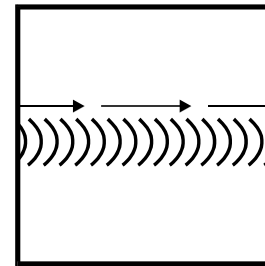
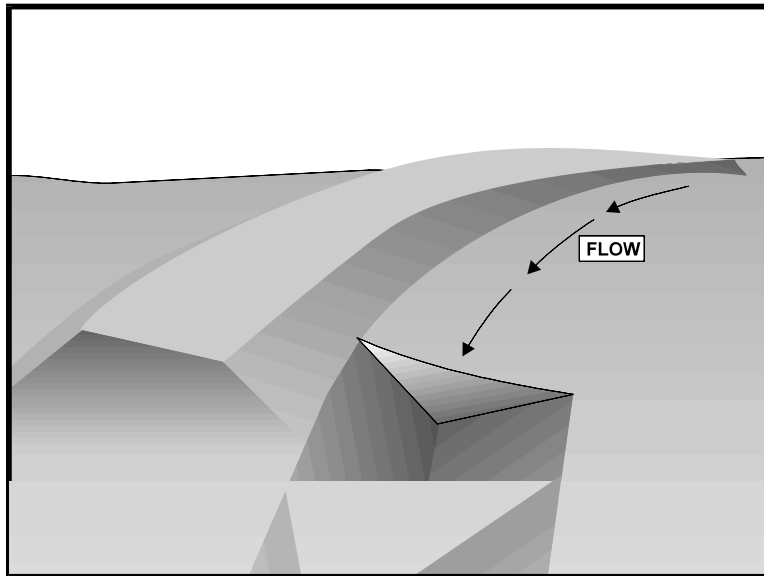


Earth Dikes/Drainage Swales and Lined Ditches

SS-9



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

These are structures that intercept, divert and convey surface run-on, generally sheet flow, to prevent erosion.

Appropriate Applications

- Earth dikes/drainage swales and lined ditches may be used to:
 - Convey surface runoff down sloping land.
 - Intercept and divert runoff to avoid sheet flow over sloped surfaces.
 - Divert and direct runoff towards a stabilized watercourse, drainage pipe or channel.
 - Intercept runoff from paved surfaces.
- Earth dikes/drainage swales and lined ditches also may be used:
 - Below steep grades where runoff begins to concentrate.
 - Along roadways and facility improvements subject to flood drainage.
 - At the top of slopes to divert run-on from adjacent or undisturbed slopes.
 - At bottom and mid-slope locations to intercept sheet flow and convey concentrated flows.
- This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the Resident Engineer (RE).

Earth Dikes/Drainage Swales and Lined Ditches

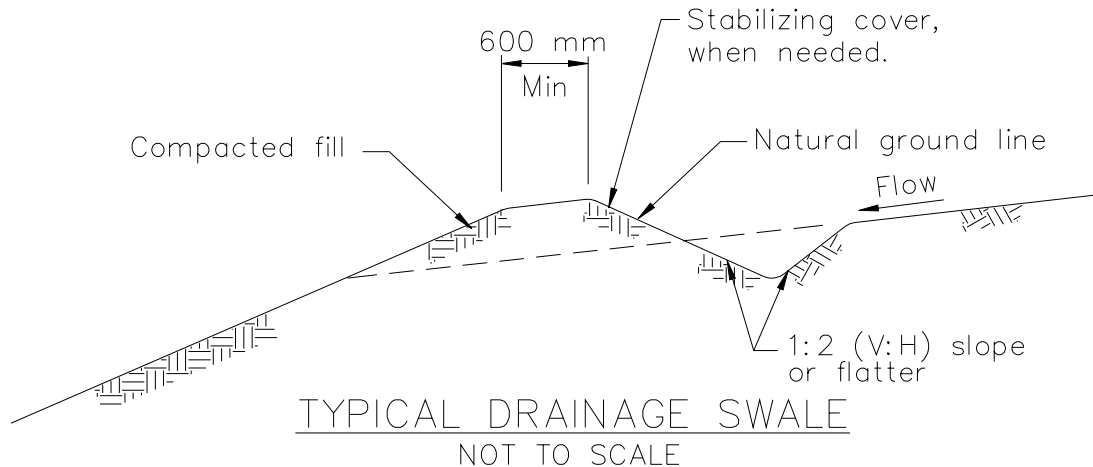
SS-9

- | | |
|-------------------------------------|---|
| Limitations | <ul style="list-style-type: none">■ Earth dikes/drainage swales and lined ditches are not suitable as sediment trapping devices.■ May be necessary to use other soil stabilization and sediment controls, such as check dams, plastics, and blankets, to prevent scour and erosion in newly graded dikes, swales and ditches. |
| Standards and Specifications | <ul style="list-style-type: none">■ Care must be applied to correctly size and locate earth dikes, drainage swales and lined ditches. Excessively steep, unlined dikes and swales are subject to erosion and gully formation.■ Conveyances shall be stabilized.■ Use a lined ditch for high flow velocities.■ Select flow velocity based on careful evaluation of the risks due to erosion of the measure, soil types, over topping, flow backups, washout, and drainage flow patterns for each project site.■ Compact any fills to prevent unequal settlement.■ Do not divert runoff from the highway right-of-way onto other property.■ When possible, install and utilize permanent dikes, swales and ditches early in the construction process.■ Provide stabilized outlets. Refer to SS-10, "Outlet Protection/Velocity/Dissipation Devices." |
| Maintenance and Inspections | <ul style="list-style-type: none">■ Inspect temporary measures prior to the rainy season, after rainfall events, and regularly (approximately once per week) during the rainy season.■ Inspect ditches and berms for washouts. Replace lost riprap, damaged linings or soil stabilizers as needed.■ Inspect channel linings, embankments, and beds of ditches and berms for erosion and accumulation of debris and sediment. Remove debris and sediment, and repair linings and embankments as needed or as directed by the RE.■ Temporary conveyances shall be completely removed as soon as the surrounding drainage area has been stabilized, or at the completion of construction. |



Earth Dikes/Drainage Swales and Lined Ditches

SS-9



NOTES:

1. Stabilize inlet, outlets and slopes.
2. Properly compact the subgrade, in conformance with Section 19-5 of the Caltrans Standard Specifications.

