

Earth-Berm Water Bars

Forest Management Practices Fact Sheet Managing Water Series # 3



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Best Management Practices (BMPs) can prevent or minimize the impact of forestry activities on rivers, lakes, streams, groundwater, wetlands, and visual quality.

Introduction

Earth-berm water bars are narrow, earthen ridges built across roads or trails. They divert water off and away from roads or trails into vegetated areas before it causes erosion. When properly built, they prevent exposed soil from moving, protecting the area until it is revegetated.

Where Used

Earth-berm water bars are usually built on closed logging roads and trails, since they are hard to drive over and wear down quickly. They can be used on skid trails during logging, particularly when broad-based dips and other measures aren't feasible.

Practice Description

To build an earth-berm water bar, excavate a trench at a 30- to 45-degree angle across the traffic surface. Use the excavated material to build a berm on the downhill side of the trench. (You may use logs to reenforce an earth-berm water bar or to substitute for part of the soil needed in rocky areas.) Make the top of the berm at least 12 inches higher than the bottom of the trench. Make sure the outlet of the trench is at least 3 inches lower than the upper end.

Extend water bars slightly beyond both ends of the road to keep water from flowing around them. Direct diverted water into a stable, vegetated area, not into open water. To make a water bar easier to drive over, widen it by increasing the distance between the bottom of the dip and the top of the berm, maintaining the correct height.

Space earth-berm water bars according to the grade. Your state's BMP guidelines will contain information about correct spacing of water bars in your area.

Advantages

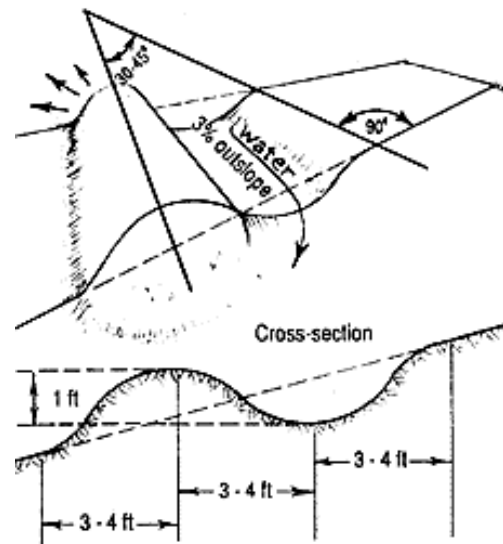
Properly built earth-berm water bars are very effective in diverting water off roads, trails, and landings. They also limit undesirable traffic following closure.

Disadvantages

Earth-berm water bars are hard to drive over and may be difficult to maintain. They don't work well for active traffic surfaces during most operations. Frozen soils and rock may limit their use. They require caution when blading to maintain the road or trail.

Maintenance

Maintain earth-berm water bars until the area is successfully revegetated. Rebuild berms as needed if they are damaged by logging equipment.



Water Bar Installation

Related Fact Sheets in This Series

[Project Planning: Locating, Skid Trails, and Crossings \(FS-6970\)](#)

[Managing Water on Roads, Skid Trails, and Landings \(FS-6971\)](#)

[Using Logging Debris or Logs to Build Water Bars \(FS-6973\)](#)

[Conveyor Belt Water Bars \(FS-6974\); Broad-Based Dips \(FS-6975\)](#)

[Open-Top Culverts \(FS-6976\); Shaping Roads and Trails \(FS-6977\)](#)

[Roadside and Diversion Ditches \(FS-6978\); Cross-Drainage Culverts \(FS-6979\)](#)

[Project Closure \(FS-6980\); Making and Using Measurement Tools—Basal Area \(FS-6981\)](#)

[Making and Using Measurement Tools—Slope \(FS-6982\)](#)

Cooperators

University of Minnesota Extension Service, Minnesota Department of Natural Resources, Minnesota Logger Education Program, Michigan Department of Natural Resources, Michigan State University Extension, and Wisconsin Department of Natural Resources.

