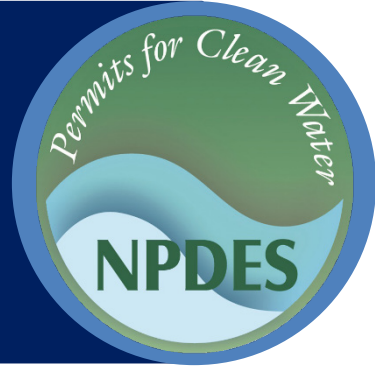




Stormwater Best Management Practice

Temporary Slope Drains



Minimum Measure: Construction Site Stormwater Runoff Control
Subcategory: Erosion Control

Description

A temporary slope drain is a conduit used to convey stormwater down a disturbed slope while preventing erosion. At the top of the slope, a channel or swale diverts flow to the pipe entrance for conveyance down the slope. The discharge end of the pipe requires outlet protection. This erosion control practice is a temporary measure that construction staff typically use for less than 2 years during grading operations until they can install permanent drainage structures or permanently stabilize slopes.

Applicability

Construction staff can use temporary slope drains on most disturbed slopes to eliminate gully erosion from concentrated flows. Properly designed slope drains are easy to install and maintain.

Siting and Design Considerations

Design engineers often consider the following for the siting and design of temporary slope drains (WDE, 2014):

- The conduit should consist of heavy-duty material that staff can anchor at a spacing of 10 to 20 feet depending on the size of pipe and expected flow volume. Conduit material typically includes corrugated metal, corrugated plastic or flexible tubing.
- The area upstream of the conduit should be stable and large enough to direct flow to the conduit inlet.
- The size of the conduit should be able to handle flow from a 10-year, 24-hour storm event.
- A conduit 12 inches wide or wider should have a standard flared section to prevent stormwater from undercutting the inlet. Construction staff should thoroughly compact and stabilize the soil around the conduit inlet with gravel or riprap.
- Construction staff may use sandbags near the conduit inlet as temporary reinforcement.



A temporary slope drain made from corrugated pipe. A “T” fitting at the downstream end slows discharge and prevents erosion.

- The conduit inlet should have at least 6 inches of freeboard.
- The conduit outlet should have suitable erosion protection or be in an erosion-resistant location.

- Construction staff should re-route equipment and vehicular traffic around slope drains to avoid damage.

inlet capacity, leakage at joints and mudslides (WES, 2008).

Limitations

The area that a temporary slope drains should not exceed 5 acres. Physical obstructions substantially reduce the conduit's effectiveness. Other concerns include failures from overtopping because of inadequate

Maintenance Considerations

Inspect the slope drain after each rainfall to determine whether it exceeded capacity, blockages occurred, leakages developed, anchoring is secure and positioning is appropriate for the site. Also check inlet and outlet structures for undercutting. Conduct repairs immediately, as needed (WES, 2008).

Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's National Menu of Best Management Practices (BMPs) for Stormwater website

References

Washington State Department of Ecology (WDE) (2014). *2012 stormwater management manual for western Washington as amended in December 2014* (Vol. II) (Publication Number 14-10-055).

Water Environment Services (WES). 2008. *Erosion prevention and sediment control: Planning and design manual*.

Disclaimer

This fact sheet is intended to be used for informational purposes only. These examples and references are not intended to be comprehensive and do not preclude the use of other technically sound practices. State or local requirements may apply.