



CONSTRUCTION SPECIFICATION FOR TOPSOIL

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802.01 SCOPE

This specification covers the requirements for stockpiling, supplying, and placing topsoil.

802.01.01 Specification Significance and Use

This specification has been developed for use in municipal-oriented Contracts. The administration, testing, and payment policies, procedures, and practices reflected in this specification correspond to those used by many municipalities in Ontario.

Use of this specification or any other specification shall be according to the Contract Documents.

802.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

802.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

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

Ontario Provincial Standard Specifications, Construction

OPSS 206	Grading
OPSS 501	Compaction
OPSS 804	Seed and Cover
OPSS 805	Temporary Erosion and Sediment Control Measures

Ontario Provincial Standard Specifications, Materials

OPSS 1860	Geotextiles
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Ontario Ministry of Transportation Publications

Laboratory Testing Manual:	
LS-706	Moisture - Density Relationship of Soils Using 2.5 kg Rammer and 305 mm Drop

ASTM International

D2974-14	Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
D4972-13	pH of Soils

802.05 MATERIALS

802.05.01 Topsoil

Topsoil shall be a fertile loam material that is free of roots, vegetation, or other debris of a size and quantity that prevents proper placement of the topsoil. The topsoil shall not contain material greater than 25 mm in size, such as stones and clods.

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

Topsoil shall not be from swamps or muskeg areas, unless specified in the Contract Documents.

Topsoil shall meet the following physical property requirements or as specified the Contract Documents:

- a) Have an organic content between 7 and 11% by weight, according to ASTM D2974; and
- b) Have a pH from 6.0 to 8.0 according to ASTM D4972.

802.07 CONSTRUCTION

802.07.01 Stockpiling Topsoil

Topsoil shall be removed, stockpiled, and managed as specified in the Contract Documents.

Stockpiles shall not exceed 3 m in height.

Stockpiles shall be constructed neatly with uniform surfaces. When required, the top surface shall be dished.

Stockpiles shall be protected from erosion by covering with tarps or geotextile according to OPSS 1860 to prevent soil erosion and contamination by weeds during storage. Alternatively, topsoil stockpiles can be stabilized by temporarily establishing groundcover vegetation composed of non-invasive species by application of seed according to OPSS 804. Mounds shall be completely surrounded by sediment barriers or compost filter socks according to OPSS 805.

802.07.02 Preparation for Topsoil

Areas where topsoil is to be placed shall be graded according to OPSS 206. The surface shall be scarified to a depth of 50 to 100 mm. It shall be free of all vegetation, debris, and stones which would not be covered by the depth of topsoil specified in the Placement of Topsoil subsection.

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

802.07.03 Placement of Topsoil

Topsoil shall be tested 15 Business Days before placement for the physical quality requirements listed in the Topsoil subsection.

Topsoil shall be placed to a uniform depth of 150 mm on areas specified in the Contract Documents and up to the subgrade elevation on the roadway front slope.

Soil from swamps or muskeg areas, when used in place of topsoil, shall be placed according to the Contract Documents to a uniform depth of 150 mm, with no woody material protruding more than 50 mm above the surface.

802.07.04 Compaction of Topsoil

Compaction of the topsoil, if required, shall not exceed 85% of its maximum dry density, according to LS-706.

802.07.05 Quality Control

802.07.05.01 Compaction Testing of Topsoil

Compaction testing shall be based on material placed and compacted in the work on a Lot-by-Lot basis according to Table 1.

Compaction acceptance shall be according to the Acceptance of Compaction subsection.

802.07.06 Management of Excess Material

Management of excess material shall be according to the Contract Documents.

802.08 QUALITY ASSURANCE

802.08.01 General

A laboratory designated by the Owner may carry out QA testing for purposes of ensuring that the topsoil used in the Work is according to the requirements of this specification. Test results shall be forwarded to the Contractor, as they become available.

The Owner shall be responsible for all costs associated with testing for QA purposes, unless otherwise specified in this specification.

802.08.02 Properties of Topsoil

A minimum of one random duplicate sample of surface soil shall be taken from each Lot, according to the Lot schedule shown in Table 1.

One portion of the duplicate sample representing each Lot shall be tested for the requirements listed in the Topsoil clause.

The Lot of topsoil shall be deemed to be acceptable if all of the test results for the sample representing that Lot meet all applicable requirements of this specification.

If QA test results do not meet all of the requirements of this specification, then the entire Lot shall be rejected and replaced; the Contractor may submit a proposal for remediation or for use of the topsoil, subject to the approval of the Owner.

802.08.03 Acceptance of Compaction

Acceptance testing for compaction of topsoil shall be conducted in Lots according to Table 1, according to OPSS 501, for earth, with the exception of the following:

- a) Control strips shall not be used to establish target densities; and
- b) A Lot shall be considered acceptable for compaction, if:
 - i. The mean percent compaction of the individual test results for the 4 sublots is between 80 and 85%; and
 - ii. No more than two individual test results are less than 78% or greater than 87%; of the soil's maximum dry density, according to LS-706, and tested according to OPSS 501.

802.08.04 Referee Testing

Referee testing may be invoked for one or more physical property attributes by submitting a written request to the Contract Administrator, within 5 Business Days following notification that a sample representing a Lot of topsoil does not meet the requirements of this specification.

Referee testing shall be carried out, as specified elsewhere in the Contract Documents. The retained duplicate QA samples shall be used for referee testing.

All referee test results for each Lot shall replace the respective QA test results for acceptance of the applicable Lot and those results shall be binding on both the Owner and the Contractor.

If a Lot is not accepted, based on the referee test results, then the Contractor shall be responsible for the cost of the referee testing of that Lot, at the rates specified in the Contract Documents.

In all other cases, the Owner shall bear the cost of the referee testing.

802.09 MEASUREMENT FOR PAYMENT

802.09.01 Actual Measurement

802.09.01.01 Topsoil from Stockpiles

Measurement shall be by volume in cubic metres of topsoil placed from a stockpile.

802.09.01.02 Topsoil, Imported

Measurement shall be by volume in cubic metres of topsoil imported and placed.

802.10 BASIS OF PAYMENT

802.10.01 Topsoil

Rejected material shall not be used and shall be removed and replaced, at no additional cost to the Owner.

802.10.02 Compaction

Any Lot that does not meet the requirements, shall be scarified and compacted to meet the requirements listed in Acceptance of Compaction subsection b), at no additional cost to the Owner.

802.10.03 Preparation for Topsoil - Item

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

Payment for this item shall be on surfaces graded under a previous Contract that require preparation for topsoil.

There is no payment for this item on surfaces constructed on this Contract.

802.10.04 Topsoil from Stockpiles - Item

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

802.10.05 Topsoil, Imported - Item

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

TABLE 1
Lot Schedule for Sampling and Testing of Topsoil

Quantity of Topsoil Used (m³)	Quantity of Topsoil Used (m²)	Minimum Lot Schedule
< 100	< 670	Sampling and Testing Shall be Carried out at the Discretion of the Contract Administrator
100 - 500	670 - 3,330	One Lot
> 501 - 1,000	> 3,331 - 6,670	Two Lots
> 1,001	> 6,671	One Lot per 1000 m ³

**Appendix 802-A, November 2019
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS**

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

The designer should specify the following in the Contract Documents:

- Topsoil from swamps or muskeg areas. (802.05.01)
- Topsoil requirements in natural areas where pH and/or organic content may fall outside required ranges. (802.05.01)
- Topsoil removal and stockpiling areas. (802.07.01)
- Topsoil placement areas. (802.07.03)
- Topsoil placement areas from swamps or muskeg areas. (802.07.03)
- Rates of the referee testing. (802.08.04)

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

No information provided here.