



Eroding forest trails reduce site productivity and cause water quality problems



Stabilized trails improve water quality and increase property values.

## Definition

Forest trails and landings are routes, travelways, or cleared areas within a forest to provide access on a periodic basis. They are often steeper than permanent access roads and traffic may be limited or eliminated upon completion of logging or other use. Forest trails and landings often do not require an engineering design.

## Purpose

Forest trails and landings are used to:

- Provide access to forest stands for management and recreation
- Minimize on-site and off-site damage to resources during periods of access by controlling erosion during construction, during use, and upon completion of use.

## Use

Forest trails are used on forested areas where permanent access roads are not needed. They are not appropriate within riparian forest buffers or immediately adjacent to water bodies except where needed for crossing. Landings are used for temporary storage of forest products until they are removed from the site.

## Wildlife Considerations

Abandoned trails and landings offer an opportunity to provide additional wildlife food plots, foraging areas for birds, and shrubs for food and nesting cover. Areas selected for wildlife plantings include log landings, and gently sloping sections of trails where the soil is suitable for establishing vegetation with normal farming practices.

## Criteria

Forest trails and landings usually require structural measures to manage runoff and vegetative treatment to reduce soil erosion and sedimentation. Water flow must be controlled using techniques such as outsloping, broad-based dips, water breaks, and pipe crossings. Cut and fill slopes and the travel surface must be stabilized with appropriate vegetation or material. Trails that do not concentrate water and that have not been denuded usually do not require treatment. New plantings must be protected from traffic with some form of use exclusion.

### Broad-based Dips

Broad-based dips are shallow, wide diversions usually constructed on trails having a gradient of 10 percent or less. The bottom of the dip will be outsloped 2% to 3% and extend the full width of the roadway (see diagram below). The dip and reverse grade section may require bedding with 3 inch crushed stone in some soils for stability and to prevent rutting.

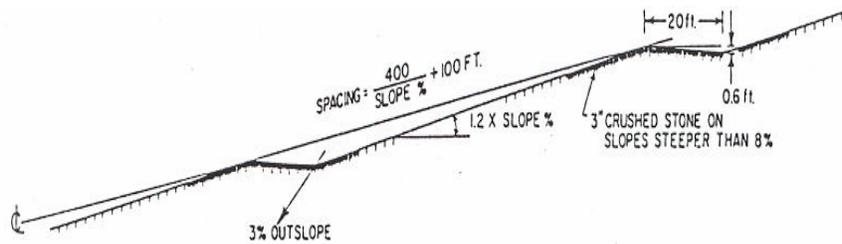
### Water Breaks (Water Bars)

Water breaks can be used on trails up to 25 percent grade and should be installed at a downslope angle of 30 degrees or less depending on the grade of the trail. Steeper trail grades require less downslope angle. The outlet of the water break should be open to prevent water from accumulating and be protected by a buffer or filter zone of undisturbed forest floor to clean the sediment out of the water and prevent erosion. Water breaks and broad-based dips will be spaced according to the following table as outlet conditions allow.

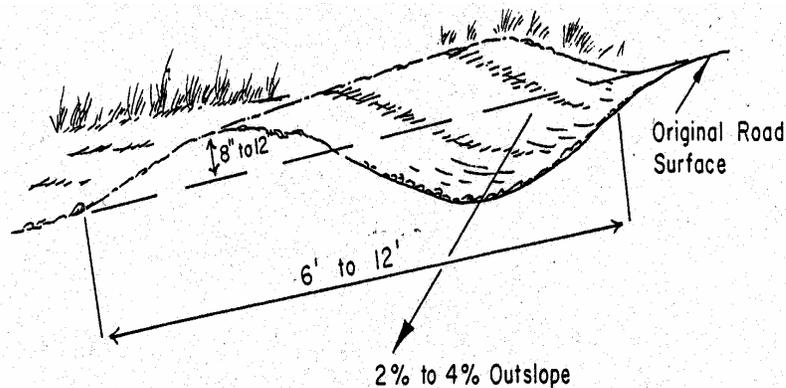
Road Grade (percent)	Approx. distance between water breaks (feet)	Approx. distance between broad-based dips (feet)
1	400	500
2	245	300
5	125	180
10	80	140
15	60	N/A
20	50	N/A
25	40	N/A

### Operation and Maintenance

Upon completion of logging, temporary measures will be eliminated or replaced with permanent measures. Trails will be properly graded and outsloped if needed, and the entire disturbed area seeded following the recommendations on the attached specifications sheet. Trails will be inspected during the establishment period to ensure that drainage systems and structures for water control are properly functioning and that vegetation has attained full coverage.



DESIGN OF A BROAD BASE DRAINAGE DIP



SHALLOW WATER BREAK

# Forest Trails and Landings - Specification Sheet

Landowner \_\_\_\_\_ Field Number \_\_\_\_\_

## Purpose

<input type="checkbox"/> Forest Management	<input type="checkbox"/> Wildlife Habitat	<input type="checkbox"/> Other
<input type="checkbox"/> Logging	<input type="checkbox"/> Erosion Control	

## Layout and Dimensions

Cut Slope		Trail Surface		Fill Slope	
Width (Height):	Length:	Width:	Length:	Width:	Length:
Total Length (ft):		Average Width (ft.):		Total area (ac) or 1000Ft. <sup>2</sup>	
Additional location and layout requirements:					

## Plant Materials Information

Species	Seed lbs./ac. or lbs./ 1000Ft. <sup>2</sup>	Lime Lbs./ac. or lbs./ 1000Ft. <sub>2</sub>	Fertilizer lbs./ac. or lbs./1000Ft. <sub>2</sub>	Mulch lbs./ac. or lbs./1000 Ft. <sup>2</sup>	Planting Dates
<b>Erosion Control</b>					
1.					
2.					
3.					
<b>Wildlife</b>					
1.					
2.					
3.					

## Site Preparation

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## Planting Method (s)

Broadcast	Drilled
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## Maintenance Requirements – Check as Appropriate

<input type="checkbox"/> Water Breaks Functioning	<input type="checkbox"/> Trails Outsloped	<input type="checkbox"/> Inspect Periodically
<input type="checkbox"/> Trails Properly Graded	<input type="checkbox"/> Vegetation Established	<input type="checkbox"/> Access Limited

