

## S-34 TOPSOIL

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#### 34.01. SCOPE OF WORK

This specification covers the requirements for the stockpiling, supplying, and placing of topsoil. Use of this specification or any other specification shall be according to the Contract Documents.

The work shall include:

- Topsoil testing analysis and necessary amendments to the topsoil;
- Supply of topsoil;
- Preparation of the site;
- Placement of the topsoil.

#### 34.02. REFERENCES

This specification refers to the following standards, specifications, or publications:

- OPSS 802 Construction Specification for Topsoil
- OPSS.MUNI 206 Grading

#### 34.03. MATERIALS

Topsoil shall be a fertile loam screened and free from:

1. Debris and stones over 25mm in size;

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2. Roots, coarse vegetative material occupying more than 2% of soil volume, in size that cannot be covered by the depth of topsoil specified in the Contract Documents.

Imported topsoil shall not have contaminants that adversely affect plant growth.

### 34.04. QUALITY CONTROL

The Contractor is responsible for topsoil testing analysis and to identify requirements for amendments to topsoil as specified for sod/seed areas and planting areas within the contract documents. The Engineer shall review and approve the topsoil source and the soil test report from a qualified testing lab with recommendations for use on lawns or trees and shrubs prior to topsoil deliveries. This testing shall be the responsibility of the Contractor.

Topsoil shall be tested as per the requirements listed in Table 1 and Table 2. Soil contaminated with calcium chloride, heavy metal contaminants, petroleum products and other toxic materials shall not be accepted as top soil and shall not be allowed to be transported on site.

<b>Table 1: Topsoil Chemical Test Requirements</b>	
<b>Criteria</b>	<b>City of Windsor Requirement</b>
pH Level	<b>5.5 to 7.5</b>
Organic matter, % *	<b>4 to 15%</b>
Phosphorus (Olsen P), ppm	<b>10 to 60</b>
Salts, (mmhos/cm)	<b>&lt;1.5</b>

***\*Note: To reach required percentage, organic amendment may be required. The Contractor shall be responsible for selecting industry acceptable organic matter sources which shall be free from any pathogen that have potential concerns to the public health & safety.***

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<b>Table 2: Topsoil Heavy Metals Test Requirements</b>		
<b>Criteria</b>	<b>Mean Metal Content in Uncontaminated Soil (ppm)</b>	<b>City of Windsor Requirement – MOE Maximum Permissible Metal Content (ppm)</b>
Arsenic (ppm)	7	14
Cadmium (ppm)	0.8	1.6
Chromium (ppm)	15	120
Cobalt (ppm)	5	20
Copper (ppm)	25	100
Lead (ppm)	15	60
Mercury (ppm)	0.1	0.5
Molybdenum (ppm)	2	4
Nickel (ppm)	16	32
Selenium (ppm)	0.4	1.6
Zinc (ppm)	55	220

The results of the testing shall be presented in writing by the testing laboratory, clearly depicting the results of each defined tested category, along with a statement verifying its suitability for use or the remedial action required.

The City reserves the right to test the material after delivery. If the material is determined to be out of specification as a result of this testing, the material shall be corrected or removed from the site at the Contractor's cost.

## **34.05. CONSTRUCTION**

### **34.05.01 Stockpiling Topsoil**

Topsoil shall be removed, stockpiled, and managed according to the Contract Documents. If allowed to be piled on site, stockpiles shall be constructed neatly with uniform surfaces. When required, the top surface shall be dished.

### **34.05.02 Preparation for Topsoil**

Areas where topsoil is to be placed shall be fine graded to a uniform surface according to OPSS 206 and Contract Documents. The graded surface shall be free of all debris, roots, branches, and stones in excess of 25mm diameter and other deleterious materials. Any soil contaminated with calcium chloride, toxic materials, petroleum products and other toxic materials shall be removed and disposed of legally off-site at sole costs of the Contractor.

The surface shall be loosened to a depth of at least 50mm prior to placing the topsoil.

If it is determined that the tilling of existing on-site material resulted in deleterious materials, a price for this removal shall be negotiated with the City. All other deleterious material shall be removed at the Contractor's cost.

In case of a dispute, the City reserves the right to seek an opinion from a third party.

These areas shall be maintained in the condition described above until the topsoil is placed.

### **34.05.03 Inspection**

Prior to placing the topsoil, the site shall be reviewed by the Engineer, the General Contractor, and Landscaping Sub-contractor. The consequence of omitting the review step shall be fully borne by the Contractor.

### **34.05.04 Placement of Topsoil**

The topsoil shall be spread on unfrozen sub-grade, free of standing water, uniformly to a depth of 100mm or as per Contract Documents in the case of sodding or seeding. The imported topsoil may be feathered to meet existing grade. If the area of imported soil is used as beds for shrubs or perennial plants, the depth of placement shall be 500mm.

Topsoil shall be rolled with a mechanical roller of a minimum weight of 220kg, minimum width of 760mm roller, to consolidate it in areas to be seeded or sodded, leaving the surface smooth, uniform, firm against deep foot printing, and to the satisfaction of the Engineer.

### **34.06 MEASUREMENT FOR PAYMENT**

All topsoil will be measured and paid as imported topsoil. Measurement shall be by volume in cubic metres of topsoil imported and placed. The cost for stockpiling on site for the temporary storage purpose shall be included in the placing price because no extra cost will be paid for this work.

### **34.07 BASIS OF PAYMENT**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment, and materials to do the work.