

Description

A temporary slope drain is a flexible conduit for stormwater that extends the length of a disturbed slope to divert the flow and serve as a temporary outlet. Temporary slope drains, also called pipe slope drains, convey runoff without causing erosion on or at the bottom of the slope. This practice is a temporary measure, typically used for less than 2 years. It is used during grading operations until permanent drainage structures are installed and until slopes are permanently stabilized.

Selection Criteria

Temporary slope drains can be used on most disturbed slopes to eliminate gully erosion from concentrated flows.

Design Considerations

A temporary slope drain used with a diversion conveys stormwater flows and reduces erosion until permanent drainage structures are installed.

The following are design recommendations for temporary slope drains:

- The drain pipe should consist of heavy-duty material manufactured for the purpose and have grommets for anchoring at a spacing of 10 feet or less.
- Observe the minimum slope drain diameters for varying drainage areas.
- The entrance to the pipe should consist of a standard flared section of corrugated metal.
- The corrugated metal pipe should have watertight joints at the ends. The rest of the pipe is typically corrugated plastic or flexible tubing. For flatter, shorter slopes, a polyethylene-lined channel is sometimes used.
- Make sure the height of the diversion at the pipe is the diameter of the pipe plus 0.5 foot.
- Place the outlet at a reinforced or erosion-resistant location.

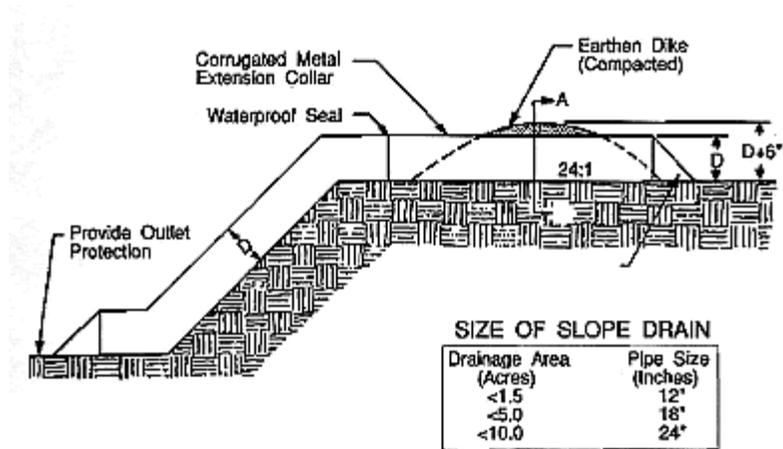
Maintenance

Inspect the slope drain after each rainfall to determine whether capacity was exceeded or blockages occurred. Make needed repairs promptly. Reroute construction equipment and vehicular traffic around slope drains to avoid damage.

Limitations

The area drained by a temporary slope drain should not exceed 5 acres. Physical obstructions substantially reduce slope drain effectiveness. Other concerns are failures from overtopping because of inadequate pipe inlet capacity, and reduced diversion channel capacity and ridge height.

Figure 1 Typical Slope Drain Diagram



Drains can be installed along a steep exposed slope to divert runoff and prevent erosion (Source: Urban Drainage and Flood Control District, 1999)

References

USEPA (U.S. Environmental Protection Agency). 1992. *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

USEPA (U.S. Environmental Protection Agency). 1993. *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*. EPA 840-B-92-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.