Bioretention Pretreatment Options

Guy Litteken, CPESC
ASP Enterprises, Inc.
Cell 314/401-1554
guyl@aspent.com
Options, Thoughts & Opinions

Vegetated Rock Other “Hard” Surface Lining

It all comes down to “Maintenance”! Project “Success” hinges on design with construction and maintenance in mind.
Transition Mats
The Problem:
Scour at the transition area
Water expands to open channel decreasing shear. Decreasing velocity is dependent on roughness and width. Specifier must design for the downstream velocity. The goal is returning the downstream velocity to its prior velocity upstream of the culvert.
8 feet per second
12 feet per second
16 feet per second
Typical Installation with sod
Typical Installation without sod

This is applicable for semi-arid areas or where vegetation maintenance is difficult. The soil needs to be vegetated as soon as possible.
Details

CULVERT OUTLET PROTECTION - PLAN VIEW

Transition mat apron protects culvert outlet.
*Width of protection: Bottom width of channel and up both side slopes to a depth at least half the culvert diameter.

Protect bare/disturbed downstream soils from erosion with appropriate soil cover.
Use normal-depth calculator to compute for downstream protection.

PROFILE VIEW

MAX 1"-2" DROP FROM CULVERT FLOWLINE INTO SCOURSTOP MATS

SECTION VIEW AA

OUTLET AND CHANNEL SCOUR PROTECTION (TRANSITION MATS)

SOIL COVER

ANCHOR PATTERN

Abut transition mats to end of culvert or culvert apron. Adjacent mats abut together laterally and longitudinally. Minimum 8 anchors per mat. Extra anchors as needed for loose or wet soils. Extra anchors as needed for uneven soil surface.

ANCHOR ILLUSTRATION

Drive anchor into firm soil, pull up on strap to set bullet. Minimum depth 12" in compacted, cohesive soil. Minimum depth 24" in loose, sandy, or wet soil. Extra anchors as needed to secure mat tightly over soil cover.
Case Study: Taubman Prestige Outlets Chesterfield, MO
Belgard Turf Stone

www.aspent.com
Colors and Shapes

• Grey 15.75” x 23.625”
S. Sarah & Vandeventer Ave.
Mortar Flagstone
Gabion Baskets
Questions?

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