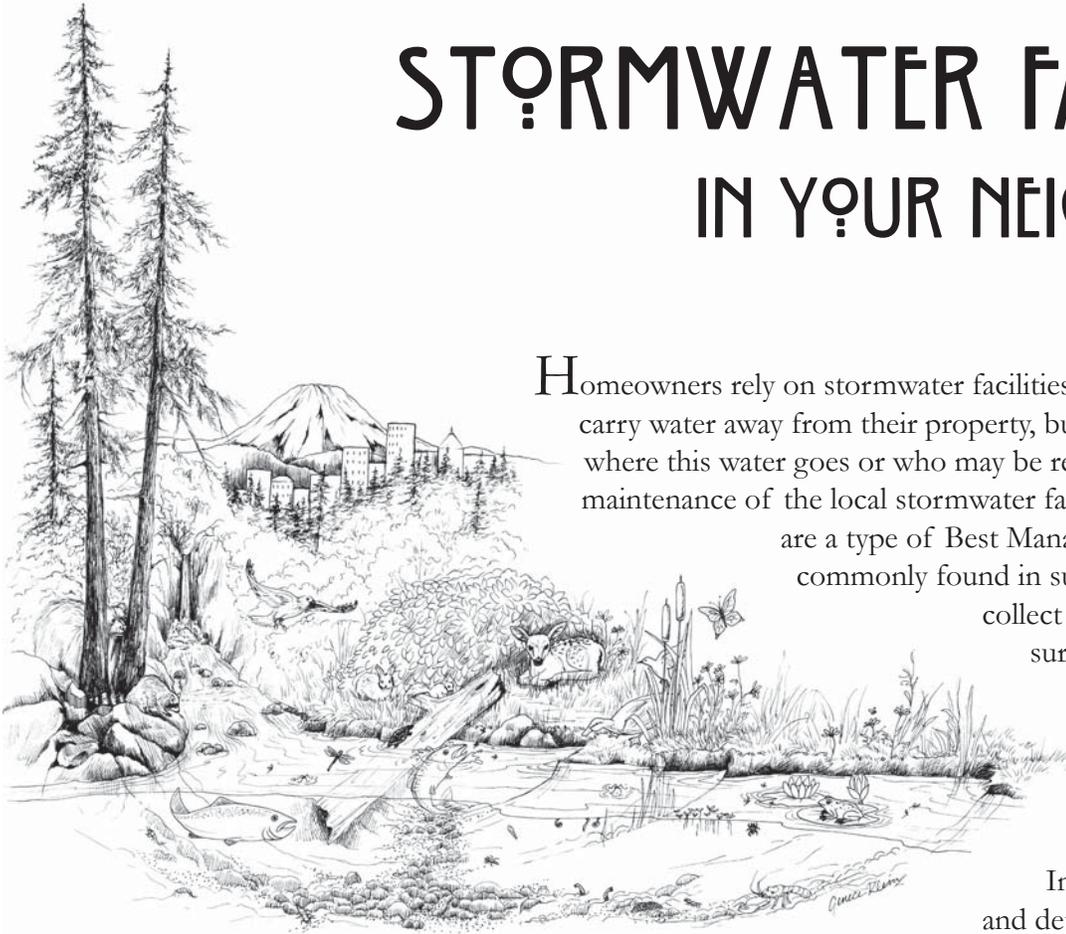


STORMWATER FACILITIES IN YOUR NEIGHBORHOOD



Homeowners rely on stormwater facilities to prevent flooding and carry water away from their property, but they may not know where this water goes or who may be responsible for the care and maintenance of the local stormwater facility. Stormwater facilities are a type of Best Management Practice (BMP) commonly found in subdivision developments to collect stormwater from impervious surfaces such as roofs, driveways, sidewalks and roads to control the amount and speed of water flowing into local streams and lakes. In Clark County, retention and detention ponds, dry wells, grassy swales, stormwater filter vaults and ditches most commonly used to control

stormwater. Depending on your neighborhood, you and your neighbors may be responsible for maintaining your stormwater facility.

Why maintain stormwater facilities?

Regular inspections and maintenance extend the life of the facility and protects our natural environment by slowing water runoff and filtering out pollutants. Neglecting a facility could make property or streets susceptible to flooding. Annual inspections reveal damaged or non functioning structures which may cause erosion in the facility or pollute local waters. Without regular maintenance, a homeowners association might need to hire a professional to repair damage. By spending some time each year, homeowner's associations save time and money.



Definitions

Erosion - the movement of soil particles by the action of water, wind, and gravity.

Infiltration - the physical process of water soaking into the ground.

Sediments - soil particles that get into water ways from wind or water erosion.

Impervious surface - any surface that prevents water from infiltrating.



Who owns and maintains my stormwater facility?

The county owns and maintains over 600 stormwater facilities. However, hundreds of privately owned stormwater facilities are maintained through homeowners associations and commercial property owners. Homeowners should check their deeds or covenants for language requiring homeowners associations to maintain the development's facility. The Community Development Office maintains plat documents containing information on the ownership of your facility.

What is a stormwater facility?

Stormwater facilities collect rainwater from roofs, driveways and other impervious surfaces in areas such as subdivisions, large commercial properties, or roadways. Rainwater falling onto these surfaces picks up soil, grease, grit, pet wastes, motor oil, and trash that flow to nearby stormwater drains. The stormwater drains into stormwater facilities where it infiltrates back into the aquifer or flows slowly out into local



An example of a grass-only infiltration facility.

streams, lakes, or wetlands, eventually reaching the Columbia River. Stormwater facilities help filter out some pollutants before they reach our local waters.



An example of a wet retention facility needing vegetation maintenance.

Common stormwater facilities include retention or detention ponds. Retention ponds collect stormwater from roof downspouts and local street drains into a basin where sediments and pollution carried by the stormwater settle out of the water.

WATERSHED



STEWARDS

Stormwater facilities may not contain standing water. Instead, they are designed to allow water to soak into the ground, usually within two to six days of a big rainfall. These facilities do not treat the water, but help convey it. Infiltration facilities are designed to infiltrate water slowly back into the soil. Detention ponds hold water, but slowly release it downstream to help regulate the speed and quantity of water flowing into streams and rivers. Some detention ponds have a separate area to hold recent runoff until sediments and pollutants settle out.

Wet ponds will often have standing water, slowing the water to let pollutants and sediments settle to the bottom of the facility. When enough water enters the facility for the water height to reach an overflow, it exits to local streams, leaving sediments behind. Whatever grease or oil on the top layer of water makes its way to our streams and rivers.

Some developments have underground facilities called vaults that function like detention ponds. Still other stormwater facilities in Clark County are developed adjacent to natural or created wetlands. Some wetlands are designed as mitigation to replace wetlands lost through development, but also function as stormwater treatment. If you live in a subdivision, it is important to know the type of facility in order to understand how you and your neighbors should maintain it. Check your homeowner's covenants, your house deed, or local Community Development Department to determine how your stormwater is collected.

Maintaining stormwater facilities

Now that you know what a stormwater facility does, how do you and your neighbors maintain it? First, start by inspecting your facility twice a year, at least once after a heavy rainstorm. Review the facility's mechanical and structural components including storm drains, outfalls, overflows, fencing, and the facility basin itself. Develop a check list of structural components and keep a maintenance record. Next, develop a facility maintenance schedule. Using a seasonal schedule will help divide work and provide an easy way to remember regular maintenance activities. Homeowners associations should consult with a qualified professional to help inspect and maintain stormwater vaults or other underground storage systems. Developments using stormwater facilities combined with wetland mitigation should consult with county staff before entering the wetland or attempting maintenance.

When inspecting the facility, look for signs of erosion where soil is washed away or slopes appear unstable or have failed. Inspect the vegetation. You do not need to be an expert to see a plant in distress. If in doubt, bring a sample of the plant to your local Washington State University Master Gardener office for identification. Erosion or dead vegetation may signal issues in the facility's function. Dead vegetation might mean excess sediment build-up or standing water in a facility not designed for ponding.

Vegetation. Vegetation is an important part of the facility but can easily grow out of control. Learn what plants were originally installed by consulting your plat documents, then compare with the plants in your facility. Weed around living plants, remove or replace dead plants, and review the extent of invasive species growing in your facility. Inspect vegetation in the spring when you might expect to see signs of life or new growth. During winter, many plants go dormant, and it may be difficult to determine dead from living plants.



Stormwater outflows often have a layer of rock preventing erosion as water flows out after storms.

Invasive species, such as Himalayan Blackberry, makes a stormwater facility less effective and might hide other issues. Avoid using herbicides in your facility and consult with Clark County Weed Management to help determine a plan of action for removing problem plants. If the facility is vegetated with grasses, mow regularly, but avoid using heavy equipment or machinery in the basin that compacts soils and hinders water infiltration.

WATERSHED



STEWARDS

Stormwater Facilities in your Neighborhood

3

Important things to remember

Remove litter that may clog inlets, outlets or the basin. Regularly remove trash and litter near storm drains to prevent accumulation in the stormwater facility. Litter may include animal waste, lawn clippings or any other debris that could inhibit infiltration or clog pipes. These organic wastes increase nutrients in our local waters, which increase algal growth and damage aquatic life.

Erosion causes problems in the stormwater facility. Inspect the “splash pad” where the water outlet empties into the facility. The splash pad might consist of large rocks at the base of the outlet or concrete. Inspect the surrounding soil for signs of erosion for slope failure or slippage. Consult County engineers for help with stabilizing stormwater facility walls.



A level spreader. Inspect for sinkage, damage or erosion.

Know your structures

Finally, check structural parts of the facility for clogged intakes or outlets, broken or cracked pipes or other malfunctioning parts. Check fencing to be sure the facility is safe and secure.

Stormwater facility without water?

After a large rainfall event, visit the stormwater facility. Water should not pond for more than 48 hours. If the facility holds water longer, check for built-up sediment.

To avoid issues with sediment, educate your neighbors about the function of your facility. Keep water on your property to avoid excessive sediment and erosion from getting into the stormwater facility. Homeowners can implement several strategies to retain more stormwater on their property such as rain gardens or rain barrels. Most importantly, keep pollutants from entering the facility.

With regular maintenance, the stormwater facility should function properly for many years. You and your neighbors play an important part in protecting Clark County streams and rivers.

WATERSHED



STEWARDS

Stormwater Facilities in your Neighborhood



Sample Checklist for Stormwater facility maintenance

	Maintenance Activity	Why?
Spring/Summer	✓ Remove debris and litter around inlet and outlet pipes	As needed to prevent clogging pipes or flowing to streams.
	Mow grasses periodically, avoiding native vegetation	As needed, at least once in summer to prevent buildup of vegetation that inhibits infiltration.
	Clean catch basins or sediment traps	Remove when sediment collects to six inches in depth to keep free flow of water through pipes.
	Remove weeds/invasive plants	As needed to keep under control and avoid large-scale invasion.
	Check for erosion, more than one-inch of soil loss may require maintenance	Prevent problems with infiltration and sedimentation.
	Remove sediment build-up	Perform when facility is dry; once every four or five years. Allow no more than two inches of sediment build-up to keep infiltration working properly.
	Inspect structures	Replace as needed to keep facility in good working condition.
Fall	Remove debris and litter around inlet and outlet pipes	As needed to prevent clogging pipes or flowing to streams.
	Remove dead vegetation and consider re-planting natives	Replant bare root or woody plants in late fall after first rains start to allow root systems growth and plants to establish.
	Check for ponding water after major storm events	Little standing water should be visible 48 hours after a major rain event.
	Clear storm drains of leaves and debris	As needed to prevent clogging pipes.

Additional Maintenance Activities:

- ✓ De-thatch grass to remove accumulated sediment and debris.
- ✓ Aerate compacted areas to promote infiltration.

WATERSHED



STEWARDS

Use Clark County's Stormwater Facility Maintenance Manual for more detailed information on all stormwater facilities. The manual is found at <http://www.co.clark.wa.us/water-resources/maintenance/stormwater.html>.

Stormwater Facilities in your Neighborhood

5

References:

Clark County Stormwater Maintenance Manual.

<http://www.co.clark.wa.us/water-resources/maintenance/stormwater.html>

A Citizen's Guide to Maintaining Stormwater Best Management Practices for Homeowners Associations and Property Owners. Lake County Stormwater Management Commission. October, 2004. http://www.northbarrington.org/files/newsletters/Guide_Final_110404.pdf

Maintaining Your Stormwater Management Facility Home Owner Handbook. City of Portland Environmental Services. <http://www.sustainableportland.org/shared/cfm/image.cfm?id=65926>

Maintaining Your Stormwater Pond. Thurston County Department of Water and Waste Management. http://www.co.thurston.wa.us/stormwater/Water_Resources/Stormater%20Utility/Public%20Outreach/Neighborhood%20Drainage.htm

By Jenifer Naas (December, 2008)

For more information and classes, check out Watershed Stewards program

<http://clark.wsu.edu/volunteer/ws/>

or contact Watershed.Stewards@clark.wa.gov

Watershed Stewards is sponsored in partnership by
WSU Extension Clark County and the
Clark County Clean Water Program.

WATERSHED



STEWARDS

WASHINGTON STATE UNIVERSITY
CLARK COUNTY EXTENSION



Clean Water Program

Extension programs are available to all without discrimination.
Report evidence of noncompliance to your local Extension office.

Stormwater Facilities in your Neighborhood

