

ITEM 160

TOPSOIL

160.1 Description. This item shall govern for furnishing and placing topsoil to the lines, grades and depth shown on the drawings or as directed by the Engineer.

160.2 References.

- ASTM D422, “Standard Test Method for Particle-Size Analysis of Soils”
- ASTM-D 1140, “Test Methods for Amount of Material in Soils Finer Than the No. 200 (75- μ m) Sieve”
- ASTM D2974, “Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils”
- ASTM D4972, “Standard Test Method for pH of Soils”
- AASHTO T194, “Standard Method of Test for Determination of Organic Matter in soils by Wet Combustion”

160.3 Materials.

- A. Topsoil shall be capable of sustaining native plant growth, and it shall be easily cultivated, has high resistance to erosion, free from objectionable material including gravel, large roots, stumps, wood, brush, debris, hard clods, clay balls, hardpan, refuse or other deleterious materials and be of reasonably uniform quality.
- B. Import topsoil or provide from on-site source. If topsoil is from on-site source, topsoil is the surface layer of material containing decaying vegetable matter and roots. It is not necessary to strip all soil containing fine, hairline roots, only soil containing moderate to severe root mat.
- C. Imported Topsoil shall conform to the following requirements:

TABLE NO. 1

<u>Specification</u>	<u>UNIT</u>	<u>VALUE</u>	<u>APPLICABLE STANDARD</u>
Soil Reaction	pH	5.5-8 ^(a)	ASTM D4972
Passing No. 4 Sieve	%	95-100	ASTM D422
Sand Size, 2.0-0.05 mm	%	10-70	ASTM D422
Silt Size, 0.05-0.005 mm	%	0-40	ASTM D1140
Clay Size, <0.005 mm	%	20-50	ASTM D1140

Easily Oxidizable Organic Matter	%	2.5-10 ^(b)	ASTM D2974 AASHTO T194
----------------------------------	---	-----------------------	------------------------------

NOTE:

- (a) Determine pH by Method A for on-site source and Methods A and B for import topsoil. If on-site source topsoil does not satisfy the specified pH range, achieve the desired pH by amending the soil as recommended by the certified agronomist's report of soil sample analysis.
- (b) Soil testing company shall identify test method used if different from the specified. The Engineer must approve alternate test methods.

D. Topsoil shall have Liquid Limit <50 and Plasticity Index <20

160.4 Topsoil Delivery, Storage and Handling.

Deliver, stockpile and handle topsoil in such a way as to not contaminate the material with other soils or objectionable materials.

The stockpile or disposal site shall not be an environmentally sensitive area, in a floodway, wetlands, or in "Waters of the United States". If the stockpile or disposal site is in wetlands as defined in the plans, then the County shall be responsible for ensuring that the appropriate Department of the Army permit has been obtained for the activity.

160.5 Construction Methods.

- A. Strip topsoil as specified on the plans or as directed by the Engineer from area to be excavated or filled and stockpiled for use on the final grades and ditch slopes. Install and maintain proper Storm Water Pollution Prevention Best Management Practices (SWPPP BMP) to stockpiled stripings at no additional cost to Harris County.
- B. Prior to placing topsoil, scarify or plow the subgrade to a minimum depth of 4 inches until it is loose and uncompacted to provide bonding of topsoil layer to subgrade. Remove vegetation and foreign inorganic

material. Place topsoil on loosened material and roll lightly with appropriate lawn roller to consolidate topsoil.

- C. The Contractor shall place the topsoil to the lines and grades and to the depths shown on the drawings.
- D. Remove spilled topsoil from curbs, gutters, and paved areas and dispose of excess topsoil off site.
- E. Place topsoil to promote drainage and compact with light roller. Water topsoil after placement until saturated for minimum specified depth, fill in and recompact areas of settlement.
- F. Do not place topsoil when it is excessively wet or dry.
- G. If the topsoil excavated from the site will be utilized for the construction of wetlands, then the Contractor shall store the material in piles less than 5 feet in height to ensure the survivability of the existing seed bank.

160.6 Material Testing.

- A. Contractor shall perform testing of on-site topsoil material or shall obtain tests by suppliers for selection of material sources and stockpiles. Use tests to verify that materials meet specification requirements. Repeat qualification test procedures each time source characteristics change or there is planned change in source location or supplier.
- B. The County does not represent or guarantee that any soil found in excavation work will be suitable and acceptable as topsoil material.
- C. Contractor shall identify off-site sources for topsoil materials at least 14 days ahead of intended use so that the Engineer may obtain samples for verification testing.
- D. Contractor shall provide reports to Engineer from an independent testing laboratory that topsoil materials from production plants meet applicable specification requirements. Do not use materials which after approval, has become unsuitable for use due to segregation, mixing with other materials, or by contamination. Once material is approved by the Engineer expense for sampling and testing required to change to different material will be credit to the County through change order.

- E. Contractor shall assist Engineer in obtaining material samples for verification testing at source or at production plant.

160.7 Quality Control.

- A. The Contractor is required to submit the location of the pit(s) and a sample from which the material is to be taken, for Engineer's approval. The Contractor shall submit the vendor's technical description of the topsoil. Harris County shall have the right to have an independent testing laboratory test the material to determine if it meets these specifications.
- B. The Engineer may re-sample material at any stage of work or location if changes in characteristics are apparent.

160.8 Measurement.

When topsoil has to be imported from sources other than the job site, topsoil shall be measured by the cubic yard of in place or per square yard of specified depth of furnished, delivered and placed, in accordance with these specifications.

160.9 Payment. Payment for this item and SWPPP BMP's when shown in the plans shall be made at the contract unit price per cubic yard of in place or per square yard of specified depth of topsoil, which price shall be full compensation for all labor, materials, equipment and incidentals necessary to furnish, haul and place the topsoil.

Note: This specification does not require a drawing.

Note: This specification does not require a standard specification.

There are line code(s), description(s), and unit(s) for this item.

END OF ITEM 160

SUMMARY SHEET

ITEM 160 - TOPSOIL

Other Specifications Required

None

Reference Standards

- ASTM D422, "Standard Test Method for Particle-Size Analysis of Soils"
- ASTM-D 1140, "Test Methods for Amount of Material in Soils Finer Than the No. 200 (75- μ m) Sieve"
- ASTM-D 2974, "Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils"
- ASTM-D 4972, "Test Method for pH of Soils"
- AASHTO-T 194, "Determination of Organic Matter in soils by Wet Combustion"

Description:

Describes the requirements for and the method of placing topsoil

Payment

By the contract unit price, per cubic yard, based on in-place measure or by the contract unit price, per square yard for a 3" or 4" depth.

DO NOT INCLUDE THIS SHEET IN THE CONTRACT SPECIFICATION