

## Tree Planting On Disturbed Areas (TP)



### Practice Description

Tree planting on disturbed areas is planting trees on construction sites or other disturbed areas to stabilize the soil. The practice reduces erosion and minimizes the maintenance requirements after a site is stabilized. The practice is applicable to those areas where tree cover is desired and is compatible with the planned use of the area, particularly on steep slopes and adjacent to streams. Tree planting is usually used with other cover practices such as permanent seeding or sodding.

### Planning Considerations

Control grass and legume cover when seeded in combination with planted trees to reduce competition for moisture, nutrients and sunlight.

Select trees that are adapted to soil and climate.

Avoid planting species that are invasive or may become a nuisance.

Avoid trees that have undesirable characteristics.

Select trees that will improve aesthetics and provide food and cover for wildlife.

### Design Criteria and Installation

Tree-planting requirements should be designed by a qualified design professional and plans and specifications should be made available to field personnel prior to start of planting.

## Planting Bare-rooted Tree Seedlings

### Site Preparation

Compacted soil should be ripped or chiseled on the contour to permit adequate root development and proper tree growth. Debris should be removed from the site to facilitate tree planting.

### Planting Methods

Tree seedlings may be planted by hand or machine. Any tool or piece of equipment that gives satisfactory results may be used. Dibble bars, mattocks, augers, post-hole diggers and shovels may be used to plant trees by hand. Wildland tree-planting machines should be used on rough areas or areas with clayey or compacted soils. Old-field tree planters should be limited to areas with light soils that are not compacted. On sloping land, planting should be done on the contour. Bare-rooted tree-seedling planting techniques are outlined in Figure TP-1. Additional planting techniques for bare-root plants are available on MDOT drawing PD-1 found at the end of this practice.

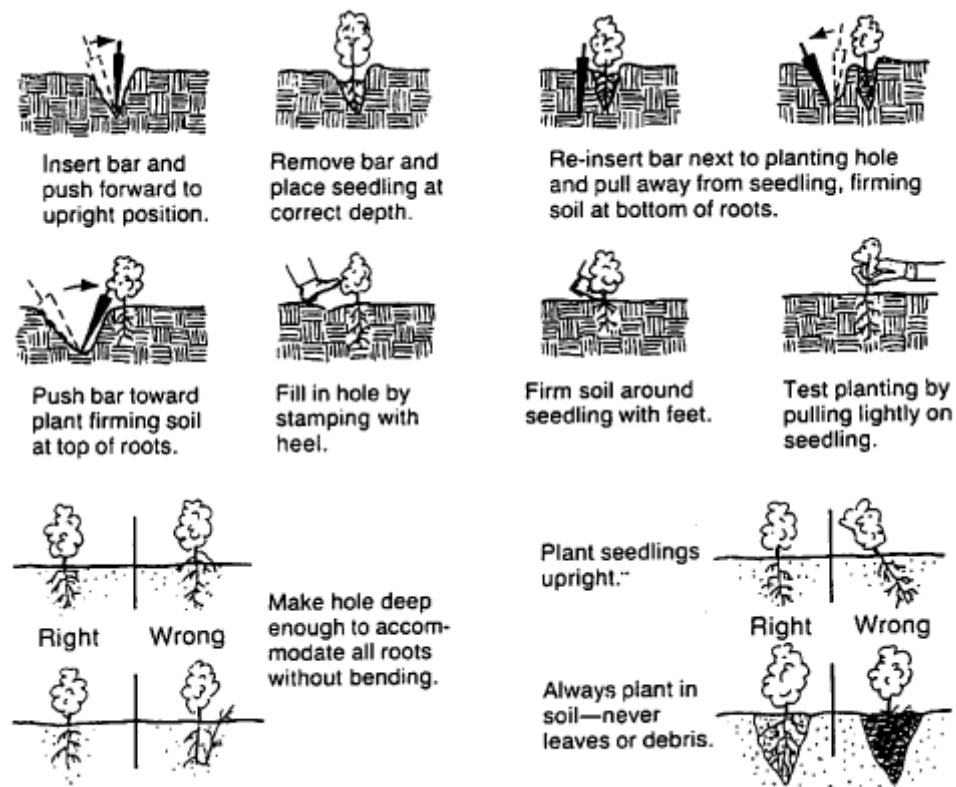


Figure TP- 1 Planting Bare-Root Seedlings

### When to Plant

Bare-root seedlings should be planted from December 1 to March 15. Planting should be done when the soil is neither too dry nor too wet. Planting should be avoided during freezing weather and when the ground is frozen.

***Planting Rate***

To control erosion, pines should be planted at a rate of 600 to 700 trees per acre and hardwoods should be planted at a rate of 300 to 500 trees per acre. Severely eroding areas should be planted at the rate of 600 to 900 trees per acre for both pine and hardwood species.

***Depth of Planting***

Trees should be planted deeper than they grew in the nursery. Plant small stock 1" deeper and medium to large stock ½" deeper. On most soils, longleaf pine seedlings should be planted ¼" deeper than they grew in the nursery.

***Condition of Roots***

Roots should be planted straight down and not twisted, balled, nor U-shaped. Soil should be packed firmly around the planted seedlings. No air pockets should be left in either machine furrows or holes made by planting tools.

***Care of Seedlings***

The roots of seedlings must be kept moist and cool at all times. After lifting, seedlings should not be exposed to sun, wind, heat, dry air or freezing cold before they are planted. Baled seedlings may be kept up to 3 weeks if they are properly stacked, watered, and kept in a cool place. When planting is delayed, the roots of seedlings should be covered with moist soil (heeled-in) or the seedlings should be placed in cold storage.

During planting, the roots of seedlings must be kept moist and only one seedling should be planted at a time. At the end of each day, loose seedlings should be either repacked in wet moss or heeled-in.

***Mulching***

Mulching may be necessary on sloping land to reduce erosion. Mulch with wood chips, bark, pine needles, peanut hulls, etc. to a depth of no more than 3". Mulch should not be placed against the trunk of the tree.

***Planting Balled and Burlapped and Container-Grown Trees***

The best time to plant hardwood trees is in late winter (before leaves emerge) and the best time to plant evergreens is in early fall. However, these plants may be planted anytime of the year except when the ground is frozen. Watering is essential during dry periods.

***Site Preparation***

The planting hole should be dug deep and wide enough to allow proper placement of the root ball. The final level of the root ball's top should be level with the ground surface (See Figure TP-2).

As the hole is dug, the topsoil should be kept separate from the subsoil. If possible, the subsoil should be replaced with topsoil. If topsoil is unavailable, the subsoil can be improved by mixing in ⅓ volume of peat moss or well-rotted manure.



Set the tree in the hole and if the tree is balled and burlapped, remove the rope which holds the burlap. Loosen the burlap and remove completely if practical. Do not break the soil of the root ball. Fill the hole with soil halfway and add water to settle the soil and eliminate air pockets. When the water has drained off, fill the hole the remainder of the way. Use extra soil to form a shallow basin around the tree. This will help retain water.

Newly planted trees may need artificial support to prevent excessive swaying. Stakes and guy wires may be used (see Figure TP-2). Guying should be loose enough to allow some movement of the tree. Planting and guying techniques for balled and burlapped and container plants are available on MDOT drawing PD-1 found at the end of this practice.

### **Mulching**

Mulching may be necessary on sloping land to reduce erosion and should be used around balled and burlapped trees and container grown trees to help conserve soil moisture and reduce competition from weeds and grass. Apply mulch using wood chips, bark, pine needles, peanut hulls etc. to a depth of no more than 3". Mulch should not be placed against the trunk of the tree.

### **Verification of Installation**

Check all components of the practice during installation to ensure that specifications are being met.

### **Common Problems**

*Consult with a qualified design professional if any of the following occur:*

Soil compaction can prevent adequate tree growth. Compaction should be addressed during site preparation.

Design specifications for trees (species, planting dates) and mulch cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.

*Problems that require remedial actions:*

Erosion, washout and poor tree establishment – repair eroded surface, replant, reapply mulch and anchor.

Mulch is lost to wind or stormwater runoff – reapply mulch and anchor.

### **Maintenance**

Replant dead trees where needed to maintain adequate cover for erosion control.

Periodic fertilization may be beneficial on poor sites to maintain satisfactory tree growth. Transplanted trees should be fertilized 1 year or so after planting. A soil test is the best way to determine what elements are needed. Fertilizer formulations of 10-8-6 or 10-6-4 can be used in the absence of a soil test. About 2 lbs. of fertilizer should be used for each inch of tree diameter measured at 4.5 feet above the ground.

Fertilizer must come in contact with the roots to benefit a tree. The easiest way to apply fertilizer is to simply broadcast it under the tree and over the root system. As a tree grows, the roots will grow well beyond the drip line. This should be taken into account when applying fertilizer by the broadcast method. Another way to apply fertilizer is to make holes in the tree's root area with a bar or auger. Holes should be 18" deep, spaced about 2 feet apart, and located around the drip line of the tree. Distribute the fertilizer evenly into these holes and close the holes with the heel of the shoe or by filling with topsoil or peat moss. Trees should be fertilized in late winter or early spring before leaves emerge.

## References

### BMPs from Volume 1

#### Chapter 4

Mulching (MU)

4-48

### MDOT Drawing PD-1

Typical Planting Details for Trees and Shrubs

4-116

