

Temporary Slope Drain

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

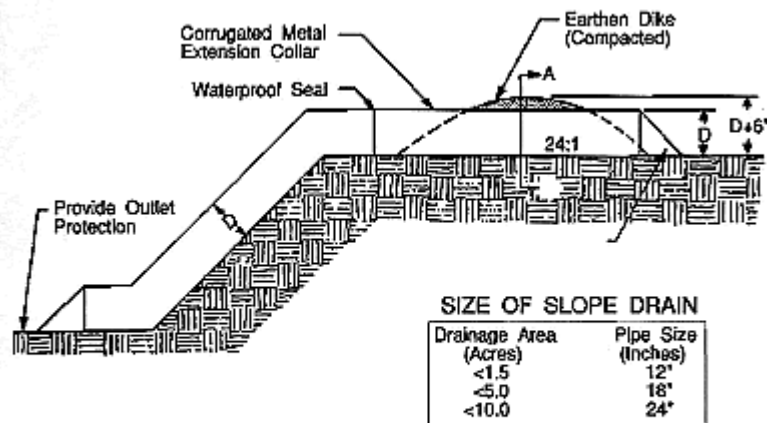
Siting and Design Considerations

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.

Limitations

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



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

Maintenance Considerations

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.

References

FHWA (Federal Highway Administration). 1995. *Best Management Practices for Erosion and Sediment Control*. FHWA-SLP-94-005. Federal Highway Administration, Sterling, VA.

MPCA (Minnesota Pollution Control Agency). 1998. *Protecting Water Quality in Urban Areas*. Minnesota Pollution Control Agency, Division of Water Quality, St. Paul, MN.

Smolen, M.D., D.W. Miller, L.C. Wyall, J. Lichthardt, and A.L. Lanier. 1988. *Erosion and Sediment Control Planning and Design Manual*. North Carolina Sedimentation Control Commission; North Carolina Department of Environment, Health, and Natural Resources; and Division of Land Resources, Land Quality Section, Raleigh, NC.

Urban Drainage and Flood Control District. 1999. *Urban Storm Drainage: Criteria Manual*. Denver, CO