FACT SHEET SERIES:

DIVERSION

Lake Minnesuing, Douglas County - Jim Giffin

A DIVERSION PRACTICE, a transition zone and upland best practice (within 1000 feet of a lake or 300 feet of a river), includes a diverter, water bar, and broad-based dip. These practices use treated lumber, a shallow trench, and/or a berm to intercept runoff from a path or driveway and redirect it into a well-vegetated dispersion area or infiltration practice. Depending on the site, multiple diversion practices may be necessary.

MAINTENANCE

COSTS

- Range: $25 – $3750 *(average = $1205)*
- Healthy Lakes & Rivers grant funding available: *$1000 per diversion practice*

MATERIALS

- Shovel or excavating equipment
- Clean gravel or crushed stone
- Treated lumber and rebar
- Landscaping fabric
- Seed

DNR PERMIT

PURPOSE

A diversion best practice redirects runoff that would otherwise move downhill into the lake or river to a dispersion area where it can soak into the ground. It may be used in connection with a rock infiltration or rain garden practice. By increasing the frequency of diversion practices, runoff volume can be kept low, decreasing erosion.

HOW TO BUILD

It may be necessary to work with your local land and water conservation department or a landscaper to design and/or construct this practice, particularly in regards to placement. Check with your local zoning department to determine if any permits, such as floodplain permits, are necessary.

Detailed guidance is found here: http://tinyurl.com/runoffguide

1. Find a location

Install diverters and water bars on moderately steep paths with concentrated flows and broad-based dips across driveways not exceeding a 10% grade. Select a location where the practice outlet can drain to a stable, well-vegetated area. Install multiple diversion practices as needed and space closer together on steeper slopes as directed in the guidance.

2. Size and orient the practice

The steeper the slope, the more diversion practices will be necessary. In general, diversion practices are angled 30-60° downhill across the path or driveway. Keep in mind that broad based dips, in particular, often integrate an upgradient berm and armored approach and outlet into the design so plan for these features accordingly.

PROJECT TIMELINE

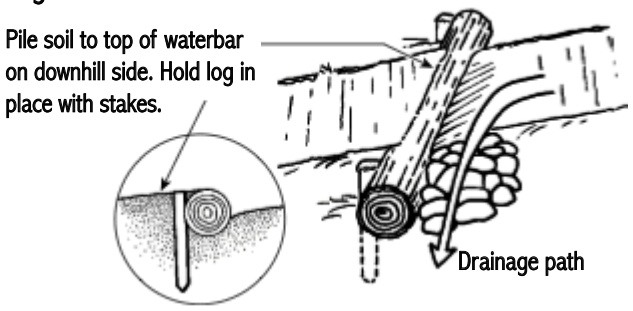
SITE PREP < 1 DAY

INSTALLATION 1-2 DAYS

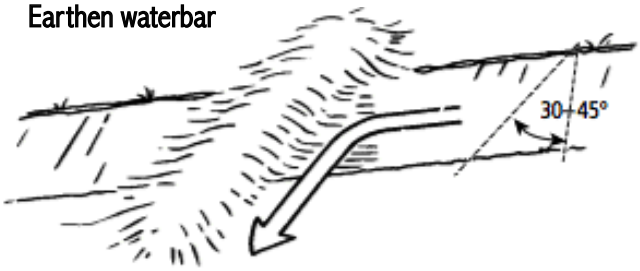
PROJECT END < 1 YEAR

Ongoing maintenance checks subsequent years.

Log waterbar



Earthen waterbar



3. Create a design

Sketch the design and dimensions to be sure you understand what area it will cover and how it may function or fit into your landscape. Consider the following:

- How will water flow from the practice?
- Is there adequate vegetation to capture the diverted water, or is a rain garden or rock infiltration practice necessary?
- Will the diverter or water bar be placed in an area free of motor vehicle traffic, and will the broad-based dip be able to accommodate not only motor vehicle traffic but activities such as snowplowing?

4. Lay out the best practice

Lay out the shape and boundary of the project based on the design. Before you start digging, contact http://www.diggershotline.com/.

5. Construct the practice

Install silt fence downslope of the practice location. Dig a trench that extends off both sides of the path or driveway. The trench should be deep enough that the top of the log or berm will be almost flush with the trail or driveway on its downhill side once in place. Soil and rock excavated from the trench can be heaped on the trail or driveway to be used later as backfill or a berm.

If constructing a water bar or diverter, place the log or timber in the trench. Any rot-resistant type of wood, such as cedar, spruce, fir or hemlock logs can be used for a water bar or diverter. For logs, the diameter should be at least 8" at the small end. The length should extend past the edge of the path on both sides. The log should fit snugly in the trench with no high point or voids under the log. Secure the log with large stones, rebar pins or wooden stakes. If using stones, partially bury on downhill side. If using re-bar, drill ½" holes 6" in from each edge and pound in 18" pieces of rebar so that the rebar is flush or slightly recessed with the top.
Dig a 12" wide and 6" deep trench along the uphill side of the bar. Fill the trench with crushed stone, leaving a few inches of the timber exposed. Place a flared apron of stones to armor the practice outlet. Pack soil and gravel up against the downhill side of the practice so that the top of it is flush with the trail. Cover all disturbed soil with seed and mulch or leaf litter.

Broad-based dips should be rock armored on the bottom and on the berm and constructed with excavating equipment.

FUNDING NOTE

Healthy Lakes & Rivers diversion practice grant funding is not intended for heavily developed parcels, sites with large volumes of runoff, or sites with complex problems that may require engineering design. Funding is eligible for shoreland properties within 1000 feet of a lake or 300 feet of a river.

MAINTAINENCE

- Check the practice periodically and after storm events to ensure that material is not eroding behind the structure or at the outlet.
- Any needed repairs should be made as soon as possible.
- Periodically remove accumulated leaves and debris from behind the diversion practice.
- The diversion practice(s) must remain in place for 10 years if Healthy Lakes & Rivers grant-funded.

LINKS

Healthy Lakes & Rivers Website – http://healthylakeswi.com
Controlling Runoff and Erosion on Your Waterfront Property: A Guide for Landowners http://healthylakeswi.com
DNR Surface Water Grants – http://dnr.wi.gov/aid/surfacewater.html

WISCONSIN LAKES & RIVERS PARTNERSHIP
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