

PART 1 GENERAL

1.1 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .1 The Canadian System of Soil Classification, Third Edition, 1998.
- .2 Canadian Council of Ministers of the Environment
 - .1 PN1340-[2005], Guidelines for Compost Quality.
- .3 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 DEFINITIONS

- .1 Compost:
 - .1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.
 - .2 Compost is processed organic matter containing 40% or more organic matter as determined by Walkley-Black or Loss On Ignition (LOI) test.
 - .3 Product must be sufficiently decomposed (i.e. stable) so that any further decomposition does not adversely affect plant growth (C:N ratio below (25) (50)), and contain no toxic or growth inhibiting contaminants.
 - .4 Composed bio-solids to: CCME Guidelines for Compost Quality, Category (A) (B).

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Quality control submittals :
 - .1 Soil testing: submit certified test reports showing compliance with specified performance characteristics and physical properties as described in PART 2 - SOURCE QUALITY CONTROL.
 - .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 Construction/Demolition Waste Management and Disposal.
- .2 Divert unused soil amendments from landfill to official hazardous material collections site approved by Departmental Representative.

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- .3 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

PART 2 PRODUCTS

2.1 TOPSOIL

- .1 Topsoil for seeded areas and planting beds : mixture of particulates, micro-organisms and organic matter which provides suitable medium for supporting intended plant growth.
 - .1 Soil texture based on The Canadian System of Soil Classification, to consist of 20 to consist of a fertile, friable, natural loam, containing not less than 4% organic matter for clay loams and not less than 2% organic matter for sandy loam to a maximum of 15%, and capable of sustaining vigorous plant growth, free of rocks of 50mm in diameter and over, subsoil contamination, roots and weeds (as determined by the Departmental Representative) and having a pH ranging from 7.0 to 8.5.
 - .2 Contain no toxic elements or growth inhibiting materials.
 - .3 Finished surface free from:
 - .1 Debris and stones over 50 mm diameter.
 - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.
 - .4 Consistence: friable when moist.

2.2 TOP SOIL TESTING AND AMENDMENTS

- .1 Contractor will arrange and pay for services of accredited testing laboratory, approved by the Departmental Representative, to perform complete soil quality analysis on imported topsoil(s). Provide adequate tests from all sources of topsoil and submit copy of analysis to Departmental Representative.
- .2 Where stockpiled topsoil exists on site, Departmental Representative will perform soil tests.
- .3 Conduct soils test on three separate soil samples, taken as directed by Departmental Representative. Samples shall be taken from a minimum of three random locations and mixed to create a single uniform sample for testing.
- .4 Testing of soil shall be done within three weeks prior to soil placement.
- .5 Testing laboratory shall be approved by Departmental Representative prior to submitting samples.
- .6 Inform approved testing laboratory that soil tests are for growing native grasses and shrubs. Analysis and recommendations from laboratory should be specific for growing native grasses and shrubs.
- .7 Test specifically for the following: Nitrogen, Phosphorous, and Potassium. The analysis should also include measurement of percent sand, fines, (silt and clay), and organic matter to total 100%; soil pH; recommendation on quantity of lime required to achieve

pH 6.5; water soluble salts; total carbon to total nitrogen ratio; total nitrogen and available levels of calcium and magnesium; and herbicide content.

- .8 Submit to the Departmental Representative 1 copy of the soils test analysis report from the testing laboratory. Cost of initial analysis and subsequent tests to ensure compliance with specification shall be borne by the Contractor.
- .9 The analysis report shall include laboratory's recommendations for amendments, fertilizer and other required modifications to make the proposed growing medium meet the requirements of this specification and should clearly state the type, quantity and application procedure that is to be used.
- .10 At the discretion of the Departmental Representative, submit up to two additional soil samples for testing at intervals outlined by the Departmental Representative. Samples shall be taken from a minimum of three random locations and mixed to create a single uniform sample for testing. Results of these tests shall be presented to the Departmental Representative for review.
- .11 Failure to satisfy these contractual requirements could result in the Contractor being required to remove unacceptable growing medium at their expense.

2.3 SOURCE QUALITY CONTROL

- .1 Advise Departmental Representative of sources of topsoil to be utilized with sufficient lead time for testing.
- .2 Contractor is responsible for amendments to supply topsoil as specified.
- .3 Soil testing by recognized testing facility for PH, P and K, and organic matter.
- .4 Testing of topsoil will be carried out by testing laboratory designated by Departmental Representative.
 - .1 Soil sampling, testing and analysis to be in accordance with Provincial standards.

PART 3 EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 STRIPPING OF TOPSOIL

- .1 Begin topsoil stripping of areas as indicated as directed by Departmental Representative after area has been cleared of brush, weeds and grasses and removed from site.
- .2 Strip topsoil to depths as indicated.
 - .1 Avoid mixing topsoil with subsoil where textural quality will be moved outside acceptable range of intended application.
- .3 Stockpile in locations as directed by Departmental Representative.
 - .1 Stockpile height not to exceed 3m.
- .4 Disposal of unused topsoil is to be in an environmentally responsible manner but not used as landfill as directed by Departmental Representative.
- .5 Protect stockpiles from contamination and compaction.

3.3 PREPARATION OF EXISTING GRADE

- .1 Verify that grades are correct.
 - .1 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.
 - .1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
 - .2 Remove debris which protrudes more than 75 mm above surface.
 - .3 Dispose of removed material off site.
- .4 Cultivate entire area which is to receive topsoil to minimum depth of 100 mm.
 - .1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.4 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

- .1 Place topsoil after Departmental Representative has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 150 mm.
- .3 For sodded areas keep topsoil 15 mm below finished grade.
- .4 Spread topsoil as indicated to following minimum depths after settlement.
 - .1 100 mm for seeded areas.
 - .2 100 mm for sodded areas.

- .5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.5 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage.
 - .1 Prepare loose friable bed by means of cultivation and subsequent raking.
- .2 Consolidate topsoil to required bulk density using equipment approved by Departmental Representative.
 - .1 Leave surfaces smooth, uniform and firm against deep footprinting.

3.6 ACCEPTANCE

- .1 Departmental Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.7 SURPLUS MATERIAL

- .1 Dispose of material except topsoil not required where Departmental Representative off site.

3.8 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION