

7.3 Topsoiling

Definition

Methods of preserving and using topsoil to enhance final site stabilization with vegetation.

Purpose

To provide a suitable growth medium for final site stabilization with vegetation.

Conditions Where Practice Applies

- 1. Where either the preservation or importation of topsoil is determined to be the most effective method of providing a suitable growth medium.
- 2. Where the subsoil or existing soil presents the following problems:
  - a. The texture, pH, or nutrient balance of the available soil cannot be modified by reasonable means to provide an adequate growth medium.
  - b. The soil material is too shallow to provide an adequate root zone and to supply necessary moisture and nutrients for plant growth.
  - c. The soil contains substances potentially toxic to plant growth.
- 3. Where high-quality turf is desirable to withstand intense use or meet aesthetic requirements.
- 4. Where ornamental plants will be established.
- 5. Only on slopes that are 2:1 or flatter.

Specifications

Materials

A field evaluation of the site should be made to determine if there is sufficient surface soil of good quality to justify stripping. The topsoil should be friable and loamy (loam, sandy loam, silt loam, sandy clay loam, clay loam). It should be free of debris, trash, stumps, rocks, roots, and noxious weeds, and should be able to support healthy plant growth.

Stripping

Stripping should be confined to the immediate construction area. A 4 to 6 inch (10 to 15 cm) stripping depth is common, but depth may vary depending on the particular soil. All perimeter berms, basins, and other sediment controls shall be in place prior to stripping.

Stockpiling

Topsoil shall be stockpiled so that natural drainage is not obstructed and no offsite sedimentation occurs. Stockpiles should be planned so as not to interfere with any of the construction operations. They can also act as barriers to shield the construction site

from the neighborhood and adjacent landowners, and can help to reduce the amount of dust and noise coming from the site.

The side slopes of the stockpile shall not exceed 2:1. A perimeter berm with gravel outlet, silt fence, or straw bale barrier shall surround all topsoil stockpiles. Temporary seeding of stockpiles shall be completed within 15 days of the formation of the stockpile, in accordance with TEMPORARY SEEDING (in this chapter).

Site Preparation Prior to and Maintenance during Topsoiling

Before topsoiling, establish needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, level spreaders, waterways, and sediment basins. These practices must be maintained during topsoiling. The following guidelines should be used for site preparation and maintenance:

- 1. **Grading** – Previously established grades on the areas to be topsoiled shall be maintained according to the approved plan.
- 2. **Liming** – Where the pH of the subsoil is 6.0 or less, or the soil is composed of heavy clays, agricultural limestone shall be spread in accordance with the soil test or the vegetative establishment practice being used.
- 3. **Bonding** – After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or scarifying to a depth of at least 2 inches (5 cm) to ensure bonding of the topsoil and subsoil.

Applying Topsoil

Topsoil shall not be placed while in a muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or seeding. The topsoil shall be uniformly distributed to a minimum compacted depth of 2 inches (5 cm) on 3:1 or steeper slopes, and 4 inches (10 cm) on flatter slopes. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected to prevent the formation of depressions or water pockets.

The topsoil should be compacted enough to ensure good contact with the underlying soil and a level seedbed for the establishment of high-maintenance turf. However, undue compaction is to be avoided, as it increases runoff velocity and volume, and deters seed germination. In areas that are not going to be mowed, the surface should be left rough, as described in SURFACE ROUGHENING (in this chapter).

Soil Sterilants

No sod or seed shall be placed on soil that has been treated with soil sterilants until enough time has elapsed to permit the toxic materials to dissipate.

7.4 Temporary Seeding

Definition

The establishment of temporary vegetative cover on disturbed areas by seeding with appropriate, rapidly growing annual plants.

Purposes

- 1. To reduce erosion and sedimentation by stabilizing disturbed areas that will not be brought to final grade within 7 days or more.
- 2. To reduce problems associated with mud and dust production from bare soil surfaces during construction.

Conditions Where Practice Applies

Where exposed soil surfaces are not to be fine graded for periods of 7 days or more. Such areas include denuded areas, soil stockpiles, berms, dams, the sides of sediment basins, and temporary road banks.

Specifications

Prior to seeding, install necessary erosion control practices such as berms, waterways, and basins.

Plant Selection

Select plants appropriate to the season, region, and site conditions. Consult with your local Agricultural Extension agent, county, FDEP, water management district, or FDOT office, or see Table 1.65a of the Florida Development Manual.

Seedbed Preparation

To control erosion on bare soil surfaces, plants must be able to germinate and grow. Seedbed preparation is essential. A soil test should be taken to determine liming and fertilization requirements. In the absence of a soil test, the following guidelines apply:

- 1. **Liming** – Where soils are known to be highly acid (pH 6.0 and lower), lime should be applied at the rate of 2 tons of pulverized agricultural limestone per acre.
- 2. **Fertilizer** – Shall be applied as 217.5 pounds per acre (5 pounds/ 1,000 square feet) (504 kg/ha) of 50% slow-release 10-20-20 or equivalent. Lime and fertilizer shall be incorporated into the top 2 to 4 inches (5 to 10 cm) of the soil. If quick-release nitrogen is used, apply 2 to 3 weeks after seed has sprouted.
- 3. **Surface Roughening** – If the area has been recently loosened or disturbed, no further roughening is required. When the area is compacted, crusted, or hardened, the soil surface shall be loosened by discing, raking, harrowing, or other acceptable means (see SURFACE ROUGHENING (in this chapter)).

- 4. **Tracking** – Tracking with bulldozer cleats is most effective on sandy soils. This practice often causes the undue compaction of the soil surface, especially in clayey soils, and does not aid plant growth as effectively as other methods of surface roughening.

Seeding

Seed shall be evenly applied with a cyclone seeder, drill, cultipacker-seeder, or hydroseeder. Small grains shall be planted no more than 1 inch deep. Grasses and legumes shall be planted no more than ¼ inch (6 mm) deep.

Mulching

- 1. Mulch should usually be applied to reduce damage from water runoff or wind erosion, and to improve moisture conditions for seedlings. Mulching without seeding should be considered for very short-term protection. The use of mulch is a judgment decision based on the time of seeding and conditions of individual sites. When used, mulch shall be applied according to **MULCHING** (in this chapter).
- 2. Seedlings made on slopes in excess of 3:1, or on adverse soil conditions, or during excessively hot or dry weather, shall be mulched according to **MULCHING** (in this chapter).
- 3. Seedlings made during optimum spring and summer seeding dates, with favorable soil and site conditions, may not require mulch.

Reseeding

Areas that fail to establish enough vegetative cover to prevent rill erosion will be filled in with proper topsoil and reseeded as soon as they are identified.

7.5 Permanent Seeding

Definition

The establishment of perennial vegetative cover on disturbed areas by planting seed.

Purposes

- 1. To reduce erosion and decrease sediment yield from disturbed areas.
- 2. To permanently stabilize disturbed areas in a manner that is economical and adaptable to site conditions, and that allows the selection of the most appropriate plant materials.

Conditions Where Practice Applies

- 1. Disturbed areas where permanent, long-lived vegetative cover is needed to stabilize the soil.
- 2. Rough-graded areas that will not be brought to final grade for a year or more.

Specifications

Selection of Plant Materials

- 1. The selection of plant materials is based on climate, topography, soils, land use, and planting season. To determine which plant materials are best adapted to a specific site, see Tables 1.66b and 1.66c of the Florida Development Manual, which describe plant characteristics and list recommended varieties.
- 2. Table 1.66a of the Florida Development Manual lists appropriate seeding mixtures for various site conditions in Florida. These mixtures are designed for general use and are known to perform well on the sites described. Adhere to these mixtures whenever feasible. Check Tables 1.66b and 1.66c for recommended varieties.

Seedbed Requirements

Vegetation should not be established on slopes that are unsuitable because of inappropriate soil texture, poor internal structure or internal drainage, a high volume of overland flow, or excessive steepness, until measures have been taken to correct these problems.

To maintain a good stand of vegetation, the soil must meet certain minimum requirements as a growth medium. **The existing soil must meet the following criteria:**

- 1. Enough fine-grained material to maintain adequate moisture and nutrient supply.

- 2. Sufficient pore space to permit root penetration. A bulk density of 1.2 to 1.5 indicates that sufficient pore space is present. A fine granular or crumb-like structure is also favorable.
- 3. Sufficient depth to provide an adequate root zone. The depth to rock or impermeable layers such as hardpans shall be 12 inches (30 cm) or more, except on slopes steeper than 2:1, where the addition of soil is not feasible.
- 4. A favorable pH range for plant growth. If the soil is so acid that a pH range of 6.0 to 7.0 cannot be attained by the addition of pH-modifying materials, then the soil is unsuitable for plant roots.
- 5. Freedom from toxic amounts of materials harmful to plant growth.
- 6. Freedom from excessive quantities of roots, branches, large stones, large clods of earth, or trash of any kind. Clods and stones may be left on slopes steeper than 3:1 if they are to be hydroseeded.

If any of the above criteria cannot be met—i.e., if the existing soil is too coarse, dense, shallow, acid, or contaminated to foster vegetation—then topsoil should be applied in accordance with **TOPSOILING** (in this chapter). The necessary mechanical erosion and sediment control practices **will be installed prior to seeding**. Grading will be carried out according to the approved plan. Surfaces will be roughened in accordance with **SURFACE ROUGHENING** (in this chapter).

Soil Conditioners

To modify the texture, structure, or drainage characteristics of a soil, the following materials **may** be added to the soil:

- 1. **Peat** shall be sphagnum moss peat, hypnum moss peat, reed-sedge peat, or peat humus, from freshwater sources. Peat shall be shredded and conditioned in storage piles for at least 6 months after excavation.
- 2. **Sand** shall be clean and free of toxic materials.
- 3. **Vermiculite** shall be horizontal grade and free of toxic substances.
- 4. **Composted manure** shall be stable or cattle manure not containing undue amounts of straw or other bedding materials or toxic chemicals. Phosphorus shall be limited to soil test recommendations.
- 5. **Thoroughly rotted sawdust** shall be 6 pounds of nitrogen added to each cubic yard (3.5 kg/m<sup>3</sup>) and shall be free of stones, sticks, and toxic substances.
- 6. Where local ordinances permit, **treated sewage sludge** may be used in accordance with local, state, and federal regulations. The use of treated sewage sludge shall be limited to soil test recommendations.

Lime and Fertilizer

Lime and fertilizer needs should be determined by soil tests. Soil tests may be performed by the Cooperative Extension Service Soil Testing Laboratory at the University of Florida, or by a reputable commercial laboratory. Information on the state's

Soil Testing Laboratory is available from county extension agents. Under unusual conditions where it is not possible to obtain a soil test, the following soil amendments will be applied:

<b>LIME:</b>	2 tons per acre finely ground agricultural or dolomitic limestone (90 pounds per 1,000 square feet) (4.48 t/ha)
<b>FERTILIZER:</b>	<b>Mixed grasses and legumes:</b> 150 pounds per acre of 5-25-10 (3.5 pounds per 1,000 square feet)  <b>Legume stands only:</b> 150 pounds per acre of 5-20-10 (3.5 pounds per 1,000 square feet)  <b>Grass stands only:</b> 870 pounds per acre of 5-5-10 (1.12 t/ha) and 57 pounds of 38-0-0 in spring (1.3 pounds per 1,000 square feet)  220 pounds per acre of 10-5-10 and 57 pounds of 38-0-0 in fall (1.3 pounds per 1,000 square feet)

Other fertilizer formulations may be used, provided they supply the same amounts and proportions of plant nutrients.

Lime and fertilizer shall be incorporated into the top 4 to 6 inches (10 to 15 cm) of the soil by discing or other means. When applying lime and fertilizer with a hydroseeder, apply to a rough, loose surface.

Seeding

- 1. **Certified seed** should be used for all permanent seeding whenever possible.
- 2. **Legume seed** should be inoculated with the inoculant appropriate to the species. The seed of lespedezas, crown vetch, and clovers should be scarified to promote uniform germination.
- 3. **Apply seed uniformly** with a cyclone seeder, drill, cultipacker-seeder, or hydroseeder on a firm, friable seedbed. The maximum seeding depth should be ¼ inch.
- 4. During **hydroseeding**, to avoid seed damage, it is recommended that if a machinery breakdown of 30 minutes to 2 hours occurs, 50% more seed be added to the tank, based on the proportion of the slurry remaining in the tank. Beyond 2 hours, a full rate of new seed may be necessary.  
  
Often hydroseeding contractors prefer not to apply lime in their rigs, as it is abrasive. In inaccessible areas, lime may have to be applied in pelletized or liquid form, separately. The rates of wood fiber should be at least 2,000 pounds per acre (2.24 t/ha). Surface roughening is particularly important when hydroseeding, as a roughened slope provides some natural coverage of lime, fertilizer, and seed.
- 5. **Legume inoculants** should be used by the date indicated on the container. When dry seeding, use 4 times the manufacturer's

recommended rate, and use 10 times the recommended rate of inoculant when hydroseeding.

Mulching

All permanent seeding must be mulched immediately upon the completion of seed application (refer to the extended discussion in **MULCHING** below).

Maintenance of New Seedlings

- 1. **Irrigation** – New seedlings should be supplied with adequate moisture. Supply water as needed, especially late in the season, in abnormally hot or dry weather, or on adverse sites. Water application rates should be controlled to prevent runoff. Inadequate amounts of water may be more harmful than no water.
- 2. **Reseeding** – Inspect seeded areas for failure and make necessary repairs and reseeds within the same season, if possible:
  - a. If vegetative cover is inadequate to prevent rill erosion, overseed and fertilize in accordance with soil test results.
  - b. If a stand has less than 40% cover, re-evaluate the choice of plant materials and quantities of lime and fertilizer. Re-establish the stand following seedbed preparation and seeding recommendations, omitting lime and fertilizer in the absence of soil test results. **NOTE:** If vegetation has failed to grow, the soil must be tested to determine if acidity or nutrient imbalances are responsible.
- 3. **Fertilization** – Seedlings should be fertilized 1 year after planting to ensure proper stand density:
  - a. To established all-grass stands, apply 300 pounds per acre of 15-0-15 or 15-2-15 slow release (6.7 pounds per 1,000 square feet) between August 15 and November 15 (the first fall following seeding).
  - b. To legume-and-grass stands or pure legume stands, apply 150 pounds per acre of 0-20-20 (3.5 pounds per 1,000 square feet) in early May, or between August 15 and October 15.

GENERALLY, A STAND OF VEGETATION IS NOT DETERMINED TO BE FULLY ESTABLISHED UNTIL SOIL COVER HAS BEEN MAINTAINED FOR 1 FULL YEAR FROM PLANTING. DISTURBED AREAS THAT ARE TO BE STABILIZED WITH PERMANENT VEGETATION MUST BE SEEDD OR PLANTED WITHIN 15 DAYS AFTER FINAL GRADE IS REACHED, UNLESS TEMPORARY STABILIZATION IS APPLIED.



ISSUED FOR SITE PLAN REVIEW



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COOPER'S HAWK  
WINERY & RESTAURANT  
AT THE PROMENADE AT COCONUT CREEK  
JURISDICTION: CITY OF COCONUT CREEK  
LANDLOT: SECTION 18, TOWNSHIP 48 SOUTH,  
RANGE 42 EAST, BROWARD COUNTY  
LOCATION: PROMENADE AT COCONUT CREEK  
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COCONUT CREEK, FL 33073

EROSION CONTROL DETAILS

JOB NO:	SHEET
15-187	C7.7
DATE:	02/16/16
PLAN REVIEW	