

Privately-Owned Stormwater Management Systems

Operation & Maintenance

1/18/2023

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Federal Clean Water Act



- ❑ US Environmental Protection Agency requires each state to identify water bodies that are not 'fishable or swimmable'
- ❑ Each state also needs to identify the pollutants causing the water body impairment

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Pollutants Causing Impairment



Sediment

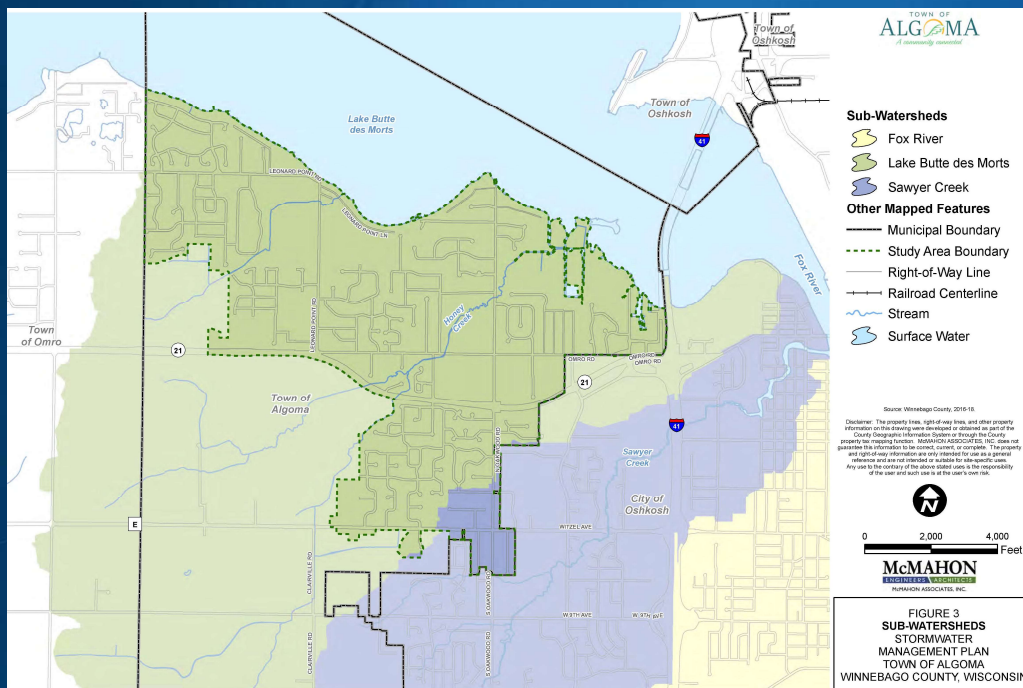


Phosphorus

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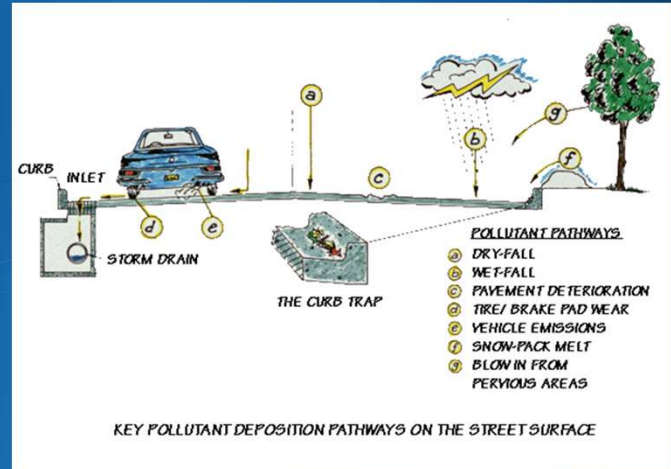
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The **McMAHON** Way...values. culture. Relationships, since 1909.

1445 McMAHON DRIVE NEENAH, WI 54956
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w:\PROJECTS\K0001\92200633\Dept\Storm\O&M Program\nav

Stormwater Pollutant Pathways



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Municipal Stormwater Permit

- ❑ Public Education
- ❑ Public Involvement
- ❑ Illicit Discharge Detection & Elimination
- ❑ Construction Site Pollutant Control
- ❑ Post-Construction Stormwater Management
- ❑ Municipal Pollution Prevention
- ❑ Stormwater Quality Management



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Post-Construction Stormwater

□ Wisconsin DNR & Town Requirements:

- Comply with stormwater quality, peak discharge, infiltration, protective area, and petroleum sheen requirements
- Obtain a permit for the stormwater system design
- Construct the stormwater system
- Inspect, operate, and maintain the stormwater system
 - Responsible Party (landowner)
 - Operation & Maintenance Plan (how to manual)
 - Landowner confirms to Town that maintenance was completed (annually)
 - Town audits the landowner's efforts (inspections)



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Debris & Litter



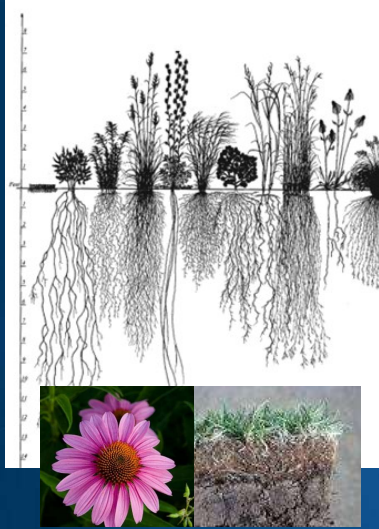
□ Maintenance:

- Inlets
- Outlets
 - Trash racks
 - Orifices, weirs,
 - Channels, pipes, spillways
 - Filter or soil surfaces
- Other Areas
 - Open water, shoreline, vegetation



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Vegetation



- Maintenance:
 - Vegetation Health & Density
 - Mowing Height (swales)
 - Noxious Weed Growth
 - Unauthorized Growth (trees)
- Filtration and infiltration devices benefit from deep rooted plants

Wildlife



- Maintenance:
 - Muskrats
 - Burrow holes in embankment, liner, etc.
 - Fish
 - Do not stock ponds
 - Carp can uproot wetland plants and stir up bottom sediment
 - Birds
 - Geese can damage wetland plants and degrade water quality
 - Large birds near airports are a hazard

Erosion



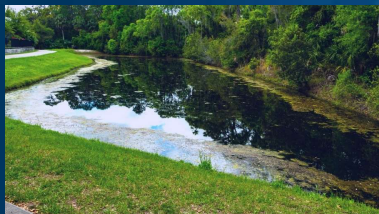
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- Erosion Types:
 - Channel, Rill, Scour, Shoreline
- Maintenance:
 - Topsoil, seed, fertilizer, mulch
 - Erosion mat (channels, slopes)
 - Turf reinforced mat
 - Riprap with geotextile fabric
 - Dense wetland planting (shoreline)

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Aesthetics & Pollutants



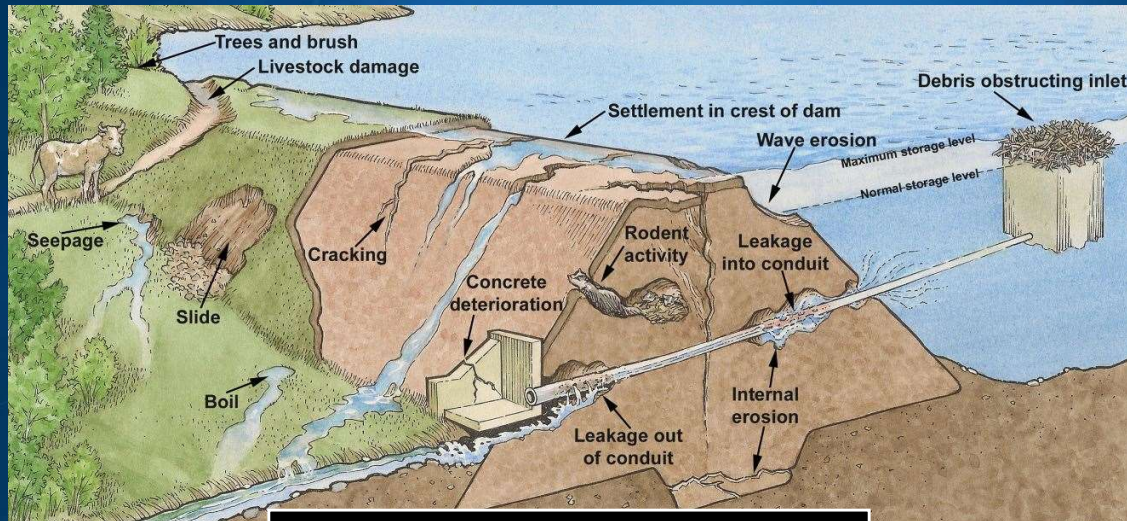
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- Maintenance:
 - Algae if an aesthetic concern
 - Remove with skimmer
 - Hide with shoreline wetland plants
 - Aerator or fountain (approval needed)
 - Chemicals (approval needed)
 - Graffiti on concrete structures
 - Potential Pollutants
 - Illicit discharge
 - Illegal dumping

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Structural



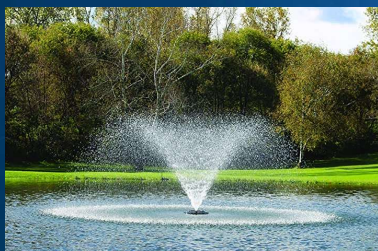
Embankments, Dams, Spillways, Liners

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Wet Detention Pond (1001)



□ Maintenance:

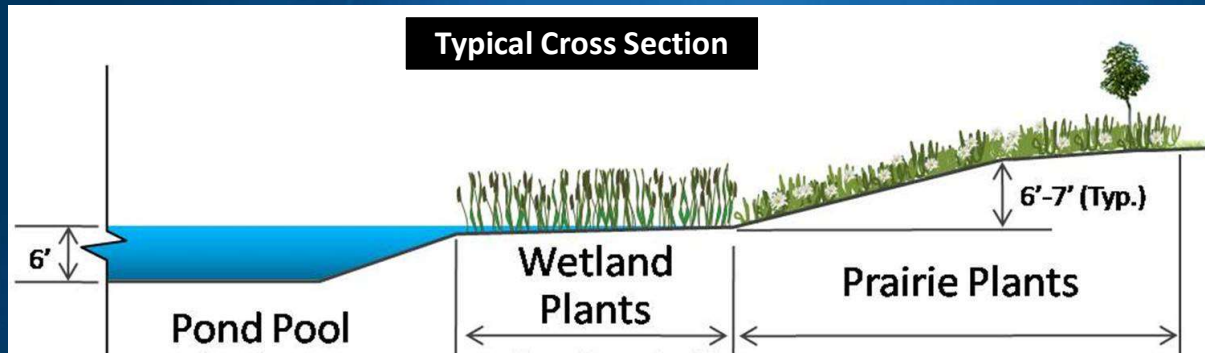
- Debris, Vegetation, Wildlife, Erosion
- Structural
 - Embankments, dams, spillways, pipes, etc.
 - Clay or synthetic liner
- Sediment Accumulation
 - Wet Pond - Permanent pool < 3.5 feet water
 - Dry Pond – Storage volume reduced > 10%
 - NR 528 sediment testing before disposal
- Aerator or Fountain
 - Approval needed

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Wet Detention Pond (1001)



- Sediment Accumulates in Pool of Water
- Wetland Plants Reduce Shoreline Erosion
- Prairie Plants Reduce Mowing Effort

Infiltration Basin (1003)



□ Maintenance:

- Debris, Vegetation, Wildlife, Erosion
- Level Spreader, Winter Bypass
- Structural
 - Embankments, dams, spillways, pipes, etc.
- Sediment Accumulation
 - Pretreatment device to protect infiltrating surface
 - Storage volume reduced > 10%
- Soil Clogging or Compaction Mitigation
 - Surface water > 24 to 72 hrs after 0.5" rain

Bioretention (1004)



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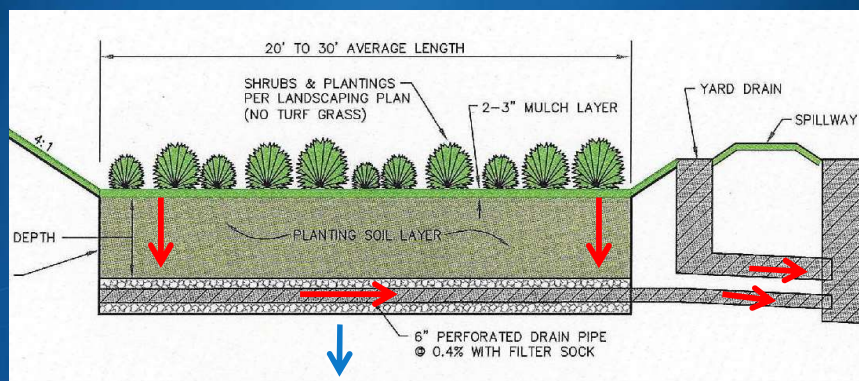
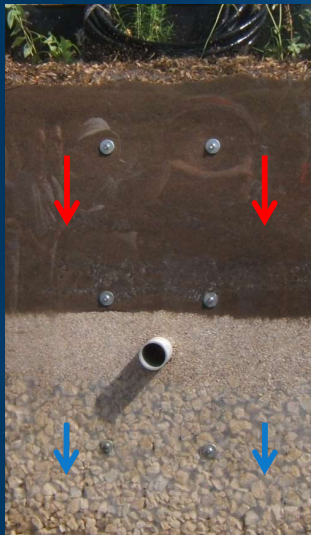
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□ Maintenance:

- Debris, Vegetation, Wildlife, Erosion
- Surface Mulch (replenish, not too thick)
- Structural (standpipe, underdrain, filter)
- Sediment Accumulation
 - Storage volume reduced > 10%
- Soil Clogging or Compaction Mitigation
 - Surface water > 24 hrs after 0.5" rain
 - Subsurface water > 72 hrs after 0.5" rain

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Bioretention (1004)



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Vegetated Swale (1005)



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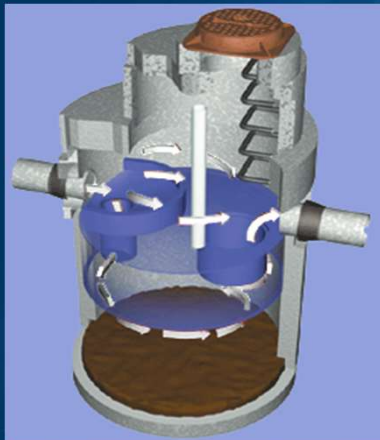
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□ Maintenance:

- Debris, Vegetation, Wildlife, Erosion
 - Vegetation health and density
 - Mowing height (follow design requirement)
 - Length (follow design, not enclosed or lined)
- Permanent Ditch Check
- Sediment Accumulation
 - Storage volume reduced > 10%
- Soil Clogging or Compaction Mitigation
 - Surface water > 48 hrs after 0.5" rain

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Proprietary Sediment (1006)



□ Maintenance:

- Debris, Litter, Obstructions
- Petroleum sheen (if required)
- Structural
 - Cracking, spalling, corrosion, joint leak, liner
- Sediment Accumulation (NR 528)
 - Follow proprietary manufacturer's recommendations for frequency of accumulated sediment removal
 - Test or landfill the removed sediment

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Infiltration Trench (1007)



□ Maintenance:

- Debris, Vegetation, Wildlife, Erosion
- Surface Stone or Hardwood Mulch
- Structural (observation wells, pipes)
- Sediment Accumulation
 - Storage volume reduced > 10%
- Soil Clogging or Compaction Mitigation
 - Surface water > 24 hrs after 0.5" rain
 - Subsurface water > 72 hrs after 0.5" rain

Porous Pavement (1008)



□ Maintenance:

- Debris, Erosion From Run On Area
- Regenerative Air or Vacuum Sweep
 - Twice per year to clean pavement surface
- Structural
 - Do not crack seal pavement surface
 - If pavers, joint aggregate (replenish, replace)
- Soil Clogging or Compaction Mitigation
 - Surface water > 24 hrs after 0.5" rain
 - Subsurface water > 72 hrs after 0.5" rain

Rain Garden (1009)



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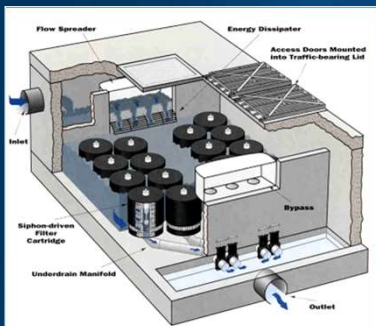
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□ Maintenance:

- Debris, Vegetation, Wildlife, Erosion
- Surface Mulch (replenish, thickness)
- Sediment Accumulation
 - Storage volume reduced > 10%
- Soil Clogging or Compaction Mitigation
 - Surface water > 72 hrs after 0.5" rain

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Proprietary Filter (1010)



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□ Maintenance:

- Debris, Litter, Obstructions
- Petroleum sheen (if required)
- Structural
 - Cracking, spalling, corrosion, joint leak, liner
- Sediment Accumulation
 - Pretreatment (settling chamber)
 - Follow proprietary manufacturer's recommendations for filter (life span, clogging)
 - Test or landfill the removed sediment

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Record Keeping

- How do I obtain a copy of approved plans for my property?
- How long do I need to keep my inspection forms?
- What happens if I don't perform the required maintenance?

Town of Algoma
15 N. Oakwood Road
Oshkosh, WI 54904
Phone: 920.235-3789

**STORMWATER MANAGEMENT SYSTEM
INSPECTION, OPERATION, & MAINTENANCE FORM**

Site or Subdivision Name: _____ Parcel ID: _____

Site Address / Location: _____

Inspection Frequency (check one): ☐ > 0.5 Inch Rain (R) ☐ Monthly (M) ☐ Biannual (B) ☐ Annual (A) ☐ 5-Year Cycle (C) ☐ Other _____

Date of Inspection: _____ Inspector Name: _____ Maintenance Crew Leader Name: _____

Maintenance Items – Wet or Dry Detention Pond (1001)	Frequency	Observed?	Inspector Comments	Maintenance Completed
1. Debris & Litter – At inlets and outlets (grate, orifice, weir, pipe, spillway, etc.)	R,M,B,A,C	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes
2. Debris & Litter – At other device locations (open water, shoreline, vegetation)	A,C	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes
3. Vegetation – Vegetation health or density				<input type="checkbox"/> Yes
4. Vegetation – Noxious weed or tree species				<input type="checkbox"/> Yes

Sample Inspection & Maintenance Form

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Thank You for inviting us to present today!

Questions?

THE McMAHON Way
• FOR OVER 100 YEARS •
Values. Culture. Relationships

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