MAINTAIN YOUR PROPERTY THE WATERSHED FRIENDLY WAY

A Guide for Commercial Properties and Common Ownership Communities

Information and guidance for property managers and homeowners associations interested in reducing impacts on lakes and streams and improving water quality.

- ☑ How to inspect and maintain ponds and storm drainage systems to ensure they function as designed.
- ☑ How to specify turf maintenance and snow/ice control contracts to minimize pollutants in ponds, lakes and streams.
- ☑ Eight things you can do to improve water quality.

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West Metro Water Alliance

May 2014

What are BMPs?

The ponds, ditches, depressions, and unmowed areas on or adjacent to your property are essential parts of your property's storm drainage system. They are designed to reduce flooding and improve water quality by holding water on the property, treating it to remove pollutants, and then releasing it to nearby (or far away!) lakes, streams, or wetlands.

BMP, short for Best Management Practice, is a term used in water management to describe a structure or facility that reduces the impact of development on water quality and aquatic habitats. Pollutants include sediment, nutrients, motor oil, lawn care products, grass clippings, leaves, road salt, trash, and anything else that washes off from roof tops, driveways, parking lots, lawns, and streets.

Laws enacted in the past few decades require control and reduction of urban pollutants. Installing and maintaining BMPs are important ways to decrease pollution in our lakes, streams, and wetlands.

Typical wet pond

Typical wetland buffer

Typical infiltration swale

Are you responsible for BMP maintenance?

As part of its development, your property was likely subject to a maintenance agreement with the City that specifies who is responsible for maintenance. In general, unless the agreement states otherwise, **you are responsible for maintaining not only the aesthetics but also the proper function of your BMPs.** It is important that you check your maintenance agreement to identify your specific legal obligations. In most cases, these agreements provide that if you do not properly maintain the BMPs the City has the authority to enter onto your property, perform the service, and assess the cost of this work against the property.

Lower-Cost Turf Maintenance, Higher-Quality Water

How lawns and grounds are maintained has a big impact on lake and stream water quality. Healthy turf does a better job of letting water soak into the ground, or *infiltrate.* Less fertilizer, herbicide and watering are needed, saving you money and reducing pollutant runoff. You know how to compare prices for service, but how can you compare the ***value*** of a service in making or keeping your lawn the healthy and environmental amenity you want it to be? Here are some important questions to ask prospective turf care providers.

1. Will they perform an initial **site analysis** before recommending a specific lawn care program? What does that analysis include? Does it include an inexpensive soil test?
2. The use of **fertilizer** containing phosphorus is prohibited in Minnesota unless a soil test demonstrates a need for additional phosphorus. Do they propose to apply phosphorus to your lawn without such a test? How much nitrogen will they apply to your lawn over the season? Compare this with the University of Minnesota Extension Service recommendations in Table 1.

Table 1. Minnesota Extension Service fertilizer recommendations.

Turf Maintenance Practices	Number of Nitrogen (N) Applications to Apply at 1 lb. N/1000 Sq Ft	Application Timing
Irrigated, clippings not removed	3*	May-June Late August Mid-October
No irrigation, clippings not removed	1*	Late-August to Mid-September

*Add one more Fall application if clippings are removed

3. Ask what **weed, insect or disease problems** were identified in their site analysis, and the areas that are affected. Don't be afraid to ask them to point out those pests and the particular symptoms that led them to that diagnosis. This will help you be more observant and informed about what is appearing on in your property.
4. How do they manage insect, disease and weed problems? This question will help you find out if they will do spot treatment for specific problem areas or weeds rather than a blanket treatment. The response, "We treat the whole property to make sure the problem doesn't spread," is not a reason for blanket treatments.
5. Ask how they **evaluate** the progress they are making. What is their measure of success and is that consistent with your expectations?
6. Where soil improvements may be needed, find out if they provide the necessary services. For example, if your soils are compacted will they do lawn aeration? If that service is not something they can do or choose to do, they may not even evaluate your lawn for compacted soil conditions.

7. Is there a **designated person** you can call if you encounter a problem or concern and does that person have the authority to make adjustments?
8. Are they aware of **ordinances** that prohibit mowing or blowing grass clippings or other yard waste onto streets, trails or sidewalks or into ponds and applying fertilizer to impervious surfaces?
9. Are they familiar with **maintenance practices** around wet or dry ponds, swales, buffers, and rain gardens?

Eight Things You Can Do To Be More Watershed Friendly

1. Check dumpster areas and property for litter at least weekly.
2. Help residents clean up after pets by providing trash cans and bag dispensers.
3. Get your soil tested and only fertilize to your soil's needs.
4. Cover and elevate storage of chemicals used on your property. Clean up spills promptly.
5. Consider converting some of the mowed turf on your property to native vegetation.
6. Add a rain garden to the low spots on the property.
7. Have your parking lot swept at least twice a year.
8. Keep your stormwater ponds and other facilities in good order to maximize their effectiveness.

Ice and Snow Control

Minnesotans are used to a high level of snow and ice control. We expect roads and parking lots to be cleared and dry within hours after a snow or ice event. Ice-free walkways are a safety issue. Two of the primary tools in the winter maintenance toolbox are road salt and other deicers used to keep roads and walkways clear.

Follow these simple steps to help protect our waters:

1. **Shovel that snow**. The more you shovel or snow blow, the less salt you will need. Get out early and keep up with the storm.
2. **Don't overapply.** More salt does not mean more melting. Use less than four pounds of salt per 1,000 square feet. One pound is about a heaping 12 ounce coffee cup. When spread, this amount is barely visible.
3. **Temperature matters**. Most salts stop working below 15°F. In colder temperatures, use sand for traction.
4. **Sweep up extra**. Salt and sand on dry pavement are not doing any work and will be washed away. Sweep up the extra and reuse it.

Hiring a snow removal service? Hire a contractor who is trained to protect our waters by using less salt. For a list of certified individuals, visit: www.pca.state.mn.us/sbiz41. Here are some important questions to ask contractors:

1. Have you attended a Winter Parking Lot & Sidewalk Maintenance **training session**?
2. Are you **certified** by the MN Pollution Control Agency (MPCA) in Snow & Ice Control Best Practices?
3. If you aren't certified, would you be willing to **attend** a training session?
4. What **best practices** do you use to reduce the amount of salt applied?

Maintaining Your BMPs

VEGETATION MANAGEMENT

Most BMPs rely on vegetation to filter sediment from stormwater. Turf grass is the most common ground cover, although rain gardens and wetland plants also play an important role. The Minnesota Pollution Control Agency has an excellent reference publication, "Plants for Stormwater Design," available online at http://www.pca.state.mn.us/publications/manuals/stormwaterplants.html.

Mowing. Grass should never be cut shorter than three inches. Longer turf in swales and dry ponds is desirable, but it should be no more than 6-8 inches high.

No mow zones. Leave a minimum five foot unmowed area around wet ponds to help filter runoff. Buffer areas next to wetlands and streams are intended to be unmowed. Plant your no-mow zone with native species to improve its appearance and effectiveness. This will also discourage geese.

Unwanted vegetation. Some vegetation is destructive to a BMP. Keeping inlet, outlet, and bottom areas free of deep-rooted vegetation such as trees and bushes is critical because roots can destabilize the structures and impede flow.

Fertilization, pest and weed control. Avoid over-fertilization and excessive pesticide use. Do not use *any* chemicals within ten feet of a wet pond. Test your soil and fertilize according to recommendations.

POND MANAGEMENT

Ponds require regular inspection and periodic maintenance to keep them functioning well. Inspection can be as simple as periodically walking around the pond to look at the banks, structures, and water.

Erosion management. Lack of vegetation is the primary cause of erosion. Stabilize eroded areas with new plantings or for larger ravines or gullies consult your city engineer or erosion control specialist.

Water quality. Some algae growth in ponds is normal, but green water from excessive algae growth or water with a bad odor are usually caused by excess nutrients or sediment. Check your maintenance practices to be sure you (or anyone whose property drains to the pond) are not excessively fertilizing turf. Also check for erosion or other sources of excess sediment.

Minnesota Pollution Control Agency

Algae can cause green water, or slimy, filamentous, or spongy-looking growth in the pond. Small plants with round leaves that float on the surface are beneficial duckweed.

Sediment removal. Since the main purpose of a pond is to remove sediment and pollutants from runoff, sediment will accumulate and will eventually have to be removed. Once a pond has filled up half its volume - which can take from a few years to 10-15 years - it loses treatment capacity and must be dredged. It is important to monitor the amount of sediment accumulating in your pond so you know when you are approaching the time to have it dredged. If sediment can be seen above the water surface maintenance is way overdue.

The two most important factors determining how much pond dredging will cost are:

1) Is there good access to the pond or is it tucked away behind buildings and fences?
2) Is there a place onsite to dispose of the dredged material or will it have to be hauled somewhere?

Dredging a 1/4-acre pond can cost from $15,000-$30,000 or more depending on the above factors. A one-acre pond might cost $75,000-100,000.

Putting Together Your Maintenance Plan

1. Get **copies** of all documents related to your site. Visit City Hall and meet with the City Engineer or Zoning Official for help in getting documents and understanding your obligations. Get copies of:

   - Any maintenance agreements.
   - Any site plan or project review documents or permits, such as Planning Commission or watershed permit reviews.
   - Documents showing protected wetland edges.
   - Construction plans (especially the grading and drainage, planting, and utility plan sheets).
   - "As-builts," which show how construction might have changed from the plan to what actually went in the ground.

2. Create a **written plan**. Your Plan should include:

   - Name, address, phone numbers, and emails of current owners and managers as well as previous owners and managers.
   - Name, address, phone numbers, and emails of city, watershed organization, and other useful staff.
   - Name, address, phone numbers, and emails of contact persons for any company providing you with service or maintenance.
   - Copies of any current service or maintenance contracts.
   - An inventory of your facilities. Besides your BMPs, don't forget to list turf, gardens, wetlands, parking lots, driveways, storm sewers and catch basins. Take pictures of each facility.
   - A list of all your legal maintenance requirements identified in documents or your discussions.

3. Develop a **maintenance and inspection checklist.** Having a checklist is helpful when training new or replacement staff and for tracking your activities.

   Don't expect one person or a few people to implement the plan. Write a short job description for each task so that anyone can take over the task with a minimum of training. Create a simple checklist form that the inspector can use so they don't forget anything and you get consistent information.

4. **Educate** your neighbors or employees. Use a newsletter, gatherings, or bulletin board postings to provide updated information about your efforts.

5. Be **realistic** about your maintenance costs. Active maintenance may seem like more effort at a higher cost, but the payoff is avoiding future repairs or replacement of your BMPs that could cost you many times more. Create a pond maintenance fund to spread the cost over multiple year budgets.

A curb cut rain garden.

BMP Maintenance Quick Guide

Wet and Dry Detention Ponds	**ROUTINE MAINTENANCE** ☐ Remove accumulated debris and litter, especially around the inlet and outlet areas. ☐ Leave at least a five-foot unmowed buffer around a wet pond. ☐ Mow dry ponds routinely unless there is native vegetation. Burn native vegetation if possible; if not, cut to no less than 12" high. ☐ Remove woody vegetation from all embankment and bottom areas. ☐ Stabilize/replant any patchy or bare areas to reduce erosion. **WHEN IS OTHER MAINTENANCE REQUIRED?** **Dry Ponds** ▪ Standing water is visible after 48 hours ▪ Insects and/or odor become problems. ▪ Wetland vegetation emerges (unless the facility is specifically designed with marsh or wetland area). ▪ Visible damage to the embankment (such as sinkholes) or mechanical components.	**Wet Ponds** ▪ Visible signs of sediment accumulation. ▪ Insects and/or odor become problems. ▪ Algae blooms occur in the summer or ponded areas become dominated by a single aquatic plant species. ▪ Visible damage to the embankment or mechanical components. **NON-ROUTINE MAINTENANCE** ☐ De-thatch dry pond grass to remove accumulated sediment or debris. ☐ Aerate dry pond compacted areas to promote infiltration. ☐ Monitor sediment accumulations. Remove sediment before the pool volume has become reduced by half or when the pond becomes stagnant. ☐ Replace BMP components; reconstruct embankments and spillways (greater than 20 years if properly maintained).
Swales and Buffers	**ROUTINE MAINTENANCE** ☐ Remove accumulated debris, litter and sediment. ☐ Do not mow buffer strips. Hand-remove invasives. ☐ Mow swales routinely unless there is native vegetation. Burn native vegetation if possible; if not, cut to no less than 12" high. ☐ Inspect and spot treat or remove invasive and non-native vegetation, such as buckthorn or purple loosestrife. ☐ Remove woody vegetation and stabilize and replant swale side and bottom areas with native vegetation. ☐ Replant any areas that are not sufficiently established with native vegetation.	☐ Hire a professional for prescribed burns to remove non-natives and encourage native plant growth. **WHEN IS OTHER MAINTENANCE REQUIRED?** ▪ Standing water is visible after 48 hours ▪ Insects and/or odor become problems. ▪ Wetland vegetation emerges where not intended. ▪ Erosion or undercutting of swale banks is apparent. **NON-ROUTINE MAINTENANCE** ☐ Remove accumulated sediment/pollutants. ☐ Replace buffer edge marker signs as necessary.
Rain Gardens	**ROUTINE MAINTENANCE** ☐ Remove accumulated debris, litter and sediment. ☐ Supplement plants if a significant portion have not established (at least 50% of the surface area). ☐ Inspect for and spot treat or remove invasive species and replant with natives.	**NON-ROUTINE MAINTENANCE** ☐ Remove accumulated sediment/pollutants as needed.
Pavers	**ROUTINE MAINTENANCE** ☐ Remove vegetation growing between pavers. ☐ Keep the joints between pavers sand-filled, applying joint sealant if necessary.	**NON-ROUTINE MAINTENANCE** ☐ Remove and reset pavers as necessary to prevent trip hazards. ☐ Reapply sealant every 2-3 years or as necessary.
Devices	**ROUTINE MAINTENANCE** ☐ Hire a professional to periodically inspect buildup of sediment and debris, and remove in accordance with manufacturer's recommendations.	**NON-ROUTINE MAINTENANCE** ☐ Hire a professional to inspect the structural integrity of the device, and maintain or repair as necessary.

BMP Inspection Schedule

WET AND DRY DETENTION PONDS	
Routine Maintenance	
☐ Remove accumulated debris and litter.	Monthly
☐ Mow routinely, leaving a buffer around a wet pond.	As needed
☐ Do not mow native vegetation. Burn or cut to 12” as an alternative.	Burn-every 3 yrs Cut- twice/year
☐ Remove woody vegetation from all embankment areas.	As needed
☐ Stabilize/replant patchy or bare areas.	As needed
Non-Routine Maintenance	
☐ De-thatch grass to remove accumulated sediment and debris	Every 2 years
☐ Aerate compacted areas to promote infiltration	Every 2-3 years
☐ Monitor sediment accumulations and remove sediment when the pool volume is no less than 50% of the pond volume: 2-10 years for dry ponds; 5-15 years for wet ponds	Semi-annual inspection
☐ Replace BMP components, reconstruct embankments and spillways	>20 years if maintained
SWALES AND BUFFERS	
Routine Maintenance	
☐ Remove accumulated debris, litter and sediment.	Monthly
☐ Mow routinely unless there is native vegetation.	As needed
☐ Do not mow native vegetation. Burn or cut to 12” as an alternative.	Burn-every 3 yrs Cut- twice/year
☐ Remove woody vegetation and stabilize and replant side and bottom areas.	Annually
☐ Inspect for invasive species and spot treat or remove.	Monthly
☐ Replant any areas not sufficiently established with vegetation.	Annually
Non-Routine Maintenance	
☐ Remove accumulated sediment/pollutants.	As needed
☐ Replace buffer edge marker signs.	As needed
RAIN GARDENS	
Routine Maintenance	
☐ Remove accumulated debris and litter.	Monthly
☐ Supplement plants if less than 50% of the surface area has not established.	Annually
☐ Inspect for invasive species and spot treat or remove.	Monthly
Non-Routine Maintenance	
☐ Remove accumulated sediment/pollutants.	As needed
PAVERS	
Routine Maintenance	
☐ Remove vegetation growing between pavers.	Monthly
☐ Keep the joints between pavers sand-filled, applying joint sealant if necessary.	As needed
Non-Routine Maintenance	
☐ Remove and reset pavers that are no longer flush.	As needed
☐ Reapply sealant	Every 2-3 years
UNDERGROUND DEVICES	
Routine Maintenance	
☐ Hire a professional to inspect sediment and debris accumulation and remove as necessary.	As recommended by manufacturer
Non-Routine Maintenance	
☐ Hire a professional to inspect the structural integrity of the device and maintain and repair as necessary.	As recommended by manufacturer