



Privately-Owned Stormwater Management Systems

Operation & Maintenance

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1/11/2023



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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



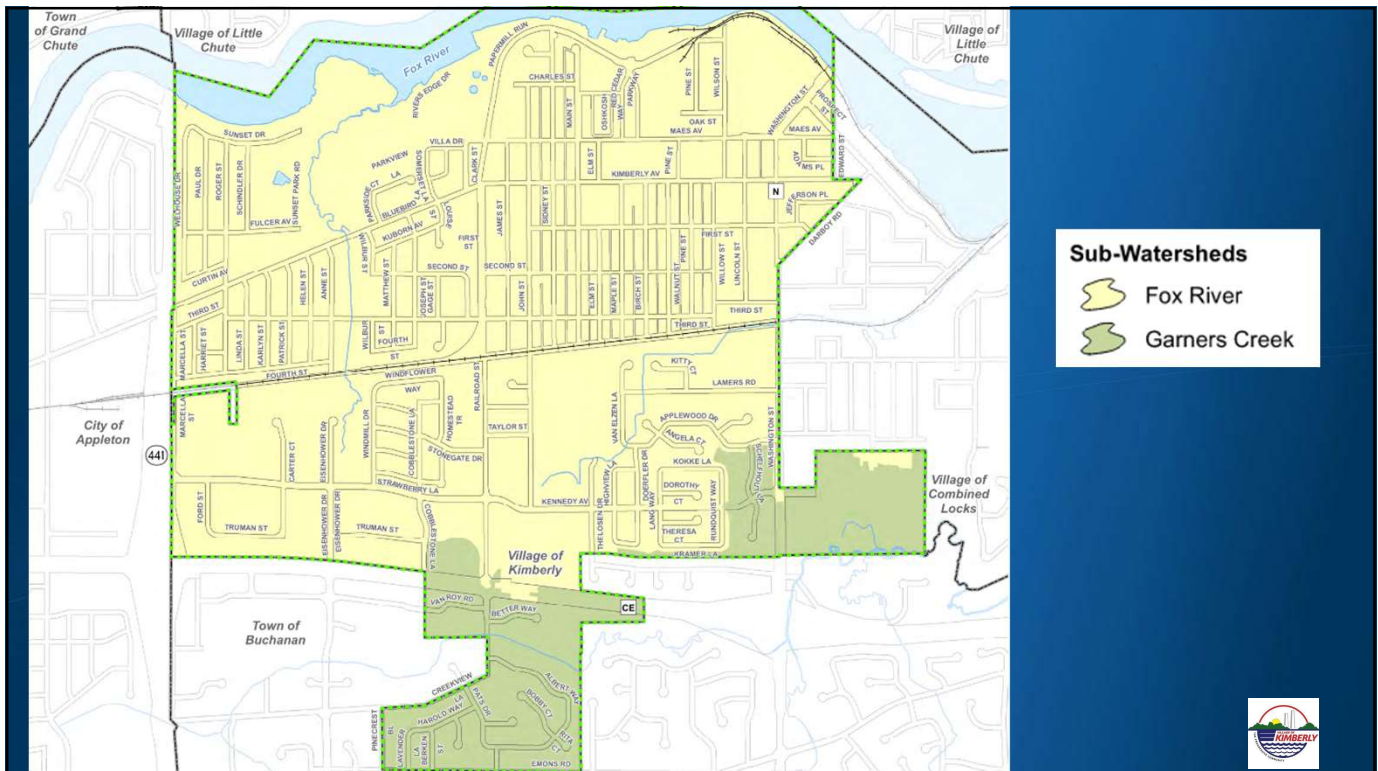
Sediment



Phosphorus



3



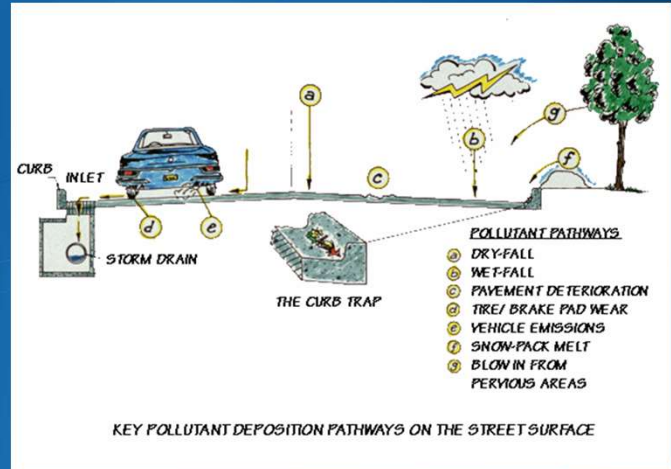
4

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Stormwater Pollutant Pathways



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



Post-Construction Stormwater

□ Wisconsin DNR & Village 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 Village that maintenance was completed (annually)
 - Village audits the landowner's efforts (inspections)

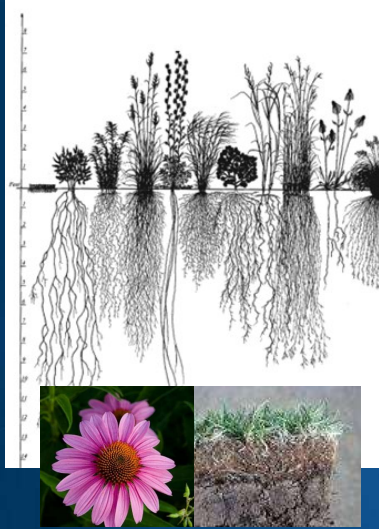
Debris & Litter



□ Maintenance:

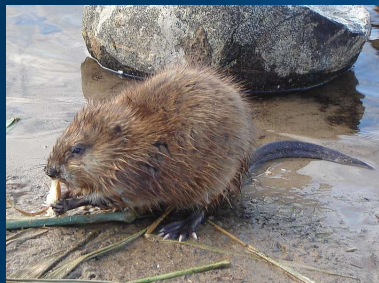
- Inlets
- Outlets
 - Trash racks
 - Orifices, weirs,
 - Channels, pipes, spillways
 - Filter or soil surfaces
- Other Areas
 - Open water, shoreline, vegetation

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



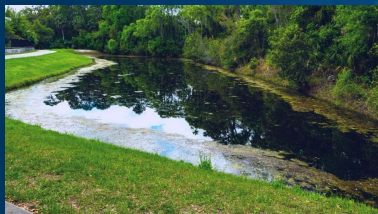
- Erosion Types:
 - Channel, Rill, Scour, Shoreline
- Maintenance:
 - Topsoil, seed, fertilizer, mulch
 - Erosion mat (channels, slopes)
 - Turf reinforced mat
 - Riprap with geotextile fabric
 - Dense wetland planting (shoreline)

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Aesthetics & Pollutants



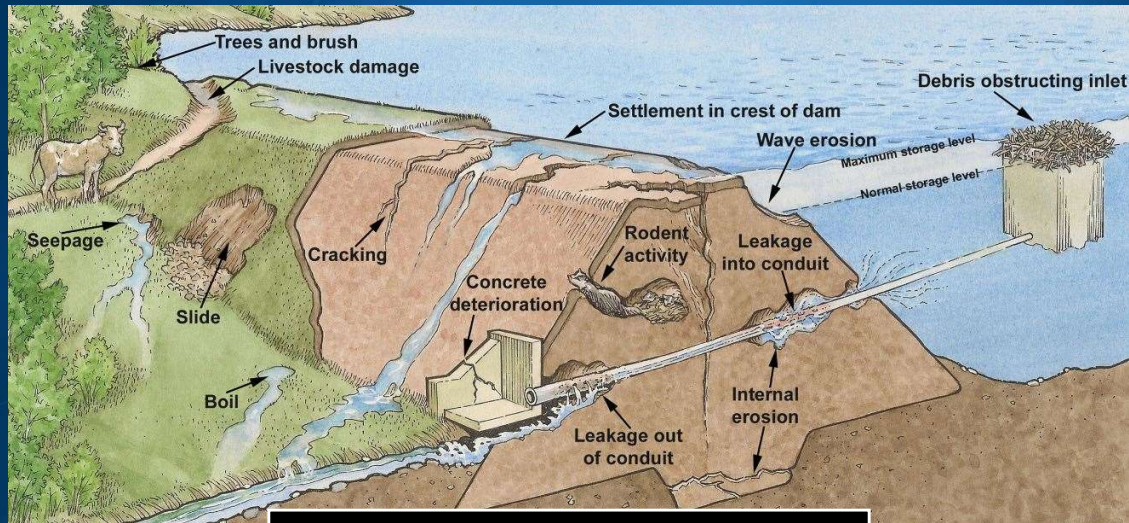
- Maintenance:
 - Algae if an aesthetic concern
 - Remove with skimmer
 - Hide with shoreline wetland plants
 - Aerator or fountain (approval needed)
 - Chemicals (approval needed)
 - Graffiti on concrete structures
 - Potential Pollutants
 - Illicit discharge
 - Illegal dumping

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Structural

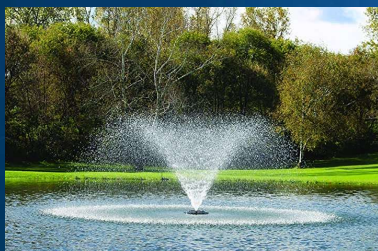


Embankments, Dams, Spillways, Liners



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Wet Detention Pond (1001)



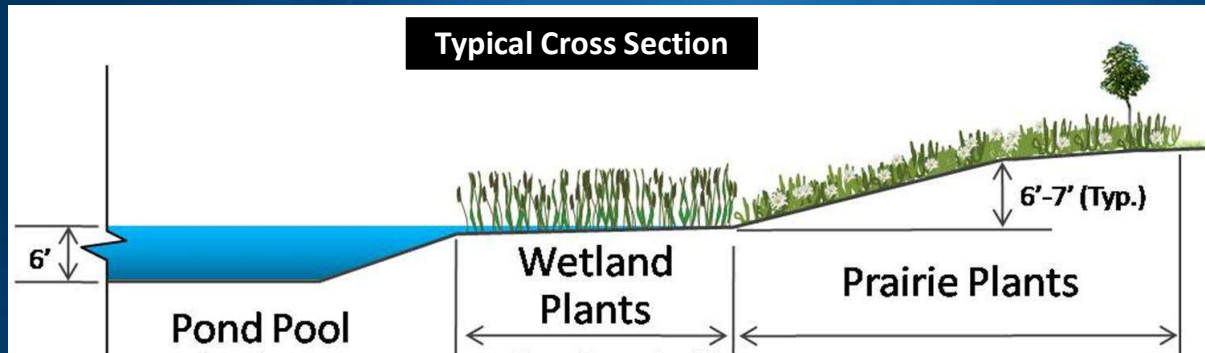
□ Maintenance:

- 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

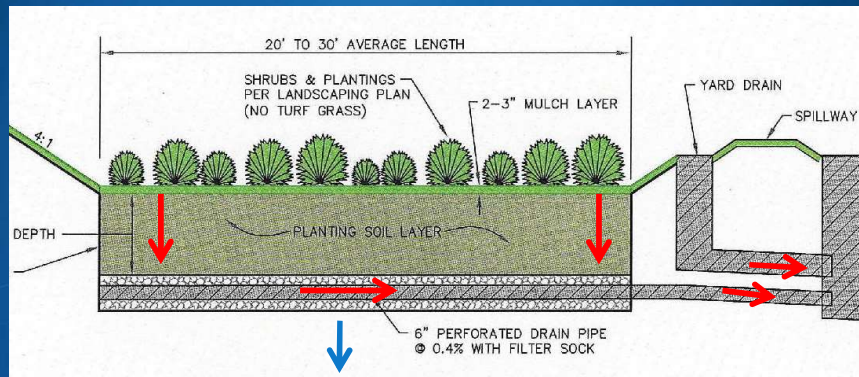
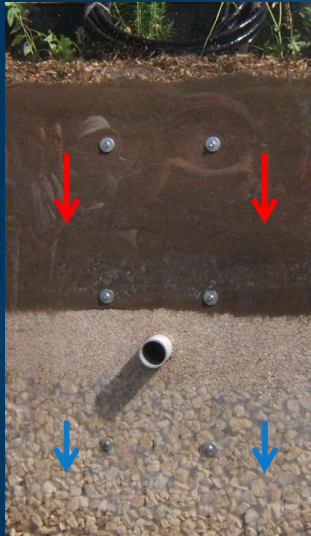
Bioretention (1004)



□ 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

Bioretention (1004)



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Vegetated Swale (1005)



□ 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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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?

Village of Kimberly
515 W. Kimberly Avenue
Kimberly, WI 54136
Phone: 920.788.7507

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

Site or Subdivision Name: _____		Parcel ID: _____	
Site Address / Location: _____			
Inspection Frequency (check one): <input type="checkbox"/> > 0.5 Inch Rain (R) <input type="checkbox"/> Monthly (M) <input type="checkbox"/> Biannual (B) <input type="checkbox"/> Annual (A) <input type="checkbox"/> 5-Year Cycle (C) <input type="checkbox"/> Other _____			
Date of Inspection: _____		Inspector Name: _____	Maintenance Crew Leader Name: _____
Maintenance Items – Wet or Dry Detention Pond (1001)	Frequency	Observed?	Inspector Comments
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	
2. Debris & Litter – At other device location		<input type="checkbox"/> Yes <input type="checkbox"/> No	

Sample Inspection & Maintenance Form



Thank You for inviting us to present today!

Questions?

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FOR OVER 100 YEARS
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