

PC-6 DRY SWALE

Reference: Denver Urban Drainage and Flood Control District, Volume 3 Criteria Manual.

**BMP Objectives**

- Perimeter Control
- Slope Protection
- Borrow and Stockpiles
- Drainage Areas
- Sediment Trapping
- Stream Protection
- Temporary Stabilizing
- Permanent Stabilizing

Definition and Purpose

Dry swales are used to filter pollutants as stormwater runoff moves through them. This BMP is constructed as an open-channel drainage way with grass or other vegetation to provide conveyance, reduce velocity, and to filter pollutants. Other features such as check dams, pre-treatment forebays, gravel pads, and riprap can be used to temporarily inhibit stormwater runoff and enhance treatment.

Appropriate Applications

- Runoff sources can be overland flow from impervious areas or discharges from drainage pipes.
- Swale depressions can be used in place of aboveground islands in large parking lots.
- Flows that infiltrate into the channel soil are conveyed by an underdrain system.
- Dry swales:
 - Can be used to enhance stormwater quality and reduce peak runoff.
 - Are efficient for removing a wide variety of pollutants including suspended solids and nutrients.
 - Work best in conjunction with other BMPs and can be used as an alternative to or enhancement of a conventional storm sewer.
 - Are used for impervious areas, generally less than 10 acres.
 - Can be used in early post-construction when stabilizing vegetation is not established and principal consideration is preventing erosion in unvegetated channels.
 - Are well-suited for flat or rolling terrain.

Design Parameters

- Generally, swales are designed to temporarily store the water quality volume for a maximum of 48 hours.
- A vegetative cover needs to be established as soon as possible to prevent erosion and scour. They should also be constructed early in the construction schedule before grading and paving increase runoff rates.
- The maximum ponding depth is generally no greater than 1.5 feet at the outlet.
- Longitudinal slope should be as flat as possible, to minimize velocities and enhance pollutant filtering.
- Excavated area is lined with layers of filter fabric around the permeable soil.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications during construction.
- Periodic inspection and maintenance will be required based on post-construction site conditions.
- Make any repairs necessary to ensure the measure is operating properly.
- Regular maintenance is necessary to remove surface sediment, trash, debris, leaf litter, and dead or diseased plant material.
- Routine mowing is required.