Maintaining Your Neighborhood Stormwater Facilities

How to identify stormwater facilities and keep them working

Layout by the Thurston County Storm and Surface Water Utility with thanks to the Delaware Department of Natural Resources and Environmental Control for sharing text and photos. 8/08

Getting to Know Your Stormwater Facilities

Neighborhood stormwater facilities play a key role in preventing flooding, pollution and erosion. The phrase "stormwater facility" refers to any landscaped or structural feature that slows, filters, or infiltrates runoff from your property after a rainfall. Stormwater facilities come in many shapes and forms – from simple swales to more complicated stormwater ponds.

The ponds, ditches and depressions that you see every day may actually be neighborhood stormwater facilities. Without them, polluted stormwater runoff can rush into rivers and streams, or enter drinking water aquifers.

Stormwater facilities also help prevent neighborhood flooding – a huge benefit in the stormy Pacific Northwest.

Skagit County requires property owners to inspect and maintain stormwater facilities on their private property, including facilities located on commonly owned land within a housing development.

This publication provides simple tips for maintaining stormwater facilities. For further assistance, contact:
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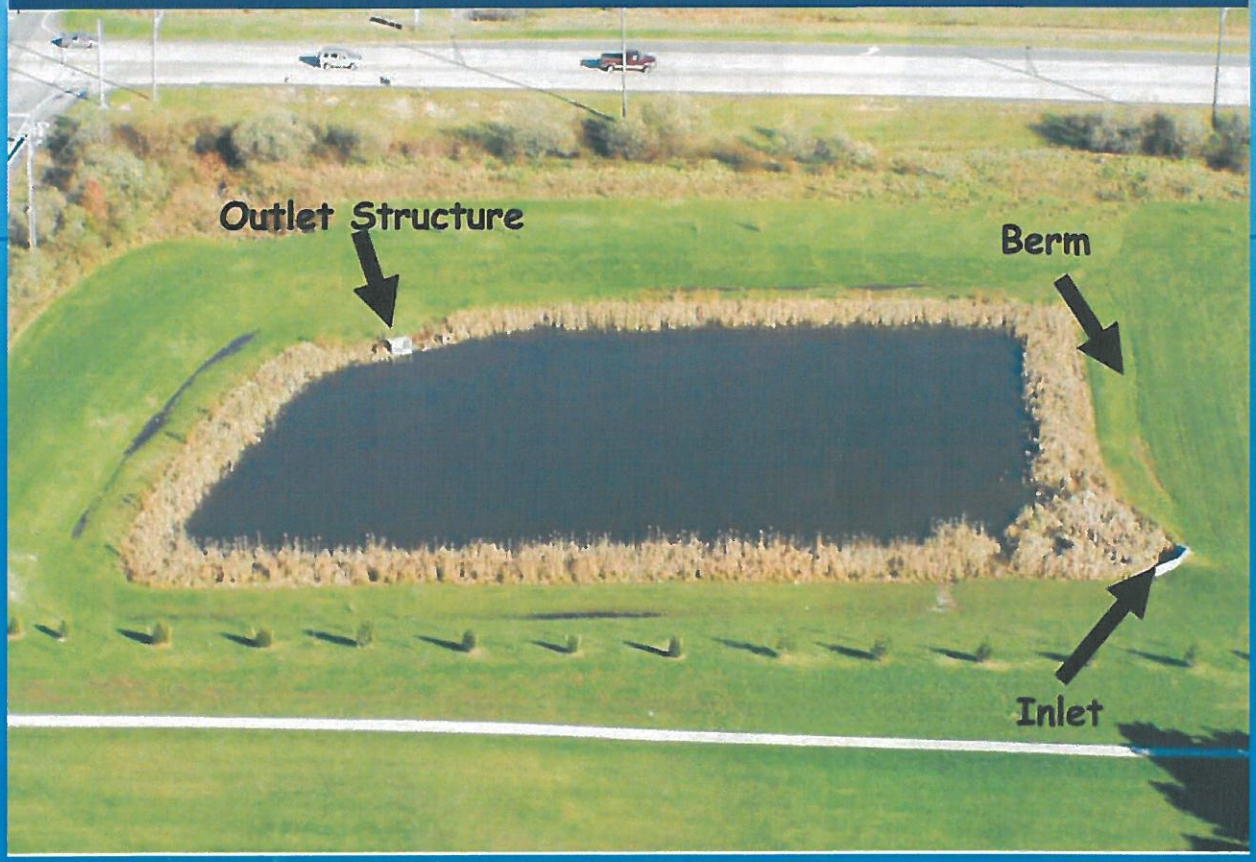
Visit us at www.skagitcounty.net/stormwater



A stormwater pond is a type of stormwater facility. Photo courtesy of Delaware Dept. of Natural Resources and Environmental Control.

What's the Problem with Runoff?

Whenever it rains, stormwater rushes along hard surfaces, picking up pet waste, oils, fertilizers, pesticides and other pollutants. This runoff flows into street drains and ditches. Eventually, the runoff ends up in rivers, streams and Puget Sound, or in the soil where it can seep into ground water (our source of drinking water).

In Skagit County, stormwater runoff does not enter a sewer-type treatment plant to be cleaned.

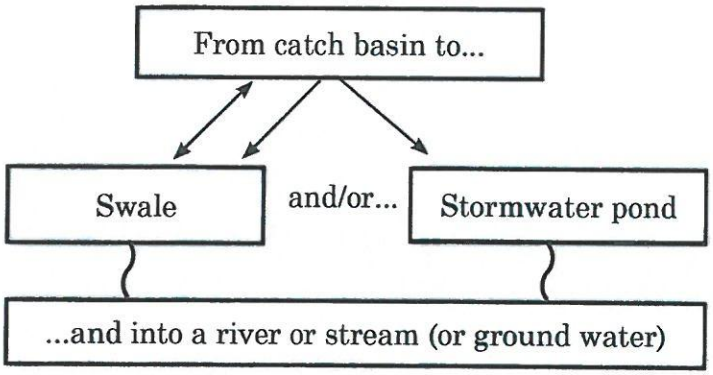
Stormwater runoff is the leading cause of pollution in our state's waterways.

Catch Basins: Usually The First Destination

Stormwater runoff typically flows into "catch basins" (sometimes called "storm drains"). A catch basin is an underground concrete structure with a slotted grate that collects stormwater runoff. Stormwater gathers in the tank and sediments settle to the bottom. The cleaner water on top then flows through pipes to a variety of destinations: into a swale, a stormwater pond, or directly into a river or stream. Catch basins are usually found in streets and parking lots.

Catch basins in private roads/lanes and on private property are maintained by property owners. Catch basins in the county or city road right-of-ways are maintained by the county or city.

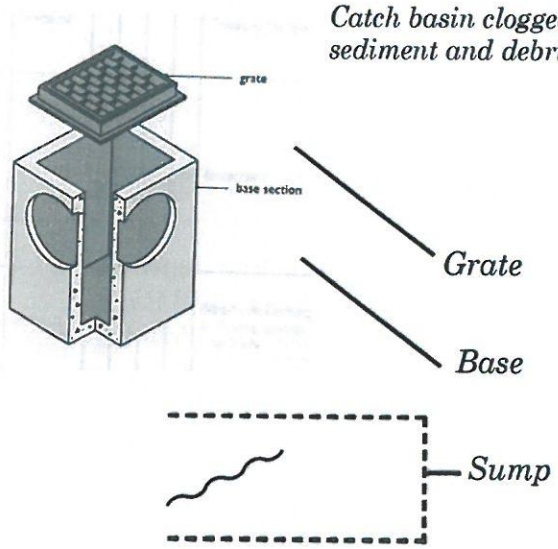
How stormwater flows through your neighborhood



ACTION ITEMS: Clean litter and leaves from catch basin grates. If the street is privately owned, hire a professional to remove sediment buildup in the sump. Keep pet waste out of streets and gutters.

Functioning catch basin

Catch basin clogged with sediment and debris



Sump is the distance between the bottom of the pipe and the bottom of the structure. Sediment should not exceed 1/3 the depth of the sump.

Swales

Swales are wide, shallow ditches with gently-sloping sides and a flat bottom where stormwater runoff either infiltrates into the ground or flows to another destination. Swales are usually planted with grass to filter out sediment and pollution. Swales should never be filled in, not even with pipes, gravel or decorative rocks (and, especially not beauty bark). Some swales feature rock dams to intentionally slow the flow of water into a stormwater pond (see "Rock Baffle and Dam").

A well-maintained swale

This swale, designed for grass, should not have been filled with rock. Homeowners who alter stormwater swales may be required to restore swales to their original design.

ACTION ITEMS: Mow the swale and remove grass clippings and leaves. Do not use herbicides or pesticides. Aerate soils to preserve percolation rate.

The Role of Stormwater Ponds

Stormwater ponds are engineered depressions in the land that store rainwater until it can either infiltrate into the ground, or flow through conveyance pipes into streams, lakes, wetlands, or Puget Sound. Most neighborhoods have either a dry pond, a wet pond, or a combination of both.

Your stormwater pond might be located in your back yard or, if you live in a housing development, down the street or on nearby property.

Dry ponds are often used for light or casual recreation during the summer.

Dry and Wet Stormwater Ponds

Dry Ponds: Dry ponds look like shallow bowls or depressions in the land. The ponds store stormwater and gradually allow the water to infiltrate into the ground. As the name implies, dry ponds are designed to go dry within a certain period of time, typically two to six days.

The ponds are usually seeded with grass to absorb pollutants before the water infiltrates into the ground, which helps protect drinking water aquifers.

A well-maintained dry pond.

Alders and blackberry bushes have taken over this dry pond, hindering the infiltration of water.

Wet Ponds: Wet ponds are are often lined with clay or plastic to allow the water to pool. Pollutants settle to the bottom of the standing water, or are absorbed by vegetation in the pond. The cleaner water on top is then conveyed into a dry pond (where it seeps into the soil) or into a nearby body of water.

A well-maintained wet pond.

This wet pond is overgrown with cattails.

ACTION ITEMS: Maintain stormwater pond parts as described in the following pages. Also, remove trash, yard debris and problem vegetation. Check your pond before and after the rainy season (October and May).

Stormwater Pond "Parts" and How to Maintain Them

➤ Berm

A berm is a sloping, earthen sidewall of a stormwater pond, including the flat, top surface of the sidewall.

A well-vegetated berm

This berm is experiencing erosion.

ACTION ITEMS: Maintain vegetation on berms to reduce erosion. Do not drive vehicles on berms.

➤ Inlet Pipe and Trash Rack

Inlet pipes send water into swales and stormwater ponds. The water that flows through the inlet pipe should fall on a splash pad made of rip rap (see "Energy Dissipator"). The trash rack shown here prevents animals and children from entering the pipe.

A well-maintained inlet pipe

This inlet lacks a trash rack and is loaded with sediment.

ACTION ITEMS: Keep inlet structures free of trash and debris, and remove sediment. Also remove plants, such as alder and willow, that tend to grow near the end of the pipe. Hire a professional to fix broken racks.

➤ Energy Dissipator or "Splash Pad"

Energy dissipators slow the flow of water to prevent erosion at inlet pipes.

This energy dissipator is in good condition.

Erosion damages this dissipator.

ACTION ITEMS: Replace scattered rocks and remove weeds and excessive sediment.

➤ Outlet Pipe/Structure

Outlet pipes and structures convey water out of a pond. Sometimes the pipe is a small "overflow device" (vertical riser) that accepts high water. Other times, the outlet is a horizontal pipe placed at a higher elevation than the inlet pipe. The trash rack shown here blocks debris.

ACTION ITEMS: Keep the trash rack and outlet area free of sediment, trash and problem vegetation. Hire a professional if the structure is damaged.

A typical outlet pipe

➤ Metering Device

Metering devices slowly release stormwater from a stormwater pond to another location once the water rises to a certain height. These devices help prevent erosion and provide time for pollutants to settle out of the water.

ACTION ITEMS: Remove vegetation and debris. Hire a professional for repairs.

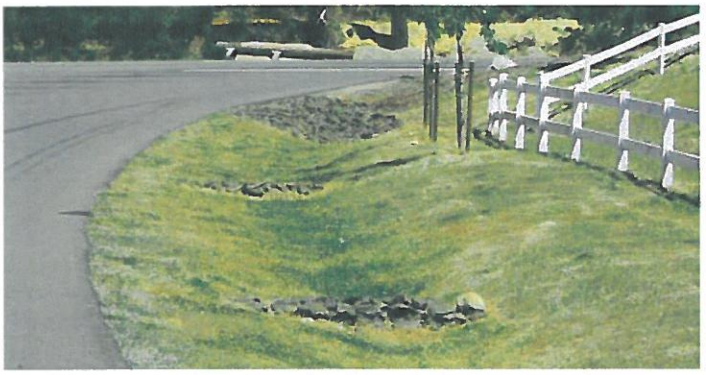
A typical metering device

An inside view

➤ Rock Baffles and Dams

Rock baffles slow or redirect the flow of water.

This well-maintained rock baffle slows the flow of water from one area of a stormwater pond to another area.



The rock check dams in this swale intentionally slow the flow of water. Rock check dams are beneficial, unlike swales that have been filled with rock by homeowners.

ACTION ITEMS: Replace scattered rocks and remove weeds and excessive sediment.

➤ Emergency Spillway

Every pond must have an emergency spillway. Water can overflow at this location if the pond becomes overly full due to a significant rain event.

ACTION ITEMS: Keep free of trees and other vegetation. Remove trash and yard debris.

A rip rap spillway. Photo courtesy of Delaware Dept. of Natural Resources and Environmental Control.

➤ Fences and Access Roads

If your stormwater pond has slopes steeper than three horizontal feet to one vertical foot (3:1), you must place barriers adjacent to the steep areas and provide a 15-foot wide access corridor.

ACTION ITEMS: Keep fences in good repair. Keep access road clear and prune landscaped trees and shrubs along the road.

Fencing and access road in a housing development.