PRIMARY USE: Limit the accumulation of erosive volumes of water by diverting surface runoff at pre-designed intervals to dissipate water flow energy.
ADDITIONAL USES: Narrow rights-of-way, logging roads, etc., on long slopes used by vehicles can be subject to severe erosion.

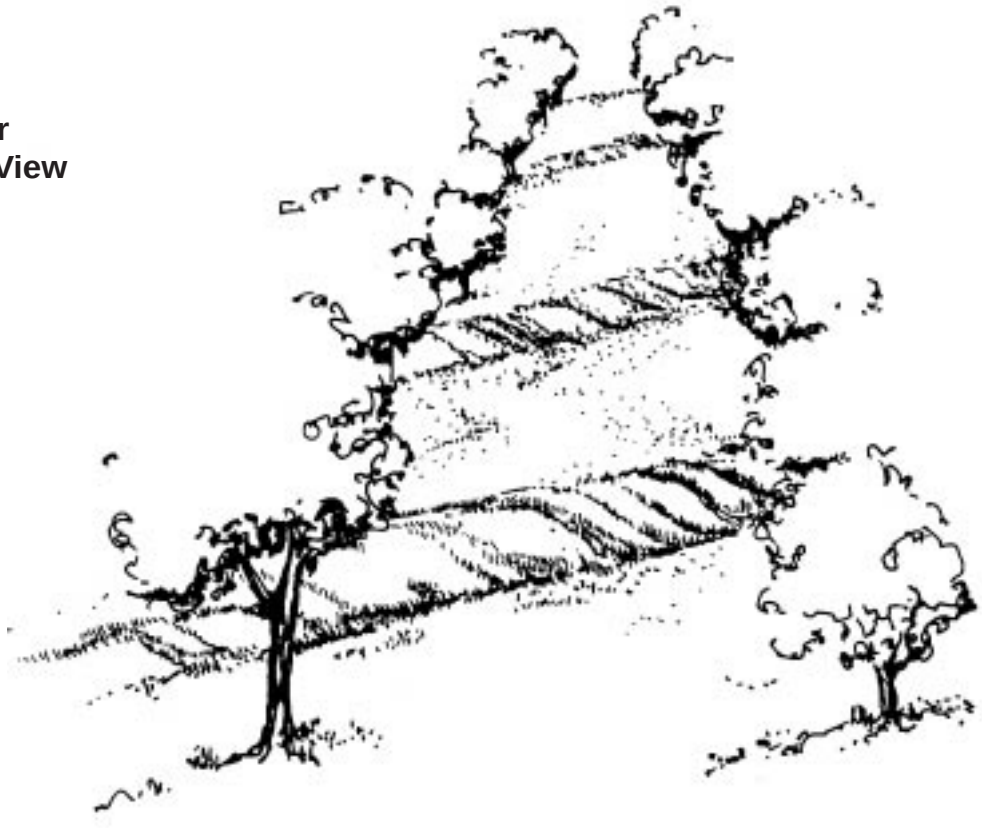
WATER BAR

What is it? A ridge of compacted soil, loose rock, or gravel constructed across disturbed rights-of-ways and similar sloping areas.

Purpose

To shorten the flow length within a long sloping right-of-way, thereby reducing the erosion potential by diverting storm runoff to a stabilized outlet or sediment trapping device. Surface disturbance and tire compaction promote gully formation by increasing the concentration and velocity of runoff.

Water Bar
Perspective View



Limitations

Drainage area less than 1.0 acre (0.40 hectare). The water bar spacing must be close enough to dissipate water flow energy.

Materials

Compacted soil, loose rock, or gravel; seeding or sodding for water bars which will not be subject to construction traffic

Installation

Areas where earthen diversions are applicable and where there will be little or no construction traffic within the right-of-way. Gravel structures are more applicable to roads and other rights-of-way which accommodate vehicular traffic.

Source: NRCS Planning and Design Manual, NRCS.

WATER BAR

Additional Considerations:

Right-of-way diversions (water bars) prevent erosion from long narrow slopes. Water bars are constructed by forming a ridge or ridge and channel diagonally across the sloping right-of-way. Each outlet should be stable, considering the cumulative effect of up-slope diversion outlets. The height and side slopes of the ridge and channel are designed to divert water and allow vehicles to cross.

Planning Considerations

Construction of utility lines and roads often requires the clearing of long strips of right-of-way over sloping terrain. The volume and velocity of stormwater runoff tend to increase in these cleared strips and the potential for erosion is much greater since the vegetative cover is diminished or removed. To compensate for the loss of vegetation, it is usually a good practice to break up the flow length within the cleared strip so that runoff does not have an opportunity to concentrate and cause erosion. At proper spacing intervals, water bars can significantly reduce the amount of erosion which will occur until the area is permanently stabilized.

Design Criteria

1. *Drainage Area* - Less than 1.0 acre (0.40 hectare).

2. *Dimensions* - The minimum allowable height measured from the channel bottom to the ridge top is 18 in (457 mm). The minimum top width shall be 18 in (457 mm) and the base width minimum is 6 ft (1.8 m).

3. *Side Slopes* - 3:1 or flatter to allow the passage of construction traffic.

4. *Width* - The measure should be constructed completely across the disturbed portion of the right-of-way.

5. *Spacing* - The following table will be used to determine the spacing of water bars on right-of-way less than 100 ft (30.5 m) wide:

% SLOPE	SPACING
Less than 5%	125 ft (38.1 m)
Between 5% and 10 %	80 ft (24.4 m)
Between 10% and 20%	50 ft (15.2 m)
Greater than 20 %	30 ft (9.14 m)

6. *Grade* - Positive drainage installed at a 30- degree angle across the right-of-way should be provided to a stabilized outlet or sediment trapping facility.

7. *Outlet* - Interceptor dikes must have an outlet which is not subject to erosion.

Source: NRCS Planning and Design Manual, NRCS.

WATER BAR

The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet. Concentrated flows should be spread over the widest possible area after release**.** Flows with high sediment concentrations should pass through a sediment trapping measure.

Construction Specifications

1. The diversion shall be installed as soon as the right-of-way has been cleared and/or graded.

2. All earth fill shall be machine, or hand compacted in 6 in (152 mm) lifts.

3. The outlet of the diversion shall be located on an undisturbed and stabilized area when at all possible. The field location should be adjusted as needed to utilize a stabilized outlet. Sediment laden flows shall be conveyed to a sediment trapping device.

4. Water bars which will not be subject to construction traffic should be stabilized in accordance with TEMPORARY SEEDING.

Maintenance

The practice should be inspected after every rainfall and repairs made if necessary. Approximately once every week, whether a storm has occurred or not, the measure should be inspected and repairs made if needed. Earth fill that is subject to damage by vehicular traffic should be reshaped at the end of each working day.