

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION
TREE/SHRUB SITE PREPARATION
(Ac.)
CODE 490

PURPOSE OF SPECIFICATION

This Specification provides guidance for the installation of the practice Riparian Forest Buffer. Guidance may include information about applying different methods listed in the Conservation Practice Standard, details of site preparation and protection, instructions for use of materials described in the Standard, and other information not directly addressed in the Standard.

Specifications for the installation, operation and maintenance of the practice shall be prepared for each treatment unit in accordance with the requirements in the Conservation Practice Standard and the guidance in this Specification. The site specifications shall be recorded in the Conservation Practice Jobsheet and given to the client.

SCOPE OF PRACTICE

Tree/shrub site preparation is the treatment of areas to improve site conditions for establishing trees and/or shrubs. This practice is used to encourage natural regeneration of desirable woody plants and to permit artificial establishment of woody plants.

Tree/shrub site preparation is a precondition for the successful establishment of the following other practices such as: Tree/Shrub Establishment (612), Windbreak/Shelterbelt Establishment (380), and Riparian Forest Buffer (391).

SITE PREPARATION METHODS

The method, intensity and timing of site preparation will match the limitations of the site, equipment, and the requirements for establishing the desired woody species.

An appropriate site preparation method will be chosen to achieve the intended purpose and to protect desirable vegetation, site and soil conditions.

This document includes guidance for common methods of site preparation. For additional information or a prescription for a site preparation method not included, consult the appropriate NRCS specialist depending on the land use and type of trees or shrubs to be established (State Forester, Grazing Lands Management Specialist, or Plant Materials Specialist).

The practice Prescribed Burning (338) may be used as a site preparation method to remove flammable woody and herbaceous vegetation in order to obtain regeneration and facilitate planting. Prescribed burning is not commonly used in the Pacific Islands Area and must be done by trained personnel under carefully controlled conditions. Use of this practice will require special permission and a prescription from the appropriate Pacific Islands Area specialist.

SCARIFICATION TO ENCOURAGE NATURAL REGENERATION OF WOODY PLANTS

Adequate seed sources or advanced reproduction needs to be present or provided for when using natural regeneration to establish a stand.

Scarifying the land using hand tools or machinery to expose mineral soil may be used to encourage the natural regeneration of many tree and shrub species. Areas scarified should be planned for based on requirements of individual species. Excessive soil disturbance may lead to soil erosion and invasion of weedy species.

METHODS TO PERMIT ARTIFICIAL ESTABLISHMENT OF WOODY PLANTS

Site preparation methods to permit artificial establishment of woody plants include various mechanical methods, use of chemical herbicides, and prescribed burning.

Utility companies should be contacted to determine possibility of disturbing any buried lines by planned earthmoving activities in areas previously not tilled.

Mechanical Site Preparation Methods

Disking. Harrowing, disking or plowing turns the soil, thereby removing competition. This method is used on areas that are cleared, sodded, or lightly covered with brush.

Generally, rough disking is adequate to prepare a site for tree/shrub plantings. Clear dozer-width strips along contour for planting. Knock down all understory and leave desirable vegetation standing. If necessary, grub the area immediately around the planting hole.

If conditions make it necessary for total site preparation, remove all understory and all undesirable larger trees. Windrow the slash along the contour or across slope.

Ripping. Ripping or chiseling shatters and fractures rock and compacted or restrictive soil layers. It penetrates deeply to improve drainage, root penetration, and aeration in the soil. Subsoiling should follow planned row spacing. This method does not adequately prepare the seedbed for planting and the site should be reworked with a chisel or disk to break up the large pieces.

Chopping. Chopping is an effective method where vegetation is dense and the diameter of the stems is small (less than 4 inches). A rolling drum chopper will uproot, chop, and compact brush. This type of site preparation minimizes soil loss and may be used on soils with moderate to severe erosion hazard.

Shearing. Shearing is used to prepare sites where there are a large number of stems over 4 inches in diameter. If done properly, bulldozer shearing blades, which have a sharpened lower edge and are either angled or V-shaped, can shear trees at ground level with little soil disturbance. To minimize erosion and site deterioration, shearing should be limited to moderate slopes and stable soils.

Blading. Blading is the removal of trees and other vegetation with a straight-blade bulldozer. It should be used only when other methods are not available because it removes topsoil. If minimum site preparation is desired, vegetation may be pushed down and the site may either be direct seeded or planted by hand.

Where feasible, a brush rake should be used. A brush rake will filter soil through the rake teeth and minimize soil displacement.

Mowing. A tractor drawn rotary mower can be used to remove herbaceous and small, woody vegetation. This method is usually limited to abandoned pasture and cropland.

Lopping. Lopping uses hand tools or chain saws to fell residual stems. It is a good method of site preparation for steep slopes because it causes little soil disturbance. Lopping can be especially useful on sites too small for heavy equipment.

Chemical Site Preparation

Herbicides may be used to kill undesirable vegetation and improve site conditions for establishing trees and/or shrubs. It can be a safe, economical alternative to other methods of site preparation especially on steep slopes where erosion may be a problem. This type of treatment may be used in combination with other methods of site preparation.

Herbicides may be broadcast, applied in bands, or applied to individual stems by tree injection, stump treatment or basal spraying.

When using herbicides, the recommendations of the local college, university, extension or other qualified specialists should be followed.

All chemicals will be used in accordance with label guidelines. In Hawaii, restricted-use chemicals can only be applied by a certified applicator or under the supervision of a certified applicator of the Hawaii Department of Agriculture.

Conformance with permits of all state and federal regulations for use of chemicals is the responsibility of the client. Chemical containers shall be disposed in a safe, approved manner.

Refer to practice standard Pest Management (595) for additional guidance for the use of herbicides.

TIMING OF SITE PREPARATION

Site preparation activities should be coordinated with the establishment of trees and shrubs and in consideration of whether supplemental irrigation will be provided or not.

If supplemental irrigation will be provided for plant establishment, site preparation activities should be completed prior to the start of the rainy season, before soils become saturated or too wet. Planting or seeding should be conducted as soon as possible after to avoid leaving the site susceptible to soil erosion.

If supplemental irrigation will not be provided for plant establishment, site preparation should be completed just before the beginning of the rainy season and planting should be carried out as soon as possible after.

COMPLIMENTARY PRACTICES

Other complementary practices and measures will be used as necessary to control erosion, runoff, compaction and displacement to acceptable levels.

Erosion and Runoff Control

Avoid creating ruts up and down slopes. Windrows, disking, bedding, and planting should be on the contour or across the slope to minimize erosion unless it causes safety concerns. Avoid complete disking of steep slopes with extremely erodible soils.

Any structural erosion control measures should be installed while site is being prepared and before desirable woody vegetation is established.

If land is bare after site preparation, the establishment of temporary vegetative cover or mulching is recommended to minimize erosion until desirable woody vegetation is mature. Refer to practice standards for Conservation Cover (327), Cover Crop (340), Critical Area Planting (342), or Mulching (484).

Soil Compaction Avoidance

Site preparation activities should be carried out in dry weather whenever possible to avoid excessive soil compaction. Use of heavy equipment should be avoided when soils are saturated.