BMP Section and Design

Rock Filter Dam

The Rock Filter Dam Best Management Practice must be installed, maintained, and removed in accordance with TxDOT plans and specifications and manufacturer specifications, where applicable.

DESCRIPTION

Rock filter dams are small barriers consisting of various sized aggregate that are used to reduce the velocities of concentrated flows, provide a sediment barrier, and reduce erosion in channels, swales, dikes, or ditches

TYPES

Type 1–18” high with no wire mesh and 3” to 6” aggregate

Type 2–18” high with wire mesh and 3” to 6” aggregate

Type 3–36” high with wire mesh and 4” to 8” aggregate

Type 4–Sack gabions with 3” to 6” aggregate

Type 5–Use rock filter dams as shown on plans.

APPLICATION

Rock Filter Dams should be constructed upstream and/or downstream from disturbed areas to decrease stormwater flow velocity, allowing sediment to settle out, in concentrated overland flow. Typical locations for Rock Filter Dams include the following:

- At toe of slope
- At sediment trap
- At channel sections
- In ditches, dikes, and swale outlets
- In stream flow

Advantages

- Reduces erosive velocities
- Effective at removing some sediments
- Can be used with other channel protection controls

Disadvantages

- Maintenance required after heavy or high velocity flows

DESIGN CRITERIA

1. Place Rock Filter Dam near the toe of slopes where erosion is anticipated, upstream and downstream from drainage structures, and in roadway ditches and channels
2. Dimensions must be indicated on the Stormwater Pollution Prevention Plan
3. The dams should be sized to filter a maximum flow through rate of 60 GPM/ft2 of cross-sectional area
4. A 2 year storm frequency may be used to calculate flow rate
5. Rock filter dams should be placed perpendicular to the flow of the stream or channel, unless otherwise directed
6. Side slopes should be 2:1 or flatter. Dams within the safety clear zone shall have side slopes of 6:1 or flatter
7. Type 1 should be used at toe of slope, around inlets, in small ditches, and dike/swale outlets
8. Type 1 may not be used in concentrated high velocity flows (approximately 8 ft/sec or more).
9. Type 2 should be used in ditches and dike or swale outlets
10. Type 3 should be used in stream flow (anchor to stream bed)
11. Type 4 should be used in ditches and small channels.

REFERENCES: TxDOT Temporary Erosion and Water Pollution Control Measures: Rock Filter Dams: EC (2)-16

TxDOT Temporary Erosion, Sedimentation, and Environmental Controls: Item 506 (Sections 2.1 and 4.4.1)