LOW IMPACT DEVELOPMENT
STORMWATER MANAGEMENT

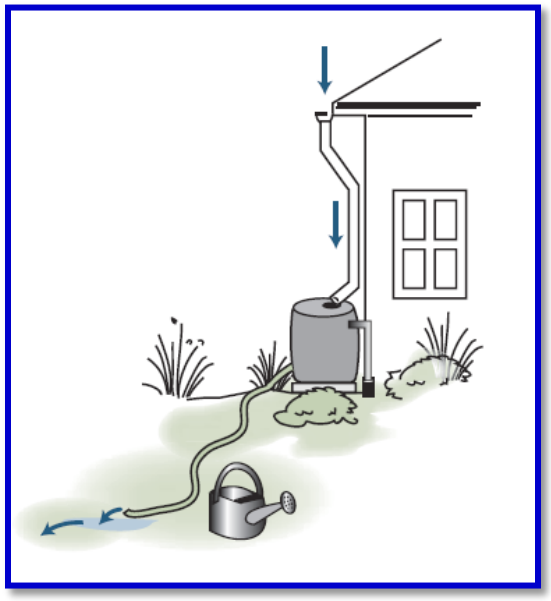
What is Low Impact Development?

Low Impact Development (LID) is a broad term that describes practices and land development features used to mimic natural practices to manage stormwater. Such stormwater management includes infiltration, evapotranspiration, and water quality. LID stormwater features include Rainwater Harvest Systems, Bioswales, Green Roofs, Planter Boxes, Rain Gardens, and Porous Pavement.

Rainwater Harvest Systems

Rain Harvest is the process of capturing stormwater runoff from a roof and redirecting the stormwater into a storage container via a pipe for later use.

Installing a rainwater harvest system can avoid erosion, deter pollution, improve stormwater quality, reduce the quantity of stormwater runoff, provide supplemental irrigation, provide supplemental storage during dry months and fire danger, and water bill savings.



Rain Harvest System
Source: Environmental Services, City of Portland

Bioswales

Bioswales are linear, vegetated, depressions in the landscape that convey and treat runoff from a variety of surfaces. Runoff may be piped or channeled. As water passes through the swale, some runoff infiltrates into the soil, and vegetation naturally filters water prior to reentering a stormwater system.

Bioswales can be dry (vegetated, designed to drain quickly) or wet (more marsh-like vegetation, for poorly draining soils).

Bioswale Parking Lot Design

Green Roofs

A Green Roof is a system of waterproofing material with a soil/vegetation protective cover. A Green Roof can be used in place of a traditional roof as a way to reduce impervious surfaces and increase water permeability. Green roofs vary in size, and can be implemented from small residential areas to large-scale commercial sites.

Green Roofs attempt to mimic ground cover with the purpose of reducing stormwater runoff rates. Green Roofs also help mitigate runoff temperatures by keeping roofs cool and retaining most of the runoff in warm seasons.

Green Roof components include structural roof support, impermeable liner, root barrier, drainage layer, soil, vegetation, and drainage.

Extensive Green Roof in Washington D.C.
Source: US EPA

Rain Gardens

A rain garden is a sunken garden bed that collects and treats stormwater from impervious surfaces. It is a landscaped area in a basin shape designed to capture runoff and settle and filter out sediment and pollutants. Runoff is piped or channeled to the basin, where it is temporarily stored until it infiltrates the soil.

There are two kinds of rain gardens:

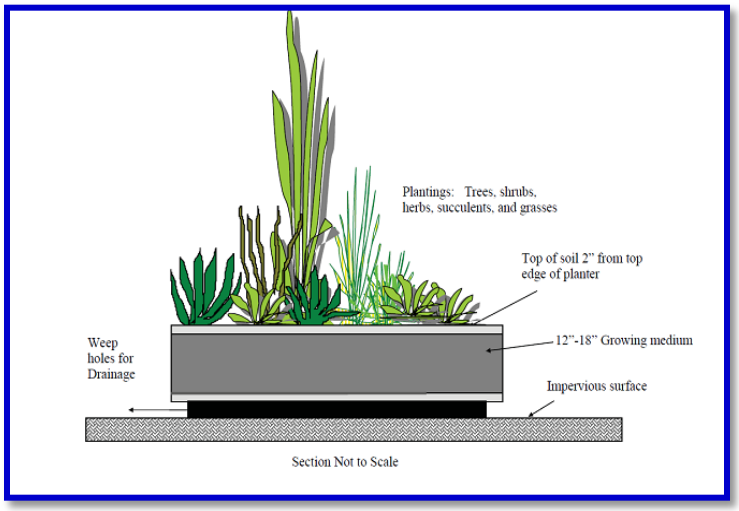
1. **Infiltration:** cleanses, detains, and reduces stormwater runoff volumes by allowing water to seep into the surrounding soils; planted (more common)
2. **Filtration:** cleanses and detains stormwater runoff, routed using piping; engineered

Both raingarden types include rocks, plants, a berm, and soil amendments. Some rain gardens also include impermeable liners and piping.

Rain Garden Cross Section
Source: Oregon Rain Garden Guide

Planter Boxes

Planter boxes are essentially containerized rain gardens. Planter boxes are structures with open bottoms, allowing water to slowly infiltrate. Planter boxes contain a layer of gravel, soil, and vegetation, and vary in shape, size, and design.



Planter Box Design
Source: Rogue Valley Stormwater Design Manual

Porous Pavement

Porous Pavement is a pavement that allows water infiltration to avoid flooding and weathering of man-made surfaces. Porous pavement accepts only precipitation, not stormwater runoff. It may be used for walkways, patios, plazas, driveways, parking lots, and some portions of streets.

There are three main types of porous pavement: pervious concrete, porous asphalt, and brick/flagstone.

Jackson Soil & Water Conservation District
89 Alder Street, Central Point, OR 97502
Phone: 541-423-6159 Website: jswcd.org