



SLOPE DRAINS

DEFINITION AND PURPOSE:

A slope drain is a flexible/rigid pipe or lined channel/swale which extends from the top to the bottom of a cut or fill slope. These structures are designed to protect exposed slopes from upstream runoff and can be used with other BMPs to intercept and direct surface flow away from disturbed slope areas. Slope drains typically extend beyond the toe of the slope to a stable area or outlet.

APPROPRIATE APPLICATIONS:

Slope drains may be used on construction sites where slopes may be eroded by surface runoff.

CONDITIONS FOR EFFECTIVE USE:

Type of Flow: Sheet flow and concentrated flow.

Contributing Area: Maximum of 5 acres per slope drain; pipe sized for 2 year rainfall intensity event.

WHEN BMP IS TO BE INSTALLED:

Concurrently with diversion devices as soon as cut and fill operations have occurred.

STANDARDS AND SPECIFICATIONS:

Slope drains must be installed and maintained properly because failure will usually result in severe erosion of the slope. Other points of concern are failure from overtopping due to inadequate pipe inlet capacity or blockage, and lack of maintenance of the upstream diversion device capacity. Generally install slope drain down the slope-perpendicular to slope contours, extending beyond the toe of slope. Install flared end or t-section at pipe inlet. Section should be well entrenched and stable so water can enter freely. Compact fill over and around pipe in area of diversion device. Ensure that all pipe connections are secure and watertight. Securely anchor the exposed section of the drain with stakes. Install flared end section at pipe outlet-discharge into a sediment trap or other stabilized outlet. Protect area around inlet with filter fabric. Protect outlet with riprap or other energy dissipation device.

OPERATION AND MAINTENANCE PROCEDURES:

Inspect at every week and after every ½” storm event during construction. Remove sediment and trash accumulation at inlet. Repair settlement, cracking, or piping holes. Repair leaks or inadequate anchoring along pipe. Remove sediment and stabilize eroded areas at outlet-extend if necessary.

SITE CONDITIONS FOR REMOVAL:

Remove concurrently with upstream diversion device after slope has been stabilized. Stabilize the exposed areas where the slope drain and diversion device were removed.

TYPICAL DETAILS:

RM-6.1 and RM-6.2