

# VEGETATED SWALE

## Fact Sheet SDM-6

Also known as: Bioretention Swale, Treatment Swale, and Grassed Swale

### DESCRIPTION

Vegetated swales are essentially bioretention cells that are configured as linear channels, but are typically not designed with an engineered soil matrix and underlying gravel layer below the vegetation layer to accommodate additional treatment, storage, and infiltration. They function as a soil and plant-based filtration and infiltration feature that removes pollutants through a variety of natural physical, biological, and chemical treatment processes. Vegetated swales are open, shallow channels with vegetation covering the side slopes and bottom that collect and slowly convey storm water runoff to downstream discharge points. They are designed to treat runoff through vegetation filtration, biological uptake, evapotranspiration, and/or infiltration into



Grassed swale. Photo Source: CDM Smith

the underlying soils. They trap particulate pollutants (suspended solids and trace metals), promote infiltration, and reduce the flow velocity of storm water runoff.

Vegetated swales can serve as part of a storm water drainage system and can replace curbs, gutters and storm sewer systems. They are best suited to capture runoff from small impervious areas and should not be implemented in areas with highly contaminated runoff. They can be used as part of treatment train approach and are effective at providing pretreatment for other BMPs.

### INSPECTION AND MAINTENANCE REQUIREMENTS

A maintenance plan shall be provided with the SWQP. The maintenance plan shall include recommended maintenance practices, state the parties responsible for maintenance and upkeep, specify the funding source for ongoing maintenance, and provide a site specific inspection checklist. At a minimum, maintenance shall include the following:

- Inspect on a semi-annual basis to assess slope integrity, soil moisture, vegetative health, soil stability, compaction, erosion, ponding, and sedimentation.
- Mow at least once per year, but do not cut grass shorter than the design flow depth because the effectiveness of the vegetation in reducing flow velocity and pollutant removal may be reduced. Grass cuttings should be removed from the swale and composted.
- Remove accumulated sediment when it is 3" deep or higher than the turf to minimize potential concentrated flows and sediment resuspension.
- Irrigate only as necessary to prevent vegetation from dying.
- Integrated pest management should be used for pest control. The designer should ideally select vegetation that does not require fertilizers.
- Reseed periodically to maintain dense turf.
- Remove trash or obstructions that cause standing water.
- Prevent off-street parking or other activities that can cause rutting or soil compaction.

If applicable, contact the proprietary product manufacturer for specific maintenance requirements.

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### REFERENCES

California Department of Transportation (Caltrans). 2010. Treatment BMP Technology Report. CTSW-RT-09-239.06. Available online at: <http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-09-239-06.pdf>

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