
PART 1 – GENERAL

1.01 DESCRIPTION

- .1 This Section is supplemental to OPSS 402 and shall supersede conflicting specifications within OPSS 402.

1.02 RELATED SPECIFICATION

- .1 Construction Specification Section 01330 - Submittal Procedures
- .2 Construction Specification Section 01450 - Quality Control
- .3 Construction Specification Section 02240 - Dewatering
- .4 Construction Specification Section 02315 – Trenching, Backfilling and Compacting for Structures
- .5 Construction Specification Section 02316 - Rock Excavation
- .6 Construction Specification Section 02631 - Maintenance Holes, Catch Basins, Ditch Inlets and Valve Chambers
- .7 OPSS 201 - Construction Specification for Clearing, Close Cut Clearing, Grubbing and Removal of Surface and Piles Boulders
- .8 OPSS 402 - Construction Specification for Excavating, Backfilling and Compacting for Maintenance Holes, Catch Basins, Ditch Inlets and Valve Chambers
- .9 OPSS 404 - Construction Specification for Support Systems

1.03 DEFINITIONS

- .1 Earth Excavation: All excavation other than Rock Excavation including removal of frozen earth and cemented till.
- .2 Additional Excavation: All excavation ordered in writing by Contract Administrator beyond that specified.
- .3 Excess Excavation: All excavation beyond that specified performed without written order of Contract Administrator.
- .4 Backfill: Fill material used below subgrade or finish grade.

- .5 Native Site Material: Any material obtained from excavating or grading under Contract.
- .6 Unshrinkable Backfill: A controlled density cement treated aggregate material.
- .7 Standard Proctor Maximum Dry Density: As defined in ASTM D698.
- .8 Rock Excavation: Reference Section 02316.

1.04 SUBMITTALS

- .1 Submit to Contract Administrator a copy of agreement for disposal site required in Sub-Paragraph 1.06.3.

1.05 COLD WEATHER WORK

- .1 Obtain written permission from Contract Administrator before starting excavation in frozen ground.

1.06 DISPOSAL SITES

- .1 Arrange with Local Municipalities for disposal of surplus excavated materials.
- .2 Make arrangements for other disposal site if Local Municipalities cannot make use of surplus excavated materials.
- .3 Obtain from property owner a written agreement setting out terms, conditions and ultimate responsibility for materials as placed.
- .4 Arrange with Contract Administrator to have the Regional Environmental Officer from MOE do an inspection of disposal site prior to and after dumping operations are completed.
- .5 Keep disposal site stable and dump materials in a manner not to cause nuisance, injury, or inconvenience until property owner assumes responsibility under terms of agreement.

1.07 STABILITY OF EXCAVATION

- .1 Employ such construction methods, plant, procedures and precautions as shall ensure that excavations are stable, free from disturbance and, unless designated as sub-aqueous work, dry.

- .2 Construction methods may include, but are not limited to:
 - a) Interlocking timber or steel sheeting and shoring.
 - b) Ground water control systems employing well points, deep wells or eductors.
 - c) Surface water or free water control systems employing ditches, stone drains, pipes and/or pumps.
 - d) Soil stabilization methods employing cement grouting, chemical grouting or chemical freezing.
- .3 Follow procedures for extracting sheeting, placing backfill and discontinuing ground water control as shall ensure that backfill load is applied gradually and disturbance of structure or its foundation is avoided.

1.08 MEASUREMENT FOR PAYMENT

- .1 Additional excavation to be measured in cubic metres.
- .2 Rock excavation: to Section 02316.
- .3 Additional excavation: Measurement to be made prior to installation of structure.
- .4 Imported backfill materials to be measured by volume or weight.

1.09 BASIS OF PAYMENT

- .1 Payment for earth excavation, backfilling and compaction to be included in the lump sum price bid in Form of Tender for construction of structure.
- .2 Payment for rock excavation: to Section 02316.
- .3 Payment for additional excavation and subsequent backfill to be at unit price in Contingencies - Section 01210 except as otherwise stated below.
- .4 Payment for importing only of backfill material, where ordered by the Contract Administrator, shall be at the appropriate unit price bid in Form of Tender. Where no such unit price exists, payment for importing backfill material shall be made at a negotiated, approved unit price.
- .5 No extra payment shall be made for extra excavation needed on account of soil heaving at bottom of excavation or collapse of excavation walls.

- .6 No extra payment shall be made for measures ordered by Contract Administrator to correct problems caused by Excess Excavation.
- .7 No extra payment shall be made for haul on any part of site or for haul required in disposing of excavated material.
- .8 No payment shall be made for hauling back to site excavated material suitable for backfill that has been removed from site.
- .9 No extra payment shall be made for stockpiling or double handling of excavated materials.
- .10 No extra payment shall be made for construction methods required to keep excavation stable, free from disturbance or dry.
- .11 No extra payment shall be made for crushed stone or other granular material used to facilitate drainage or dewatering during construction of structure or for excavation related thereto.
- .12 No extra payment shall be made for removal and replacement of asphalt, curbs, road base granulars or native soils when trench walls are weakened or disturbed by unsuitable construction methods or procedures or by action of workmen.

PART 2 – PRODUCTS

2.01 BACKFILL MATERIALS

- .1 Reference Section 02315.

PART 3 – EXECUTION

3.01 SHORING AND BRACING

- .1 Do shoring and bracing to OPSS 404.
- .2 Submit Shoring and Bracing drawings to Section 01330.

3.02 DEWATERING

- .1 Do dewatering to Section 02240.

3.03 PAVEMENT REMOVAL

- .1 Saw cut pavement neatly along limits of proposed excavation.
- .2 Do not use backhoe bucket or drop weight to break pavement.

3.04 REMOVAL OF FROZEN GROUND

- .1 Do not use backhoe bucket or drop weight to break frozen ground unless approved by the Region of Durham.
- .2 Adopt method of removal of frozen ground that shall not cause excessive noise, ground vibration, or damage to adjacent structures and utilities.

3.05 REMOVAL OF HAZARDOUS MATERIALS

- .1 Hazardous materials shall be removed from the site and handled in accordance with the MOE Regulations current at time of construction.

3.06 EXCAVATION

- .1 Excavate to lines, elevations and dimensions specified or as directed by Contract Administrator.
- .2 Excavate materials to dimensions that shall provide a minimum of 600 mm clearance along external surface of structure, plus an allowance for shoring and bracing where required.
- .3 For precast structures, excavate materials to a clear distance of 300 mm plus allowance for shoring and bracing where required.
- .4 Notify Inspector if bottom of excavation appears to be unsuitable for foundation. Excavate unsuitable material as directed or agreed to by Contract Administrator until satisfactory foundation is attained and backfill with approved granular material or concrete as directed.
- .5 Stockpile excavated materials suitable for backfill.
- .6 Separate materials that are unsuitable for backfill.
- .7 Excavate rock to Section 02316.

- .8 Perform corrective measures ordered by Contract Administrator to rectify deficiencies caused by Excess Excavation.
- .9 Remove and replace weakened or disturbed soil with 15 MPa concrete where excavated surface below or beside proposed structure is disturbed or weakened by unsuitable construction methods or procedures which may include inadequate control of ground water or free water or action of workmen.

3.07 WORKING MAT

- .1 Place a layer of granular material as a working mat layer immediately after excavation has been completed.
- .2 Provide a working mat of concrete as an alternative.

3.08 BACKFILLING

- .1 Place backfill material in uniform layers, wetted if required, in accordance with manufacturer's specification for equipment used.
- .2 Place backfill materials uniformly and simultaneously on sides of structures.
- .3 Compact each layer to 95% of maximum dry density in accordance with Standard Proctor Density.
- .4 Do not backfill cast-in-place concrete structure until approval has been obtained from Contract Administrator.

3.09 BACKFILLING SHORED EXCAVATIONS

- .1 Withdraw sheathing gradually as backfilling progresses.
- .2 Do not remove bracing until backfill reaches level of bracing.
- .3 Place and compact backfill in a manner to fill voids left by pulled sheathing.
- .4 Place and compact backfill around and over sheathing left in place.

3.10 COMPACTION

- .1 OPSS 402 is revised as follows:
 - a) Wherever granular material is specified to be used, such granular material shall be compacted to 100% maximum dry density.

3.11 DISPOSAL OF MATERIALS

- .1 Dispose of unsuitable and surplus excavated materials at approved disposal locations.
- .2 Transport materials in a manner that spillage is minimized.

3.12 SUPPORT AT STRUCTURES

- .1 Where a pipe is laid into a structure across an excavated area, provide a flexible pipe joint 300 mm to 450 mm from outside face of the structure for rigid pipes.

3.13 SUPPORT OF UTILITIES/SERVICES

- .1 Support watermains and sewers crossing trenches in accordance with Region of Durham Standard Drawings, where required.

3.14 TESTING

- .1 Do testing to Section 01450.

END OF SECTION