

DESCRIPTION - This work shall consist of the remediation of disturbed soil (including soil that has been compacted or otherwise degraded) primarily in areas of construction access where grade change is minimal. Remediation may include removing and/or loosening existing compacted soil and mixing it with new top soil or soil amendments in conformance with the lines, grade and thickness shown in the contract documents. The purpose is to provide appropriate soil conditions to support optimal plant growth.

MATERIALS

Topsoil: Topsoil shall be as specified under Section 713, Landscape Development Materials except that organic matter content shall be not less than 5% nor greater than 10%.

Organic Material: Shall be Source-Separated Compost per subsection 713-15, Organic Material.

CONSTRUCTION DETAILS

Area of Work: Areas of known or anticipated compaction are designated on the plans. Further areas may be designated as areas to be tested for compaction, either on the plans or as directed by the Engineer-in-Charge (EIC) in consultation with the Regional Landscape Architect (RLA). Where tests reveal bulk density (oven dried mass divided by the field volume, see "Testing" below) greater than 1.75 g/cm³ in sandy soils (soils with sand content greater than 50%) or 1.55 g/cm³ for clay soils (soils with clay content greater than 55%, USDA classifications), or 1.65 g/cm³ for soils with intermediate proportions of sand and clay, compacted soil shall be remediated as described below. Where bulk densities are less than the values indicated, a 150mm depth of topsoil shall be placed as described in section 613 of the NYSDOT Standard Specifications unless otherwise specified in the Contract Documents.

Compaction Testing: Compaction testing, where called for on the plans or directed by the EIC in consultation with the RLA, shall be done using the Core Method for Determining Bulk Density 30-2, Method of Soil Analysis, Physical and Mineralogical Properties, Including Statistics of Measurement and Sampling, Agronomy No. 9, Part 1, American Society of Agronomy. With this method a cylindrical metal sampler is pressed or driven into the soil to the desired depth and carefully removed to preserve a known volume of sample as it existed *in situ*. The sample is directed at 105 degrees Centigrade and weighed. Bulk density is the oven-dried mass divided by the field volume of the sample. Calculation of bulk density is on a whole soil basis. Samples shall be taken from undisturbed soil at a depth of 150 mm after removal of any turf, thatch, roots, stones, or other non soil or unacceptable material, from the surface. Samples shall not be taken if soil is in a saturated condition.

Soil texture in areas found to have bulk densities greater than 1.55 g/cm³ shall be determined using sieve analysis to determine proportion of sand and clay.

Pattern of testing and number of tests is shown on the plan or as directed by the EIC in consultation with the RLA.

The work described below shall take place only when soil moisture is drier than field capacity, as approved by the Engineer.

Areas Within Dripline of Existing Trees: Within the area defined by the dripline of existing trees, the Contractor may be required to perform compaction testing if shown in the contract documents or directed by the EIC, but shall not excavate or break up existing soil. Remediation, if required in these areas will typically be by vertical mulching or as otherwise specified or directed by the EIC in consultation with the RLA.

Test pits: In areas of known compaction shown on plans or demonstrated by testing to be compacted, the Contractor shall dig sufficient test pits to a diameter and depth of approximately 300mm unless otherwise specified, to determine if layers of unacceptable material and/or topsoil are present.

Removal of unacceptable material: If the test pits reveal the presence of a layer of unacceptable material, such material shall be removed and disposed of prior to any further remediation. "Unacceptable" is defined here as material which will not support the optimum growth of desired vegetation, typically non-soil material such as asphalt millings, remnants of concrete pavement or cement washout, or other construction debris. Such removal and disposal will be "unclassified excavation" as described in Section 203 of the NYSDOT Standard Specifications.

Breaking up of Existing Soil: The Contractor shall, after any removal as above, break up existing compacted soil by ripping, tiling or plowing to a depth of 600mm or as specified in the contract documents. Contractor shall remove any large stones or additional unacceptable material (as above) encountered and roughly grade the surface.

If the test pits reveal the presence of a distinct layer of topsoil meeting the quantity and quality requirements for specified planting in the area, the Contractor may be directed to reduce the till depth to loosen only this layer, to a minimum of 150mm.

Mixing of Existing Soil with New Topsoil or other amendments: Contractor shall place and incorporate topsoil, compost or other soil amendments by one of the following methods unless otherwise specified in the contract documents. If no method is specified, use Method 1:

Method 1: After rough grading, a total depth of 150mm of topsoil, unless otherwise specified, shall be placed and incorporated as follows: Half the specified depth shall be placed and tilled to a total depth of 150mm or as specified, to thoroughly mix with top layer of existing soil. The remaining depth of topsoil shall then be placed and spread. Unless otherwise specified, turf shall then be established.

Method 2: After rough grading, a total depth of 50mm of compost, unless otherwise specified, shall be placed and tilled to a total depth of 150mm or as specified, to thoroughly mix with the top layer of existing soil. Unless otherwise specified, turf shall then be established.

ITEM 615.02 11 - REMEDIATION OF DISTURBED SOIL

Placing and Spreading of Topsoil: See subsection 613-3.02 of the NYSDOT Standard Specifications for Placing and Spreading of Topsoil.

Establishment of Turf: See Section 610 of the NYSDOT Standard Specifications for Turf Establishment.

METHOD OF MEASUREMENT

The work will be measured for payment as the number of square meters (computed from payment lines shown on the plans except where revised payment lines are established by the Engineer prior to performing the work) of Disturbed Soil satisfactorily Remediated. Work performed beyond any designated payment line shall not be included in the computation of quantities for the item involved.

BASIS OF PAYMENT

The unit price bid for "REMEDICATION OF DISTURBED SOIL" shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily perform the work. Payment for topsoil will be made under item 613.0101, Topsoil. Payment for Establishing Turf will be made under item 610.0203, Establishing Turf. Payment for Unclassified Excavation shall be made under 203.02M, Unclassified Excavation and Disposal. Payment for vertical mulching, compost and any other soil amendments shall also be made separately.

DISAPPROVED BY E112907