Section 1 - Site Work

Overview

This section includes specifications regarding all material, equipment, and labor required for clearing, grubbing, excavation, filling, and grading the site as specified, as shown on the Plans, and as directed by the Engineer.

Chapter 1 – Protection of Existing Improvements

1.00 Streets, sidewalks, driveways, power/ cable/telephone lines, gas lines, water lines, sewers, storm drains and other existing improvements shall be maintained and protected from damage. Any aerial, surface or subsurface improvements damaged during the course of the work shall be repaired to the satisfaction of the Engineer. Satisfactory provisions shall be made for the maintenance of traffic on streets, driveways, and walkways.

Prior to any excavation, the Contractor shall notify all utilities and utility locating services to provide locations for buried utilities. The contractor shall obtain all necessary permits (grading, building, water, sewer, encroachment, etc.) prior to beginning work.

Chapter 2 – Clearing and Grubbing

Section 2.0 – Clearing

Clearing shall consist of the felling and cutting up, or the trimming of trees, and the satisfactory disposal of the trees and other vegetation together with the timber, snags, brush and rubbish occurring within the construction area. Individual trees and groups of trees designated to be left standing within cleared areas shall be trimmed of all branches to such heights and in such manner as may be necessary to prevent interference with the construction operations. All limbs and branches required to be trimmed shall be neatly cut close to the trunk of the tree or to main branches, and the cuts thus made shall be painted with an approved tree-wound paint. Individual trees, groups of trees, and other vegetation to be left standing, shall be protected from damage as necessary. Clearing operations shall be carefully conducted to prevent damage to trees left standing, existing structures and improvements, and to provide for the safety of employees the public and adjoining properties.

Section 2.1 – Grubbing

Grubbing shall consist of the removal and disposal of all stumps and roots from the site as indicated on the drawings. In foundation and sub-base areas, stumps, roots, logs, timber, and other debris not suitable for foundation or sub-base purposes shall be excavated to a depth not less than 18 inches below any subgrade, shoulder or slope. All depressions excavated below the original ground surface for the removal of stumps and roots shall be refilled with suitable material and compacted to make the surface conform to the surrounding ground.

All timber, logs, stumps, roots, brush, rotten wood and other refuse from the clearing and grubbing operation shall be removed from the site and disposed of as approved by the Engineer.

Chapter 3 – Grading

Site grading shall consist of excavating, backfilling, and compacting soils to the final elevations and contours as shown on the drawings, including subgrade preparation for roads and parking areas.

Fill material shall be as specified on the drawings or per *Section 2 – Trench Excavation and Backfill* and shall be free of roots, trash and any other deleterious material.

Topsoil shall be stripped from all areas prior to grading and shall be stored for use during restoration. Topsoil shall consist of a natural material that occurs in surface deposits of limited depth and shall be free of stones larger than two inches (2") in diameter, roots, excessive vegetation, rubbish or other deleterious matter. Topsoil shall be approved by the Engineer before use.

Section 3.0 – Fill Placement

Suitable material removed from excavation shall be used, where feasible, in the formation of embankments, fills, subgrades, shoulders, backfills, and site grading. Excess material from excavations, not suitable for such uses, shall be wasted on site or removed from the site as required. If a waste area is not designated, the material shall be hauled from the site and disposed of in a manner acceptable to the Engineer. Wetting, drying, hauling, scarifying, mixing, shaping, rolling, tamping, de-watering or other operation shall be performed by the Contractor as approved by the Engineer. Such operations shall be considered incidental to the site work and shall be performed at no additional expense to the Owner.

Embankments, fills and excavations shall be properly shaped and drained to prevent water from running into the excavations. Any water which accumulates in excavations shall be removed promptly and the saturated soil shall be removed and replaced with approved fill material.

Section 3.1 – Compaction

All backfill and embankments shall be constructed with approved fill material consisting of sand, clay, gravel, or a combination thereof. No organic or silty materials shall be utilized. Approved material shall be placed in horizontal layers of loose material not to exceed eight inches (8") in depth. Each layer shall then be compacted utilizing sheepsfoot, vibrator, or mechanical rollers. Compaction shall be made to the percent of maximum dry density as shown in Table 1.

The Engineer, at his discretion, may order tests and inspections to be performed during the progress of the work, or at the completion of any individual unit of work, or at the time of final inspection of the entire project. Maximum dry density shall be as determined by ASTM D698, *Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort*, or AASHTO T-99 Method, *Standard*

Method of Test for Moisture–Density Relations of Soils, Standard Proctor, for the material being utilized.

Table 1 - Compaction Requirements

Location	Percent Compaction Required
Structure footings and foundations, Road Subgrade (top 8”), Utility trench in roadway (top 8”)	100%
Road Subgrade (below 8”) Roadway Shoulders Utility trench in roadway (below 8”) Utility trench outside roadway	95%

Density of embankment, fill, backfill or subgrade shall be measured utilizing the sand-cone method or nuclear moisture/density gauge. These tests will be performed by an independent soil testing laboratory holding AASHTO certification. The costs of these tests shall be borne by the Contractor. All fills not meeting the compaction requirements shall be removed and re-compacted until the desired compaction is achieved.

Section 3.2 – Finish Grading

Except as otherwise specified herein, all disturbed areas on the site shall be finished off to a uniformly smooth surface, free from abrupt, irregular surface changes. The finished surface shall be not more than one tenth of a foot above or below (±0.1’) the established grade. There shall be no roots, waste building materials, trash or other unsightly matter projecting through or visible at the surface.

After all embankments and fills have been completed to grade, and after all structures and pipe lines requiring the use of heavy equipment have been completed, excavation necessary for the construction of walkways and steps may be performed. Excavation shall be accurately cut to line and grade; sufficient width for the accurate placement and adequate support of the forms shall be allowed. After the forms are removed, the backfill shall be replaced and re-compacted around the walks and steps. Care shall be taken to avoid damage to the walks and steps.

Topsoil shall be evenly spread over the entire area to receive vegetation cover. The compacted subgrade shall be scarified to a depth of two inches (2”) for the bonding of topsoil with the subsoil. Topsoil shall then be evenly spread, compacted and graded to a uniform thickness of not less than three inches (3”), and the surface shall conform to the requirements of site grading, ditches, embankments, or other features, as applicable.

Ditches shall be cut accurately to line, grade, and cross-section. Any excessive ditch excavation shall be backfilled to grade with material approved by the Engineer. The degree of smoothness shall be that usually obtainable with string line or hand raking methods; the finished surface of ditch slopes shall not be more than one tenth of a foot

above or below (±0.1’ the appropriate elevations. Random spot checks of elevations and slopes shall be conducted by ordinary differential level and profile methods.

Section 3.3 – Rock

Rock will not be classified as such for additional payment. The contractor shall make appropriate site investigations to satisfy himself as to rock and other materials which may be encountered on the project.

Chapter 4 – Erosion and Sedimentation Control

Section 4.0 – Standards

No development shall be undertaken that directly or indirectly increases the erosion of land or its potential for erosion. All land disturbing activities shall be in accordance with the *South Carolina Stormwater Management and Sediment Reduction* regulations.

Siltation and soil erosion shall be controlled by the Contractor using the appropriate erosion control devices contained in the Best Management Practices (BMP's) section of the City of North Augusta Sediment and Erosion Control Manual. Erosion control structures shall be maintained until permanent grassing has been established and shall be removed when directed by the Engineer.

4.00 To help retain sediment generated by land-disturbing development activities within the boundaries of the development tract, the developer shall plant or otherwise provide a permanent ground cover sufficient to restrain erosion within fourteen (14) calendar days of completion of final grading.

4.01 No land disturbing activity shall be permitted in proximity to a water body unless a vegetated strip is provided along the margin of the watercourse of sufficient width to prevent sediment from leaving the site and entering the watercourse.

Section 4.1 – Permits

No land disturbing activity shall be performed by the contractor until a grading permit has been obtained from the City of North Augusta. Additionally, prior to land disturbing activity, a Stormwater Management Plan and/or Sediment Reduction Plan shall be submitted to the City of North Augusta Stormwater Management Department. Land disturbing activity cannot begin until those plans are reviewed and approved by the Stormwater Department.