

## **TRAILS PROGRAM CONSTRUCTION GUIDELINES**

In each instance different trail building techniques will likely need to be used depending on the amount and type of trail use that will occur, geography, soils, and future management plan. The need to manage erosion is the constant and adjustments to grade and specific design features will depend on the particulars of each project. To suggest a universal set of guidelines for trail building may fail to provide a framework that the project manager can use to meet the unique contextual goals of each project.

Providing general guiding principles that help project managers to determine the larger context of their project early in the planning process is of paramount importance and should be the first step. The next step would be a required consultation with a land manager as to the natural characteristics of the area. Knowledge of the terrain, along with a consideration of types of users and their experience, can then be combined to determine the type trail features and trail design that should be implemented.

### **MULTI- USE NON- PAVED TRAILS**

#### **Cross-section**

1. Full bench construction (No fill to be used for the trail tread.)
2. Minimum tread width – 3 ft. to 4 ft.(The length of a pulaski.)
3. Trail tread outslope - 2% to 5%.
4. Travel way clearance - horizontal – 8 ft.,vertical – 10 ft.

#### **Grade**

1. Sustained grade - 8% or less.
2. Maximum grade - 10% for less than 100 ft. (Only in rare and unusual circumstances should new trail be constructed in excess of 10% grade)

#### **Water management**

1. Ideally, terrain features, rolling grade, reinforced grade dips and knicks should be built into new trails instead of structures such as waterbars, for directing water off of the trail.
2. Do not install drain dips in an existing trail when grades exceed 10%.
3. When necessary, waterbars should be constructed of rock or pressure treated 4 in. to 6 in. diameter logs or timber, positioned at 45 to 60 degree angle to the trail. Water should run off before hitting the waterbar. The water run out area outlet should be at least two to three shovel blades wide (2 ft. to 3 ft.). Waterbars should rise no more than 1in. to 3 ft. above the level of the trail tread.

#### **Switchbacks/Climbing Turns**

1. Turning platform (Crowned Landing) - Minimum radius 12 ft., 5% sloped in all directions.
2. Trail tread should be insloped approaching the landing on the uphill side.
3. Water management techniques should be incorporated at the top and bottom of the switchback/climbing turn.
4. Trail tread should be outsloped following the landing on the downhill side.

### **MULTI- USE PAVED TRAILS**

**Tread Width** Minimum width 10 feet (Only in unusual circumstances should 8 feet width be considered).

**Bridge width** Should be the same as the trail tread width.

**Trail Tread** Sloped 2% to the downhill side of the trail

**Sub-base** (These are general specifications. Final specifications should be based on soil tests.)

1. Six inch untreated base course,  $\frac{3}{4}$  in. minus, Compacted to 95%.
2. (Washington County) - No less than 4 inches untreated base course  $\frac{1}{2}$  in. or  $\frac{3}{4}$  in. minus.

**Asphalt**

1. APWA AC-20-DM-1/2 bituminous surface course
2. Thickness - 2  $\frac{1}{2}$  in. to 3 in., 3 in. recommended

**Weed Barrier**

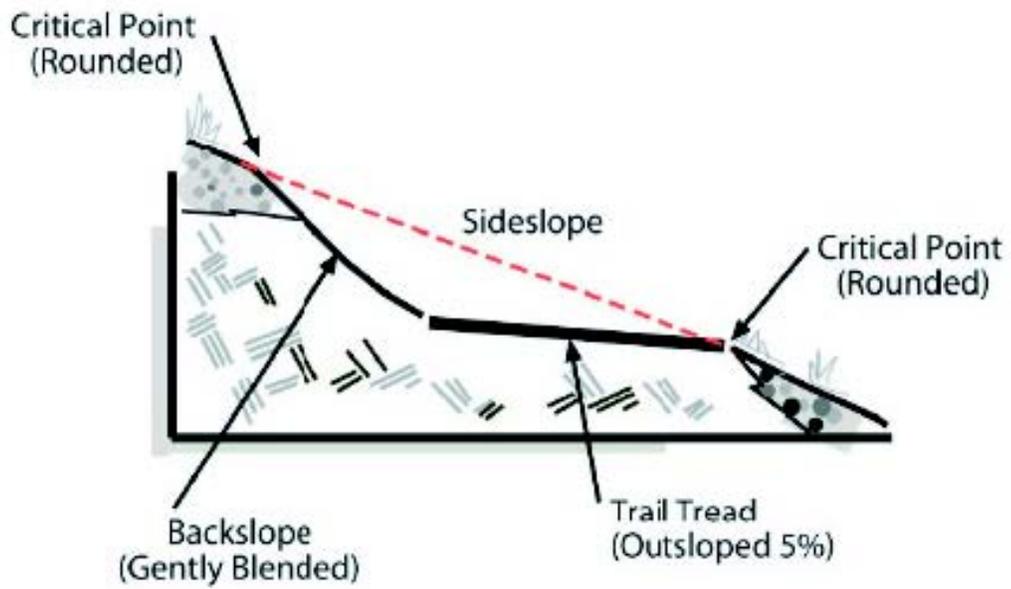
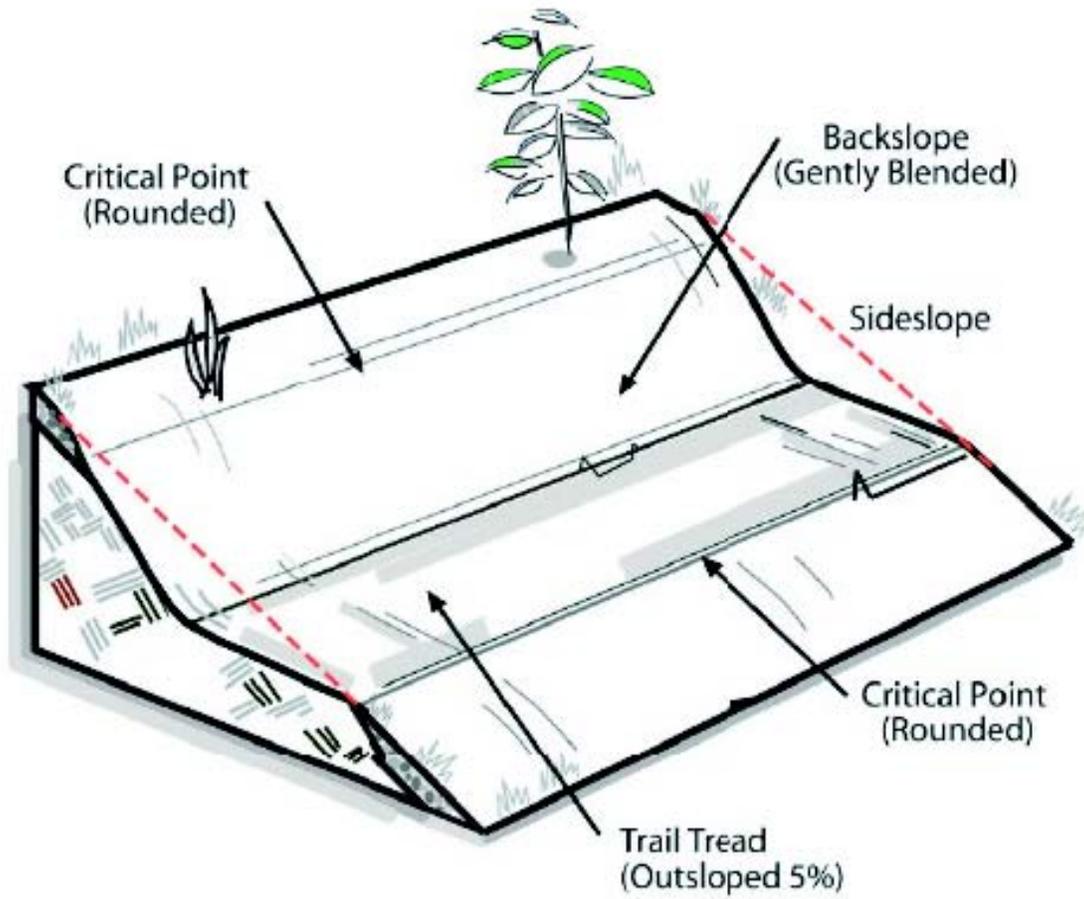
1. Weed barrier geotextile APWA 02075

**TRAIL HEADS**

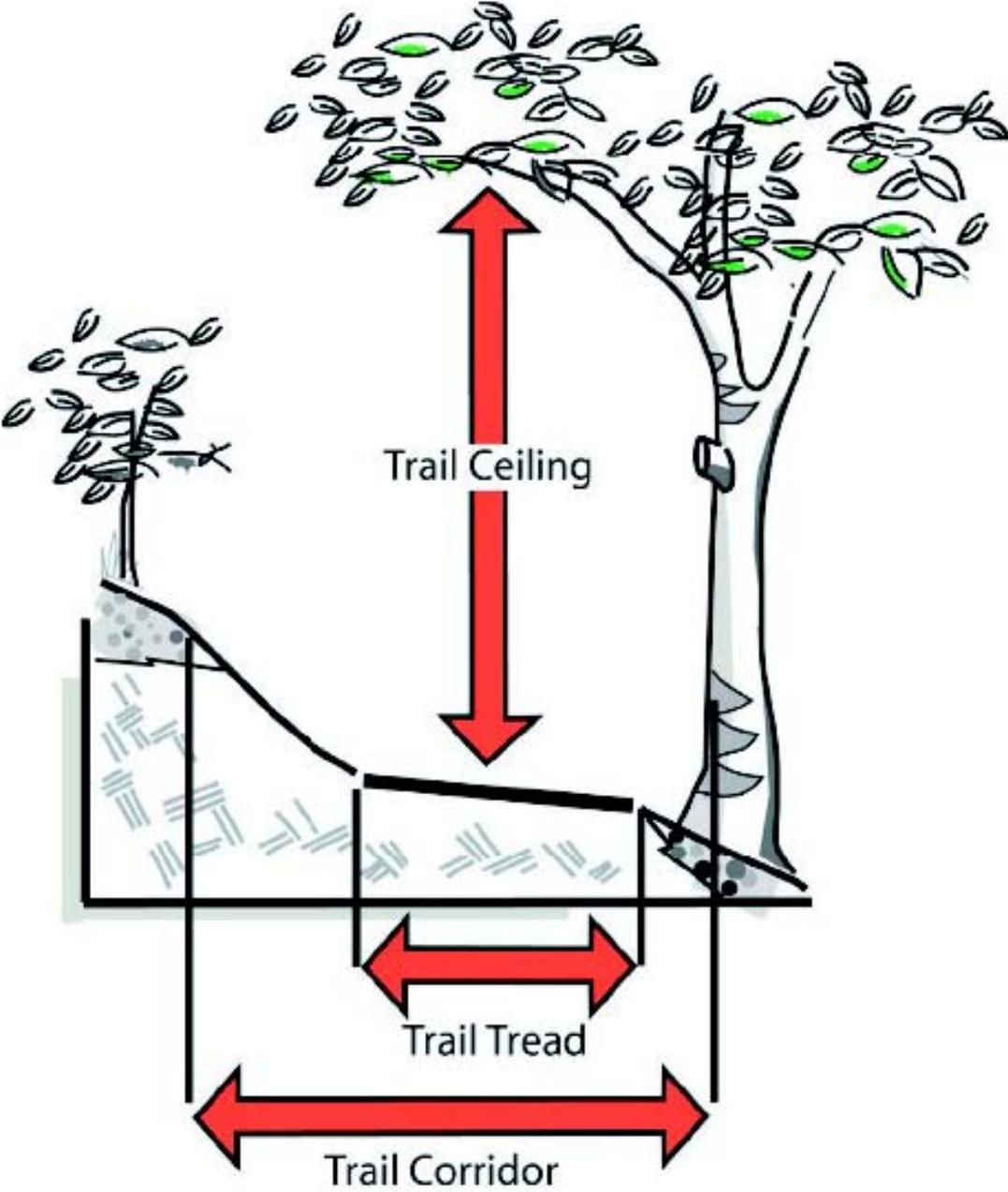
1. Sub-base – 8 in. untreated base course,  $\frac{3}{4}$  in. minus, compacted to 95%.
2. Asphalt - thickness – 3 in.
3. Dimensions (if there is equestrian use) - suggested minimum 100 ft. X 130 ft.

**The following trail feature images courtesy of the International Mountain Bicycling Association, taken from their publication “*Trail Solutions*”.**

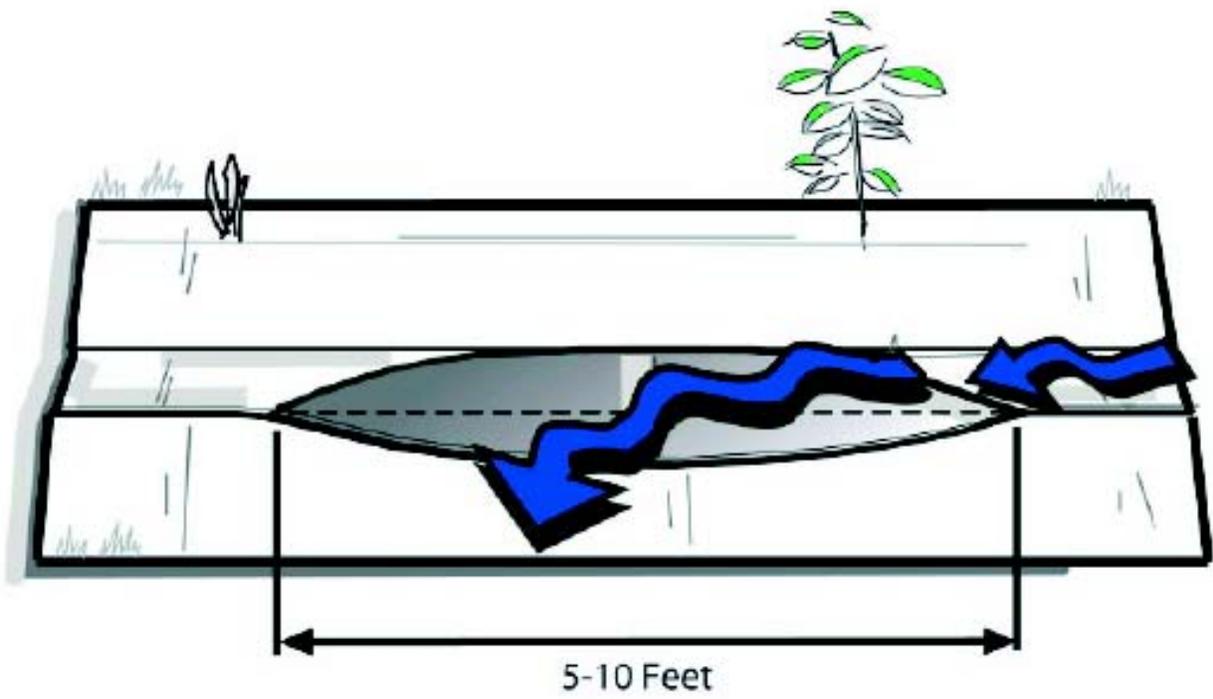
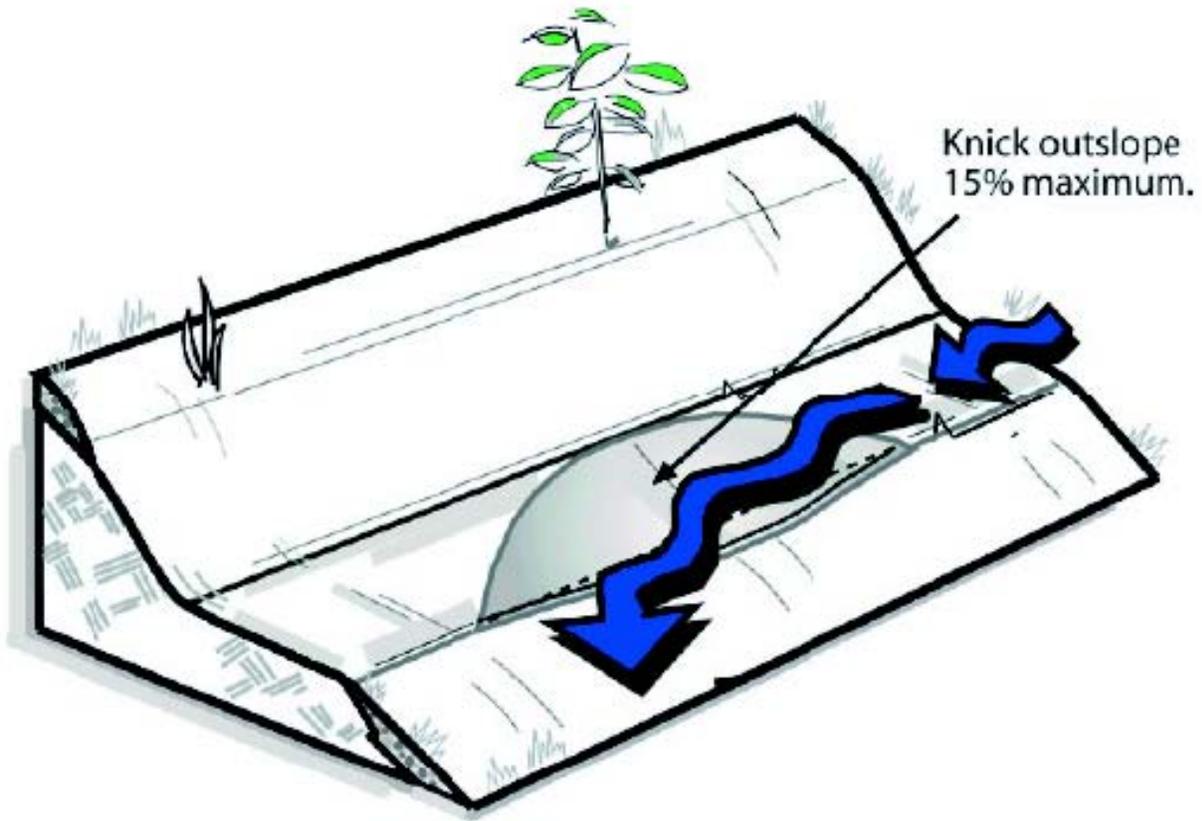
# Full Bench Trail



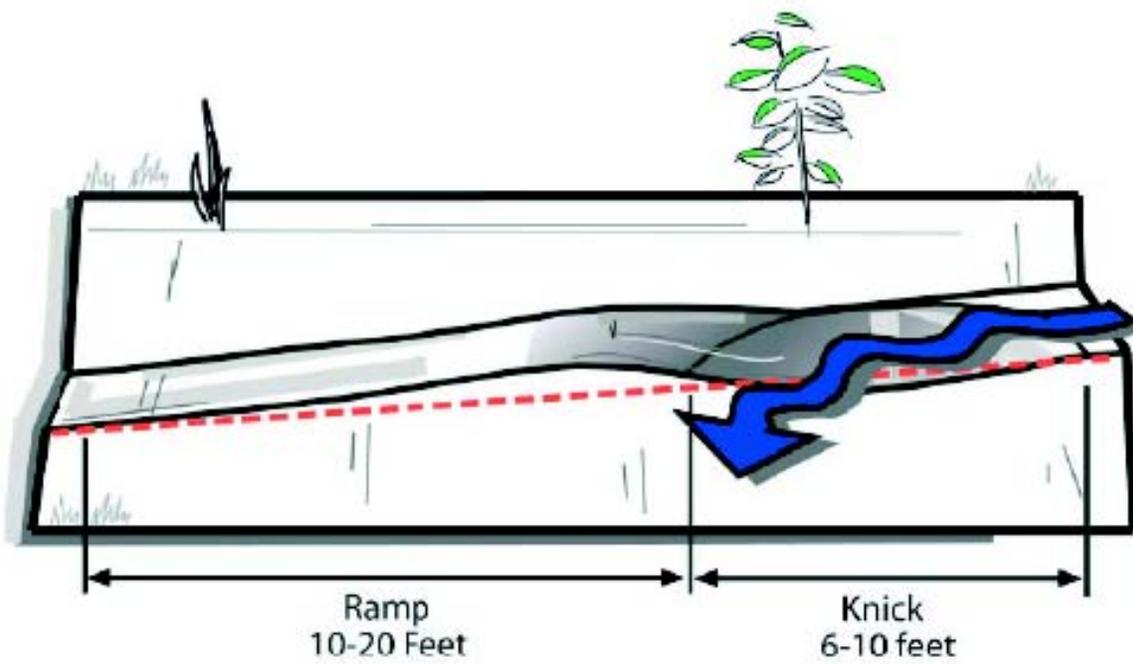
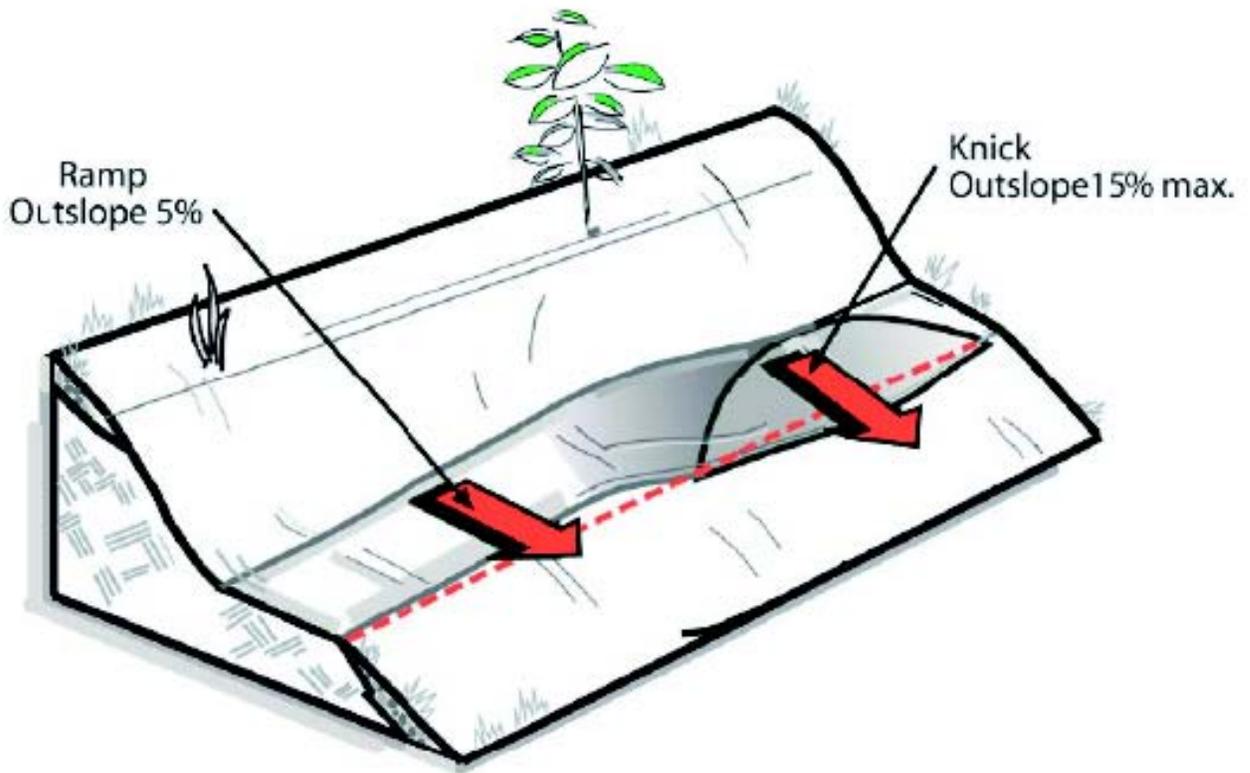
# Trail Corridor



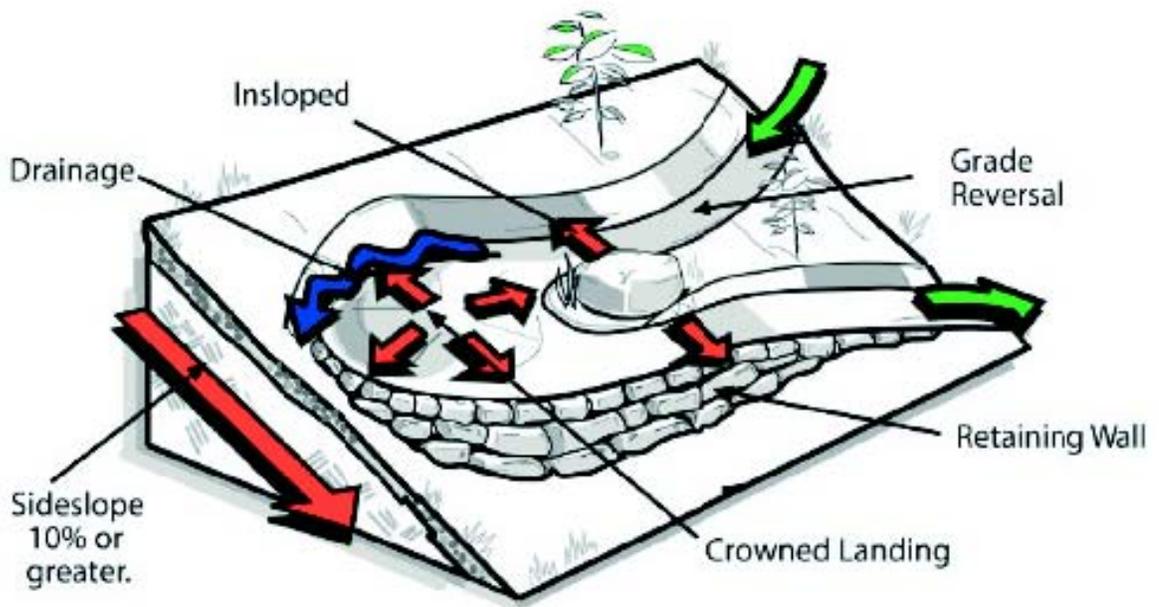
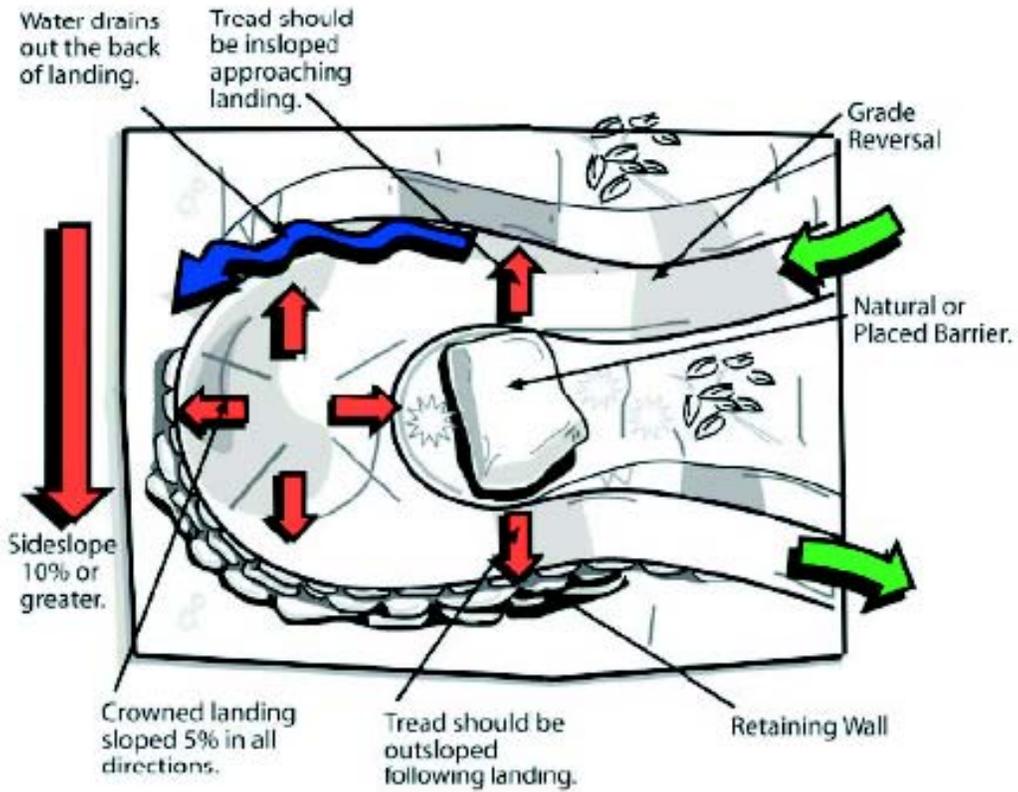
# Knick



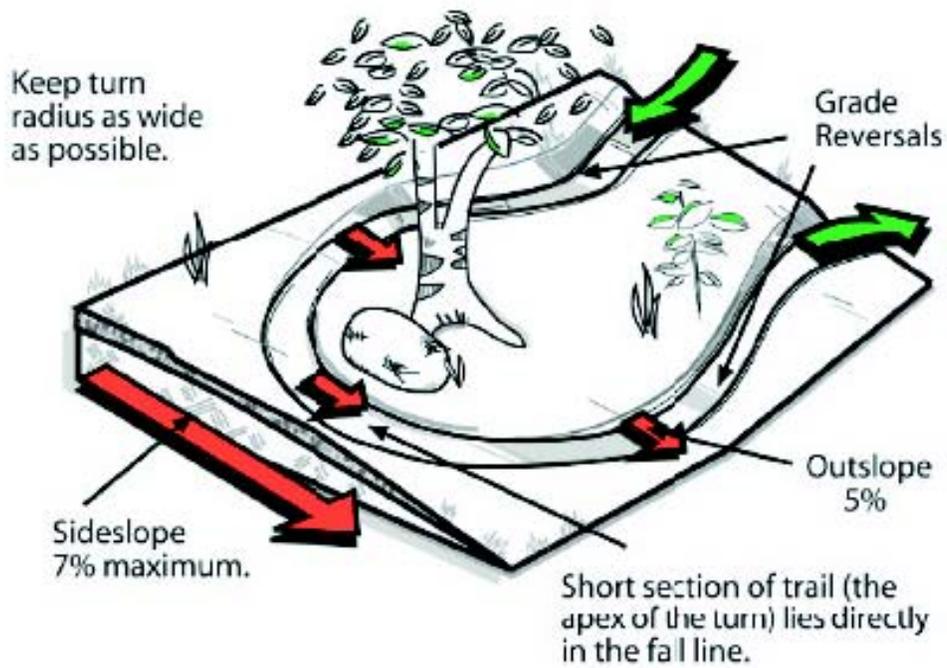
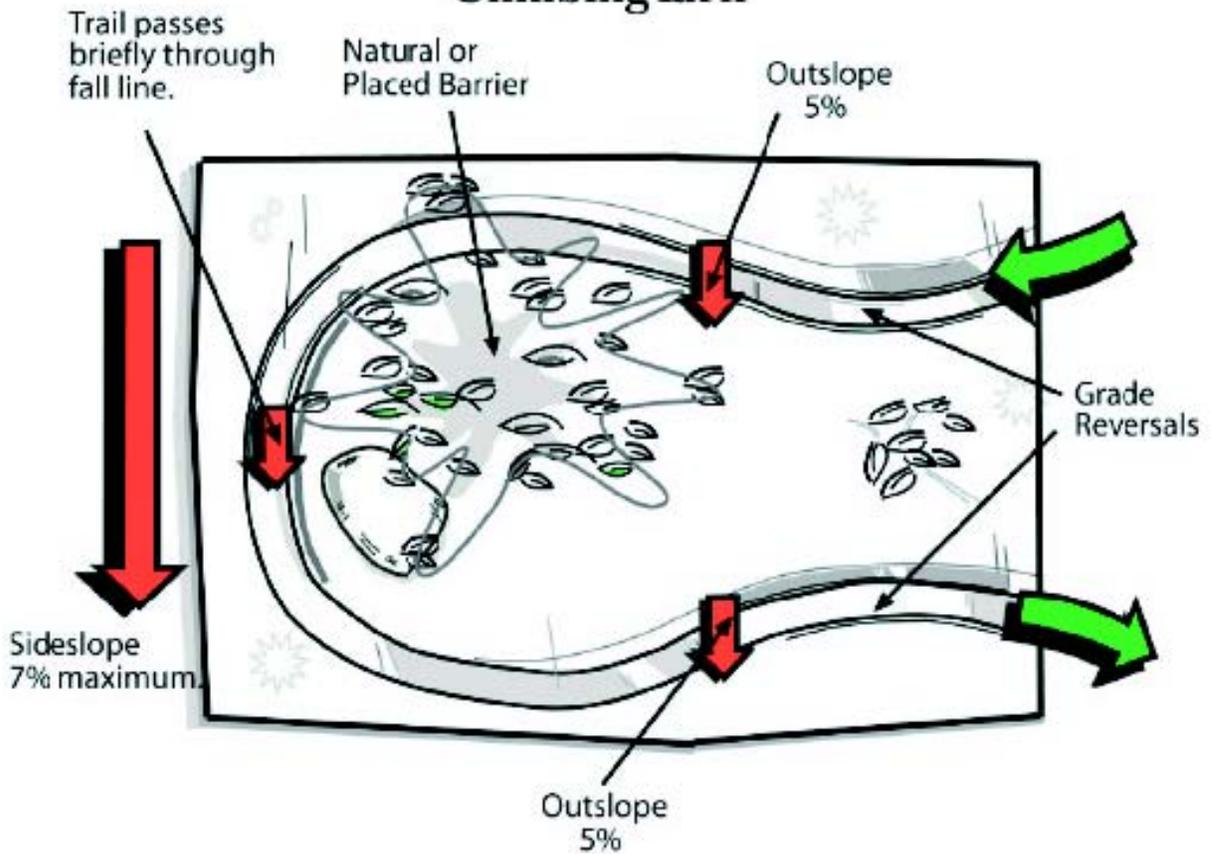
# Rolling Grade Dip



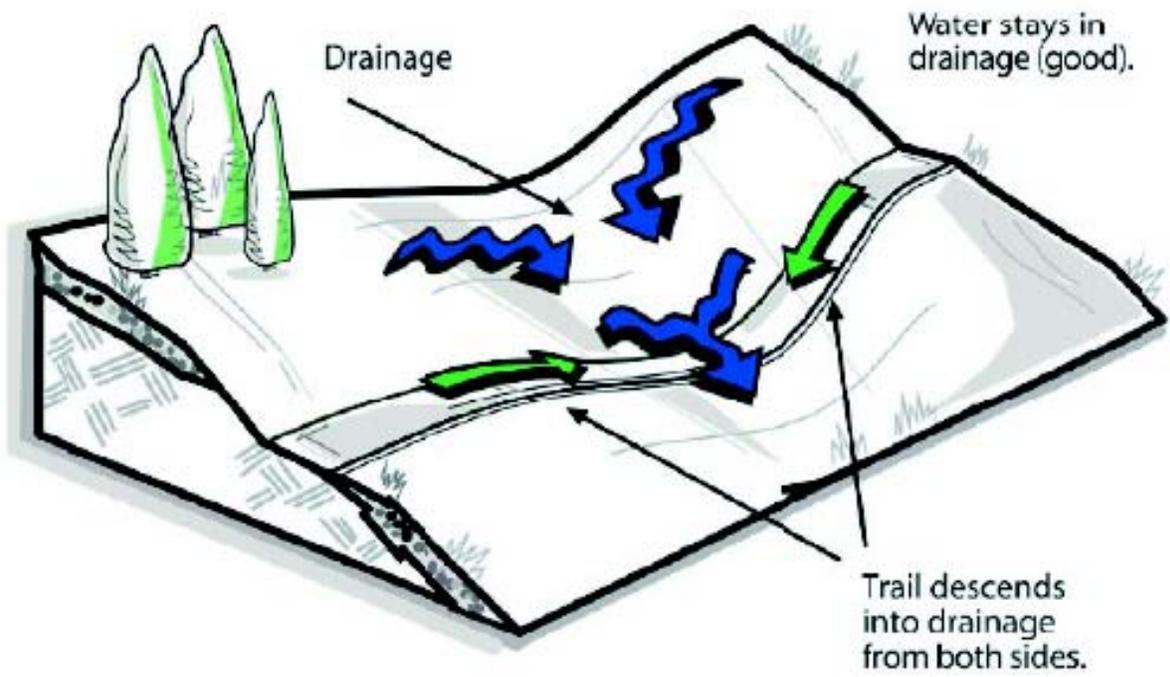
# Rolling Crown Switchback



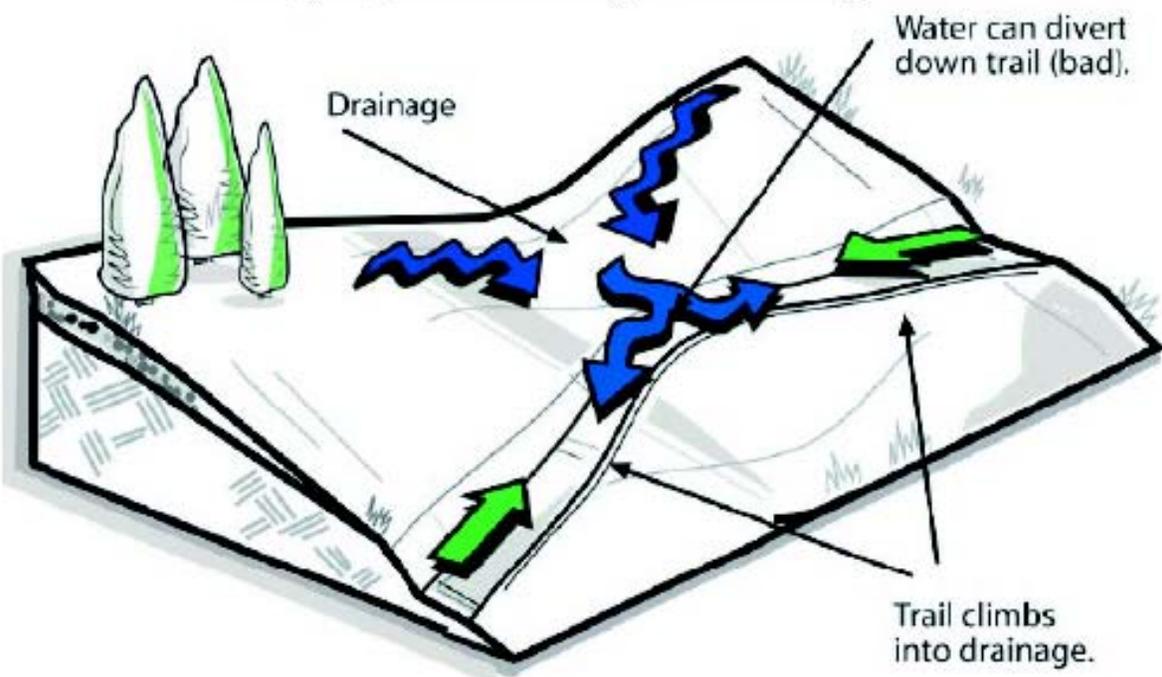
# Climbing Turn



## Proper Drainage Crossing



## Improper Drainage Crossing



# Chokes and Corralling

