



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.

Getting to Know Your Stormwater Facilities

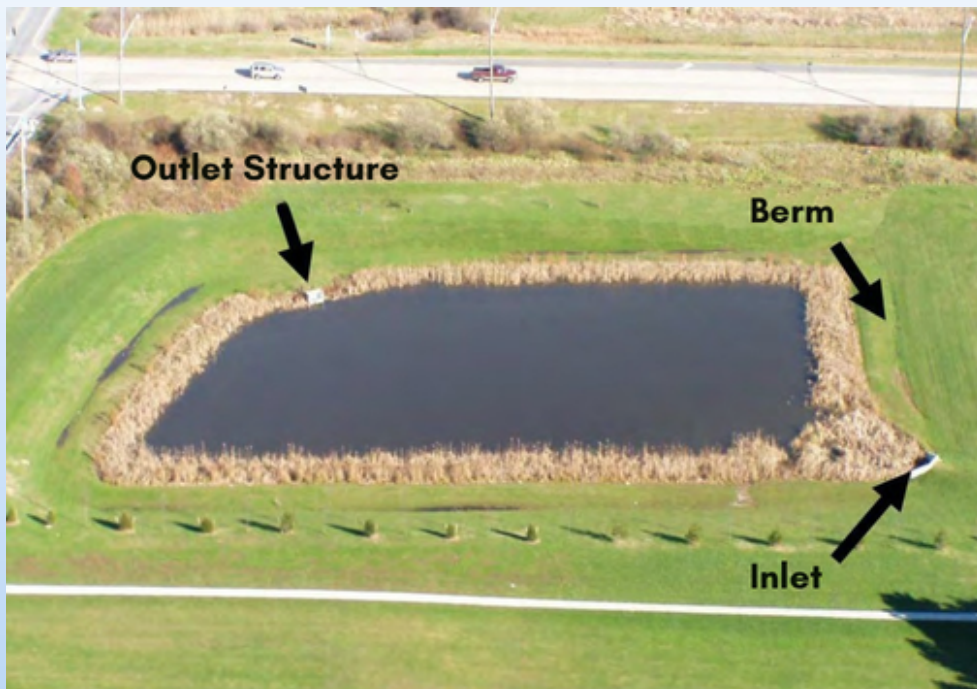
- ▶ “**Stormwater facility**” means any landscaped or structural feature that slows or filters runoff from your property after a rainfall. Some stormwater facilities also help rain water soak into the ground. Stormwater facilities come in many shapes and forms– from simple swales to more complicated stormwater ponds. The ponds, ditches and depressions that you see every day might actually be neighborhood stormwater facilities.

- ▶ Stormwater facilities help prevent
 - Pollution
 - Erosion
 - Neighborhood flooding
 - Drinking water contamination

- ▶ Stormwater facilities give rain water a place to drain to and can help reduce pollution in water. Without stormwater facilities, rain would have nowhere to go and would flood neighborhoods, and more pollution would get into our rivers, streams, lakes, and bays.

- ▶ 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.

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 get treated or cleaned before going into natural waterways. Stormwater runoff is the leading cause of pollution in our state's waterways.

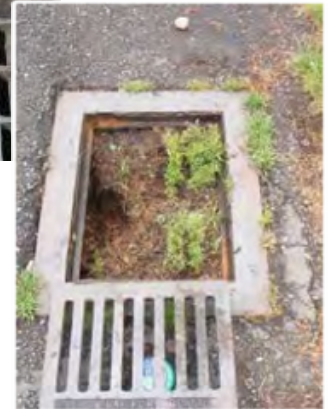
Catch Basins: Usually The First Destination

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, into 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.

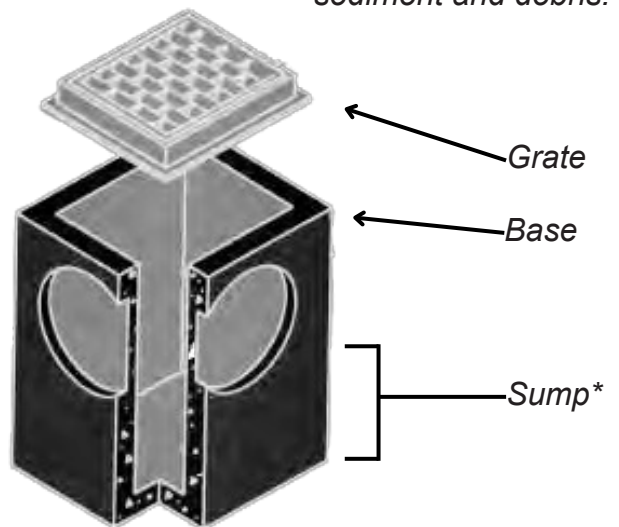
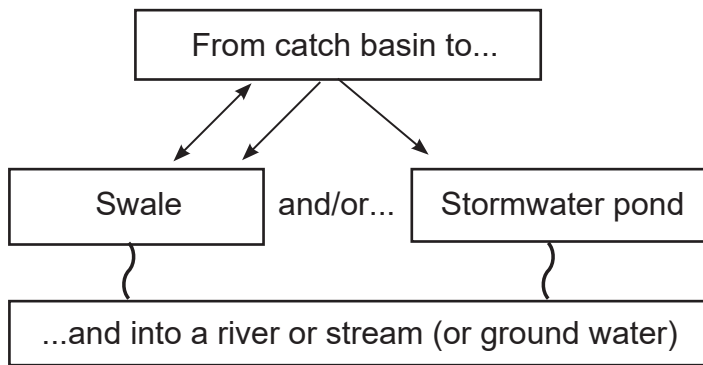


A functioning catch basin.



A catch basin clogged with sediment and debris.

How stormwater flows through your neighborhood



**The "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.*

To Do: 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.

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, decorative rocks, or bark. **If you fill in a swale, you may need to restore it at your own cost.**

Some swales have rock dams to slow the flow of water into a stormwater pond (see “Rock Baffle and Dam”).

To Do: Mow the swale and remove grass clippings and leaves. Do not use herbicides or pesticides. Aerate soils so water can soak in.



A well-maintained swale.



This swale, designed for grass, should not have been filled with rock.

The Role of Stormwater Ponds

Stormwater ponds are engineered depressions (dips) in the land that store rainwater until it can either soak into the ground or flow through 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. Dry ponds store stormwater and gradually allow the water to soak into the ground. 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 soaks 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 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.

To Do: Maintain stormwater pond parts as described in the following pages. 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. Berms are what hold stormwater in stormwater ponds.



A well-vegetated berm.



This berm is experiencing erosion.

To Do: 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 large loose stones (see “Energy Dissipator”).

The trash rack shown on the right prevents animals and children from entering the pipe.



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



A well-maintained inlet pipe with a trash rack.

To Do: Keep inlet structures free of trash and debris, and remove sediment. 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. They are often made up of rip rap (large rocks or rubble).



This energy dissipator is in good condition.



This energy dissipator is eroding.

To Do: 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.

To Do: 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 with a trash rack.

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 stop erosion and allow time for pollutants to settle out of the water.

To Do: Remove vegetation and debris. Hire a professional for repairs.



A typical metering device.



An inside view.

Rock Baffles and Dams

Rock baffles are piles of rock that 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.

To Do: 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.

To Do: 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.

To Do: 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.