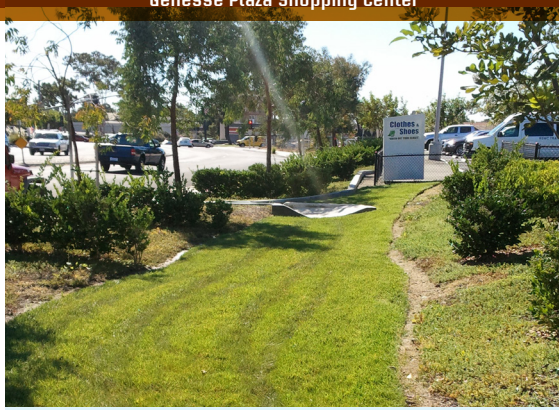
Vegetated Swales


Genesse Plaza Shopping Center

Background

Vegetated swales are shallow, open channels with gently sloping sides that remove pollutants from storm water by physically straining and filtering it through vegetation and soils within the channel. Densely planted vegetation or grasses within the channel also serve to slow storm water runoff and encourage infiltration into underlying soils. Vegetated swales can serve as conveyance for storm water in place of traditional curbs and gutters; however, the primary objective of a vegetated swale is water filtration.

Vegetated swales are effective for removing:

- Total Suspended Solids (TSS)
- Sediment
- Oil and grease
- Organics
- Metals

Site Assessment

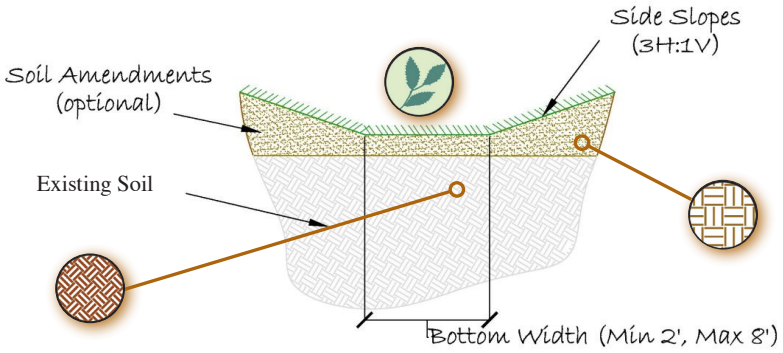
Ideal sites for vegetated swales include street right-of-ways and along borders or medians of parking lots. As the primary goal of a vegetated swale is to filter surface water, existing soils should allow for adequate infiltration but are not required to be enhanced with soil amendments for increased permeability, nor do they require check dams to control flow like bioswales. In fact, storm drain inlets within a vegetated swale should be flush with the soil surface to avoid excessive ponding. In addition, planting a vegetated swale with native plants offers a greater opportunity to filter and slow runoff compared with a grass swale.

Drainage area	Soil infiltration rate	Water table separation	Depth to bedrock	Facility slope	Inflow rate
< 2 acres	> 0.5 in/hr *(if < 0.5 in/hr, install UD*)*	> 2 ft	> 10 ft *(if > 2 but < 10 ft, install UD*)*	< 4%	Mulch: 1 cfs, Grass: 3 cfs

Pollutant Removal			Runoff volume reduction	Groundwater recharge
	Sediments: Medium	Nutrients: Low	Low	Low
	Trash: Low	Metals: Medium		
	Bacteria: Low	Oil and Grease: Medium		
	Organics: Medium			

**UD = Underdrain system*

Vegetated Swales



Soil Type: Examine site compaction and soil characteristics. Determine site-specific permeability; it is ideal to have well-drained soils for volume reduction and treatment in vegetated swales.

Media layers: A vegetated swale may use bioretention soil media to improve water quality, reduce the runoff volume, and modulate the peak runoff rate while also providing conveyance of excess runoff. Soil media depth must be 2 feet minimum for grassed cells and 3 feet minimum for shrub/tree cells. The soil media provides treatment through filtration, adsorption, and biological uptake.

Vegetation: Vegetation is crucial to both the function and appearance. Consider native plants resilient to variable flow. Mimic nature with a high diversity of plant types. Plants must be somewhat tolerant of drought, ponding fluctuations, and saturated soil conditions.