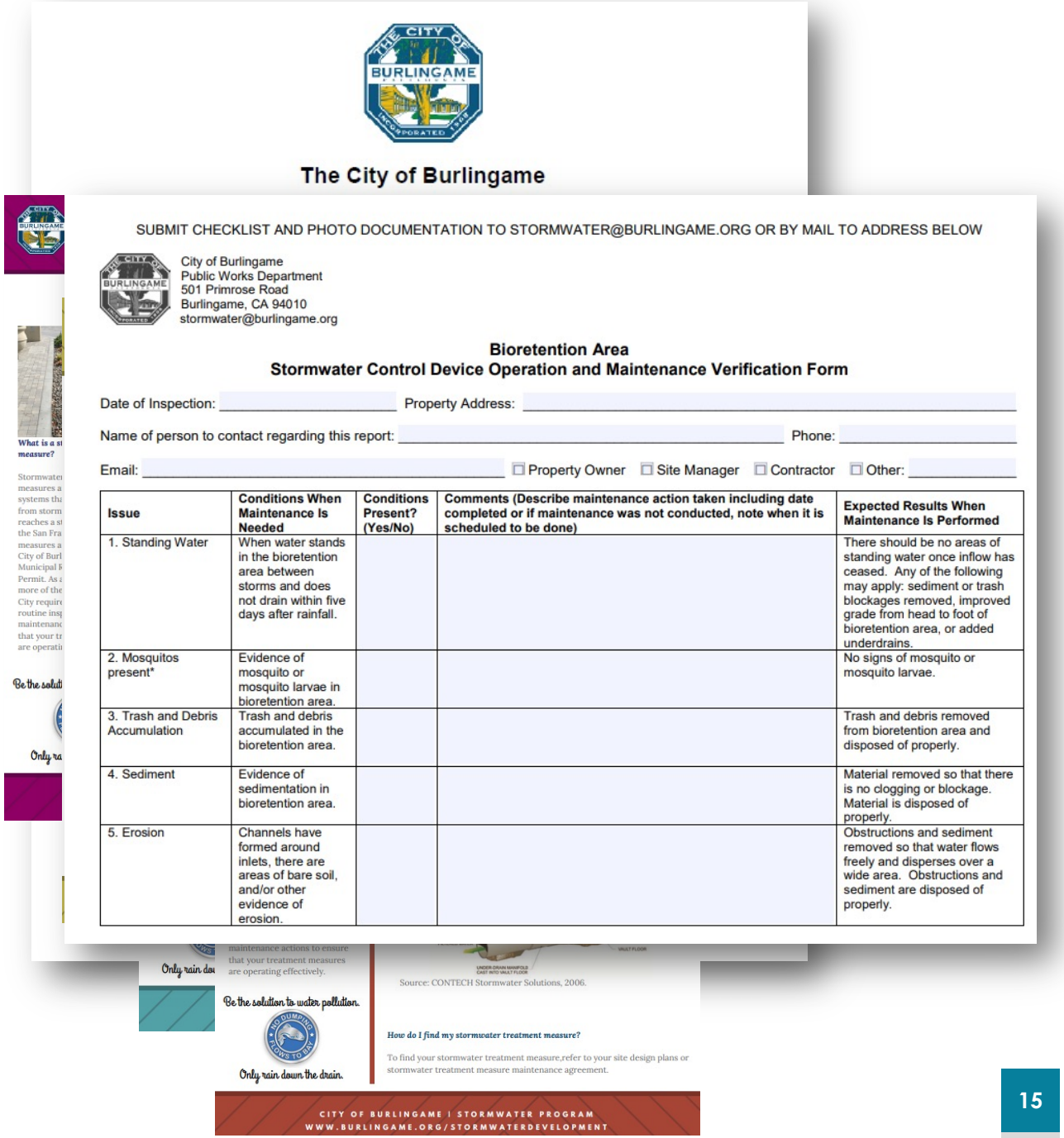
Annual Reminders

Annual Reminders

Tip: Send reminders as early as late October

Things to Include:

1. Letter
   - Site location
   - Stormwater control device type
   - Step-by-step directions on how to comply
   - Highlight deadline for submitting
2. Attach fact sheet (if reporting for first time)
3. Attach the O&M Verification Form



The City of Burlingame

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City of Burlingame
Public Works Department
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Source: CONTECH Stormwater Solutions, 2006.

How do I find my stormwater treatment measure?

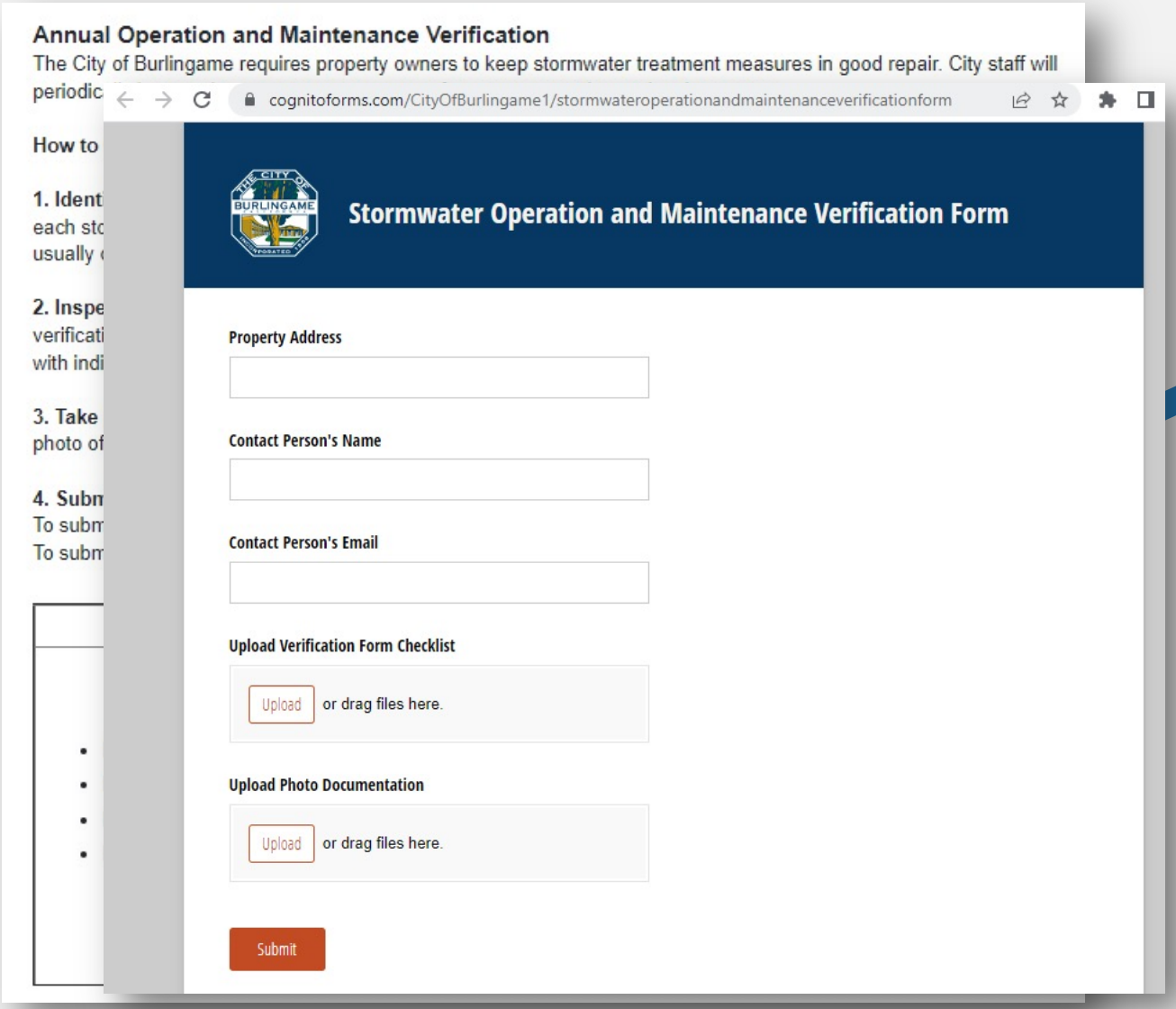
To find your stormwater treatment measure,refer to your site design plans or stormwater treatment measure maintenance agreement.

Be the solution to water pollution.

Only rain down the drain.

CITY OF BURLINGAME | STORMWATER PROGRAM
WWW.BURLINGAME.ORG/STORMWATERDEVELOPMENT

Making it easy to comply



Tip #1: Provide consistent directions on letter and website

Tip #2: Provide multiple ways to send the verification form

Scenario: A facility manager is unable to email the checklist with photo documentation because the attachments are too big. Type in the chat what solution you would propose?

Tip #3: Integrate lessons learned from the previous year

Trust, but Verify

Trust, but Verify

Tip #1: Inspect ALL sites that have not been well-maintained

Tip #2: Schedule a visit with a site representative

Tip #3: Avoid using stormwater jargon without explanation

"stormwater control measure" "bioretention area"

"BMP" "O&M" "MRP"

Trust, but Verify

Tip #4: Train the site rep to look for issues

Tip #5: Provide easy-to-read action items in the inspection report

Tip #6: Be flexible with deadline


UNAUTHORIZED VEHICLES
WILL BE TOWED AWAY
AT OWNERS' EXPENSE


October 2018


ELECTRIC

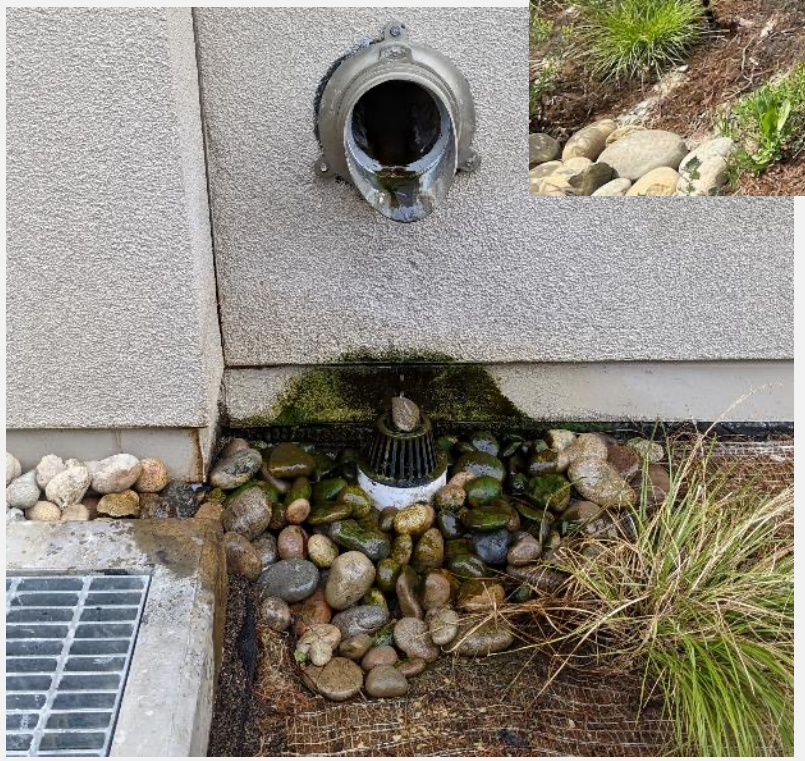

06/23/2020 10:03 AM


01/05/2021 2:35 PM

May 2022

Feedback for Designers

- Specify type of wood mulch in plans
- Avoid overhead sprinklers since they tend to attract weeds, opt for drip irrigation instead
- Consider California native plants first
- Place overflow away from where runoff will enter the treatment area



Share Your Experience:
Use the Chat to share any comments that you provide to designers during plan review.

Anything is possible