



swales
have
many
options
in design
and
planting

VEGETATED SWALES

(bioswales, grassy swales)

Swales are gently sloping depressions planted with dense vegetation or grass that treat stormwater runoff from rooftops, streets, and parking lots. As the runoff flows along the length of the swale, the vegetation slows and filters it and allows it to infiltrate into the ground. Where soils do not drain well, swales are typically lined and convey runoff to a drywell or soakage trench. Swales can include check dams to help slow and detain the flow. A swale can look like a typical landscaped area.



Benefits

The plants in a swale filter and slow stormwater runoff while sediments and other pollutants settle out. Swales are cost-effective, attractive and can provide wildlife habitat and visual enhancements. Single or multiple swale systems can treat and dispose of stormwater runoff from an entire site. Swales can reduce the number and cost of storm drains and piping required when developing a site.

Vegetation

Swales can be planted with a variety of trees, shrubs, grasses, and ground covers. Plants that can tolerate both wet and dry soil conditions are best. Plant grassy swales with native broadleaf, dense-rooted grass varieties. Avoid trees in areas that require enhanced structural stability, such as bermed side slopes. Summer irrigation and weed pulling may be required in the first one to three years.

Maintenance

Inspect swales periodically, especially after major storm events. Remove sediment and trash, clean and repair inlets, curb cuts, check dams, and outlets as needed. Maintain side slopes to prevent erosion and ensure

proper drainage. With proper construction and maintenance, swales can last indefinitely.

Cost

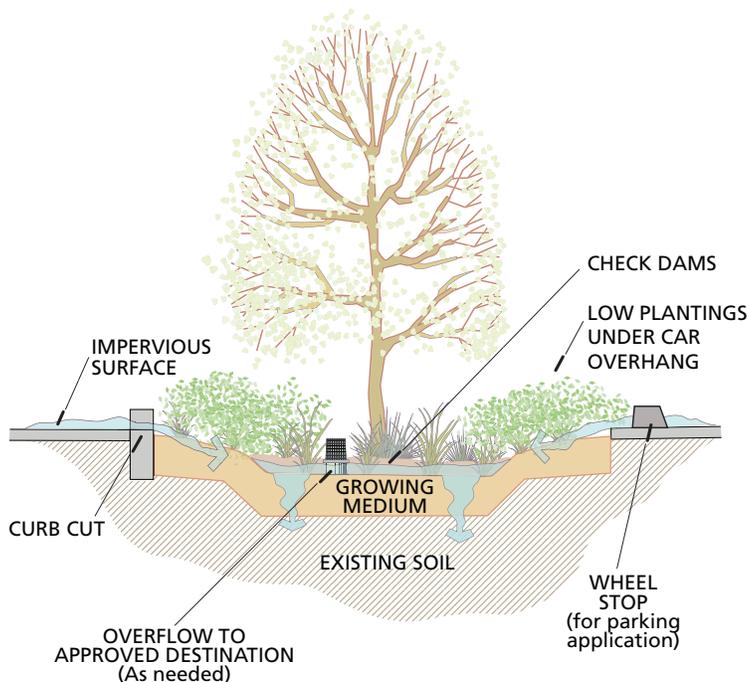
Costs vary but swales typically cost less than a standard piped, drainage system.

Safety and Siting Requirements

- Swales located closer than 10 feet from building foundations need a variance from Bureau of Development Services (BDS)
- Locate swales at least 5 feet from any property line.
- Grade the site so that water drains to the swale, or provide some form of conveyance such as a trench or berm to direct the runoff into the swale if site grading is impractical.
- Many parking lot planting islands can be excavated and retrofitted into swale systems with curb cuts.
- Refer to Portland's Stormwater Management Manual for detailed information on sizing, placement, and design.

Permits

- Swales that accept roof runoff may require altering downspouts or other piping and a plumbing permit from the Bureau of Development Services (BDS).
- Depending on the area of ground disturbance, a clearing and grading permit may be required from BDS.
- The stormwater management portion of the facility may need review from the Bureau of Environmental Services (BES).
- Stormwater systems on non-residential sites need a commercial building permit.



Examples

OMSI and PCC annex parking lots,
1945 S.E. Water Ave.

Water Pollution Control Lab,
6543 North Burlington Ave.

Parkrose Middle School, 11800 NE Shaver

Glencoe Elementary School, 825 SE 51st Ave.

Siskiyou Green Street, NE Siskiyou between
35th Place and 36th Ave.