

BMP Inspection

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2010 Waukesha County Storm Water
BMP Maintenance Workshop

Tuesday, March 9, 2010

Prioritizing Inspection Frequencies

- Failure would result in high repair and/or replacement costs
- High level of maintenance required
- Age of System (operational effectiveness declines)
- Ongoing construction activities in the area
- Residential systems
- Complaints and/or history of non-compliance
- Supporting endangered species

Quick “Windshield” Inspection

- Verify Water Level
 - Safety Shelf visible? Not good
 - Standing water in filtration/retention practice? Not good
 - Pooled water at inlet location? Not good
- Trash Accumulation
- Landscaping
 - Trees in pond? Not good
 - Mowed or not mowed?
 - Lawn versus Prairie?
- Erosion
 - Evidence of channelized flow? Not good
 - Bare dirt areas? Not good
- By-Passing – is water finding an alternate path to or from the BMP? By-Passing....
 - the overflow path.
 - the reinforced area.
 - the pre-treatment area.
 - the BMP altogether.

**If Severe Problems are identified.
Contact the Owner of the Property to Conduct Immediate Repairs.
And Schedule an Official Inspection.**

Official Inspection

- Notification of Inspection
 - Notification of Inspection Letter
 - Provide education materials to owners and operators.
 - BMP Fact Sheets (California Stormwater Quality Association (CSWQA))
- Pre-inspection Preparation
 - Site Plans/Asbuilt Drawings
 - Previous Inspection Results
 - Necessary Procedures (equipment)
 - Inspection & Maintenance Protocols
- Conduct Inspections Using Standardized Checklists
 - Reduces subjectivity and provides clear maintenance triggers
- Inspection Follow-up and Maintenance Notification

Source: Santa Clara Valley Urban Runoff Pollution Prevention Program

Pre-Inspection Preparation

- Inspection Supplies
- Inspection Documents
 - Site Plans/Asbuilt Drawings
 - Previous Inspection Results

Supplies

■ Safety Gear

- Reflective Vest
- Leather Gloves
- Boots
- Confined Space Entry
- Goggles
- Hard Hat

■ Equipment

- Camera
- Phone
- Measuring device
- Soil probe
- Shovel
- Manhole Cover Tool
- GPS recorder
- Flashlight
- Orange Spray Paint
- Bug Spray

Comprehensive list at:
www.stormwatercenter.net

Documents

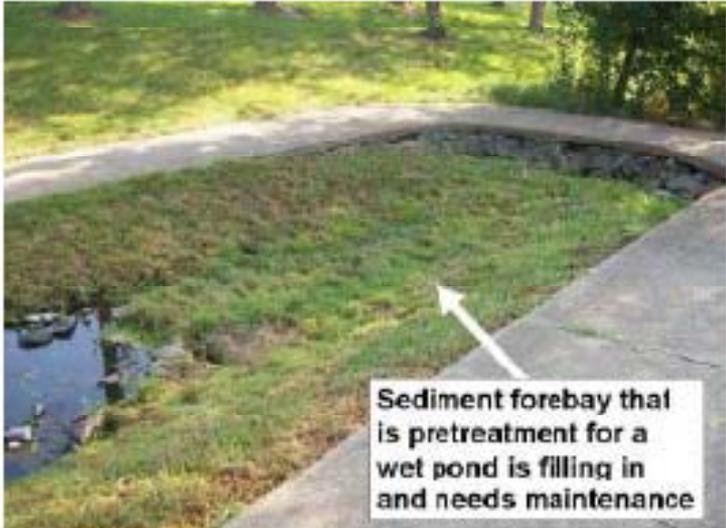
- Contact Information
- Maintenance Agreement
- Operation and Maintenance Plan
- Inspection Report/Checklist
- Asbuilt Plan of BMP's including:
 - Grading
 - Landscaping
 - Structures/System Map

**Ideally all these items should be part of the
Recorded Maintenance Agreement**

Inspection

- Refer to the **Inspection Report/Checklist** for the Site and/or specific BMP Requirements
- Take **measurements and photos** to allow for an objective evaluation of BMP.
- Additional **investigative work**:
 - Soil Cores - to determine adherence to design specifications
 - Infiltration Tests – standing water in infiltration/filtration BMPs
 - Sediment Depths – if no Vertical Sediment Depth Marker is installed, will need to take several measurements in the BMP and average them.
- What to look for? Very similar to the “Drive-By” but with documentation, actions, and follow-up required.

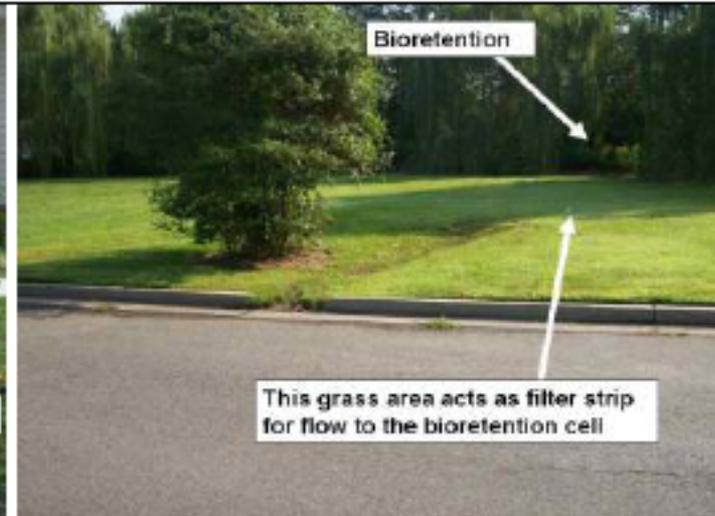


Pretreatment Type	Field Examples	
Riprap Channel or Apron		
Sediment Forebay	 <p>Bioretention</p> <p>Sediment Forebay</p>	 <p>Sediment forebay that is pretreatment for a wet pond is filling in and needs maintenance</p>

Grassed Channel



Grass Filter Strip





INFILTRATION BASIN



GRASSED SWALE



CONSTRUCTED WETLAND



SCRAPED WETLAND

Photos from www.dnr.state.wi.gov



Photo from www.dnr.state.wi.gov

NATIVE PRAIRIE



NATIVE PLANTINGS



NATURALIZED DETENTION

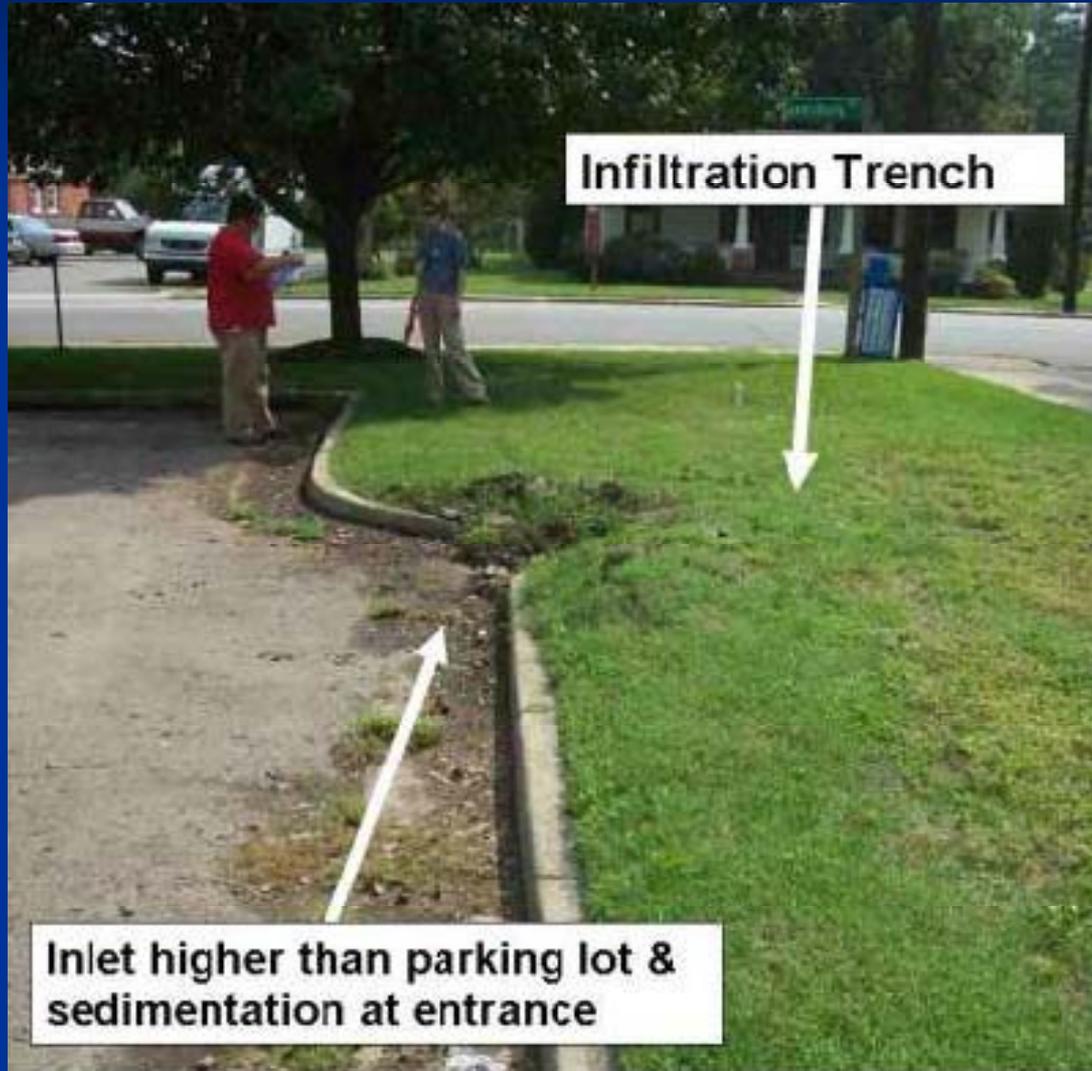


WET DETENTION BASIN

Blocked Pipes



Incorrect Grades



Incorrect Grades



Top of
stone at
curb cut

Incorrect Grades



Incorrect Grades

Rip-rap at inlet set too low – results in unintended ponding of water



Soil - BioRetention Compacted Clay?



Trash and Debris

Severe outlet
clogging around
trash rack



Erosion



Erosion



Erosion



Poor maintenance
of vegetation =
bank erosion

Erosion Channelization



Wooded Dry
detention pond

Flow channelized
through detention area

Erosion Channelization

Severe inlet
erosion into
bioretention



“Overly” Maintained Excessive Mowing



“Overly” Maintained Too much mulch



No Maintenance – Where's the Pond?



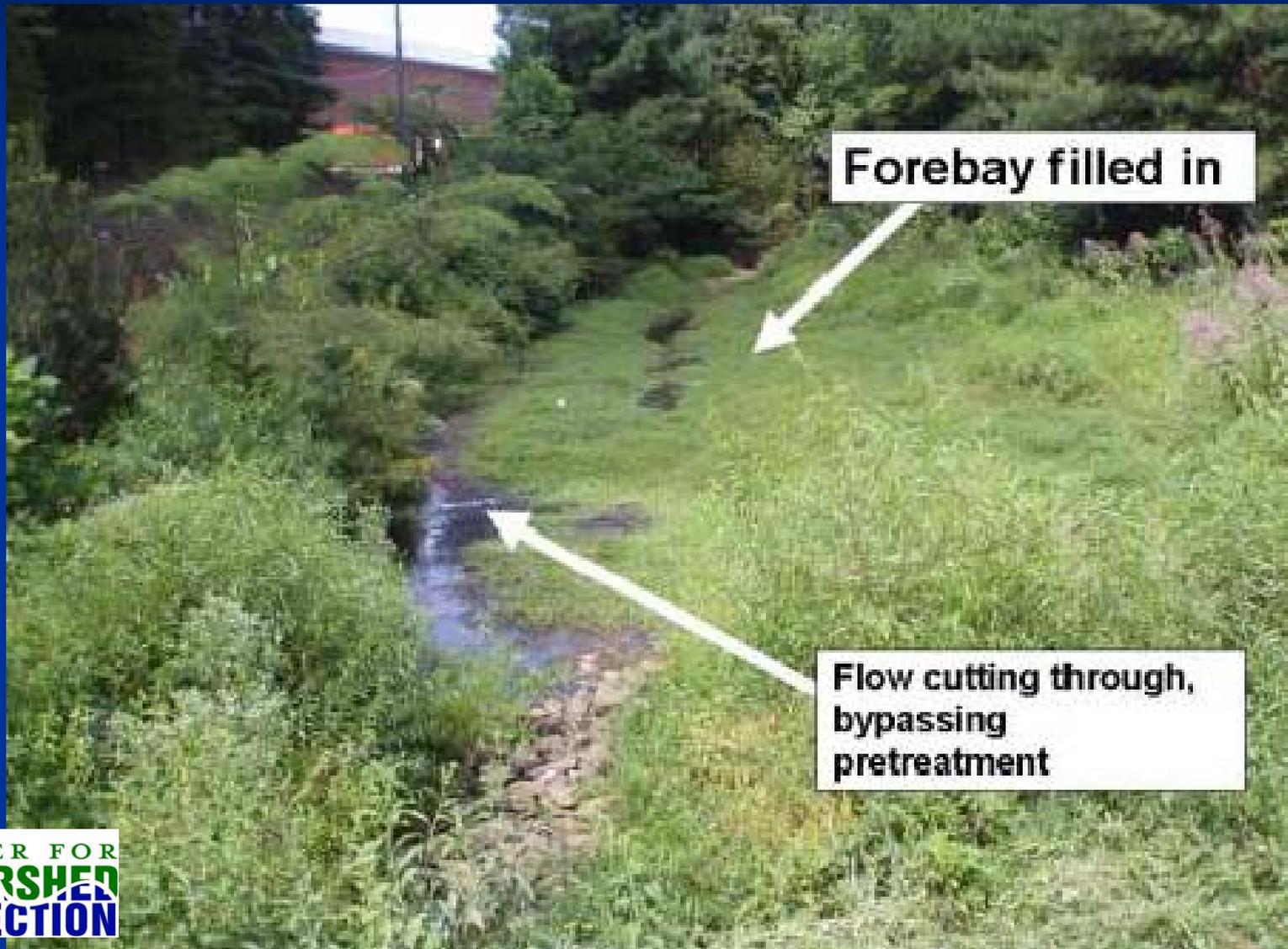
Invasive Species have taken over



Sediment Accumulation



Sediment Accumulation



Sediment Accumulation



Sediment Accumulation

**Clogged inlet
pipe –
accumulation
of sediment**



Broken BMP



Transfer of Ownership

