

NC State University Design and Construction Guidelines

Division 31 Earthwork – Site Clearing and Earth Moving

1.0 Purpose

- A. The following guidelines provide information for Earthwork and Topsoil treatment.

2.0 General Requirements

A. Earthwork

1. North Carolina 811 shall be called prior to any excavation, grading, trenching, boring, or other related activity that involves penetration of the ground surface.
2. Soils that are frozen, muddy or saturated must not be worked.
3. All areas adjacent to graded areas, including lawns and paved areas must be protected from construction equipment, such as, but not limited to Excavators, Backhoes, Loaders, Bulldozers, Skid-Steer Loaders, Motor Graders, Crawlers, Loaders, Trenchers, and Scrapers.
4. Grading of paved areas, loading docks, service yards, and landscape must provide positive drainage.
5. Grading must direct water away from buildings.
6. Rough grading shall be brought to a true and uniform grade.
7. No excavation, scarification or subsoiling shall be done within the dripline of any tree, without prior approval from NC State.
8. For approved work within the dripline, the contractor is responsible to have any tree roots one-half or larger evaluated by an International Society of Arboriculture certified arborist prior to any pruning or removal.
9. Non-organic fill shall not be used in any areas that will be planted.
10. Control measures are required wherever there is a possibility of displacement of soils, discharge of soil bearing water runoff, or discharge of airborne dust, to adjacent properties and walkways.

B. Topsoil

1. Contractor shall provide topsoil material and installation.
2. Topsoil must be approved by NC State prior to installation.
3. In-situ topsoil from the site is preferred.
4. Topsoil shall be amended per the requirements of the soil test.

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5. All topsoil must be screened to contain no material larger than 1.0 inches in diameter or length and shall not contain slag, cinders, stones, and lumps of soil, sticks, roots, trash, or other material.
6. Topsoil must be free from all plant material, in particular all noxious or invasive species, including Bermuda grass, Johnson grass, nut sedge, or poison ivy.
7. If sub-soil is composed of heavy clays (as defined by the Wake County, NC Soil Survey), or is compacted (has a high soil bulk density per soil classification as defined by the Wake County, NC Soil Survey) due to construction activity, the contractor shall rip the soil to a minimum depth of eighteen inches (18”) prior to topsoil application.
8. The first 4” layer of topsoil must be mixed into the scarified top layer of existing soil. Additional topsoil shall be added in 4” lifts until finish grade is established.
9. Extraneous material to be disposed of legally off of NC State property.

C. Topsoil Mix

1. Topsoil shall be either pre-mixed or mixed off-site prior to soil testing per the following unless otherwise approved by NC State:
 - a) Three (3) Parts sandy loam topsoil with additive as required to bring PH to 5.5-6.5 range.
 - b) One (1) part composted pine bark organic material.

D. Clean Up

1. Preparation:
 - a) Rough grades to be approved by owner.
 - b) Clear site of all surface trash.
 - c) Rip soils.
 - d) Remove all materials that will hinder installation and maintenance of planted areas.
 - e) Spread topsoil.
2. Clean up includes plant bed areas, lawn areas, rights-of-way adjacent to the site, buffer areas, and lay down areas.

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E. Quality Assurance

1. The contractor shall bear the final responsibility for proper surface drainage.
2. Contractor will be required to regrade and reseed any areas that pond or otherwise demonstrate poor drainage.
3. Contractor shall remove topsoil that contains foreign material resulting from contractor's operation, including oil drippings, fuel spills, stone, gravel, and other construction related materials. Such materials shall be disposed of legally offsite of NC State's property, and replaced with new topsoil.

END OF SECTION