

**Part 1 - General**

**1.01 Description**

- .1 This Section is supplemental to OPSS.MUNI 401 and shall supersede conflicting specifications within OPSS.MUNI 401.

**1.02 Related Specification**

- .1 Construction Specification Section 01210 - Contingencies/Allowances
- .2 Construction Specification Section 01330 - Submittal Procedures
- .3 Construction Specification Section 01450 - Quality Control
- .4 Construction Specification Section 01570 - Environmental Protection
- .5 Construction Specification Section 01890 - Preservation, Protection and Reconstruction
- .6 Construction Specification Section 02240 - Dewatering
- .7 Construction Specification Section 02316 - Rock Excavation
- .8 Construction Specification Section 02318 - Excavating, Backfilling and Compacting for Structures
- .9 Construction Specification Section 02511 - Watermains
- .10 Construction Specification Section 02530 - Pipe Sewers
- .11 Construction Specification Section 02531 - Sewage Forcemains
- .12 OPSS.MUNI 180 – General Specification for the Management and Disposal of Excess Material
- .13 OPSS.MUNI 201 - Construction Specification for Clearing, Close Cut Clearing, Grubbing and Removal of Surface and Piles Boulders
- .14 OPSS.MUNI 401 - Construction Specification for Trenching, Backfilling and Compacting
- .15 OPSS.MUNI 404 - Construction Specification for Support Systems
- .16 OPSS.MUNI 501 – Construction Specifications for Compacting
- .17 OPSS.MUNI 1010 - Material Specification for Aggregates - Base, Subbase, Select Sub-grade, and Backfill Material

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.18 OPSS.MUNI 1359 - Material Specification for Unshrinkable Backfill

### **1.03 Definitions**

- .1 Earth Excavation: All excavation other than Rock Excavation including removal of frozen earth and cemented till.
- .2 Excess Excavation: All excavation beyond that specified performed without written order of Contract Administrator.
- .3 Standard Proctor Density: As defined in ASTM D698.
- .4 Rock Excavation: Reference Section 02316.

### **1.04 Stability of Trench**

- .1 Employ such construction methods, plant and materials as shall ensure that migration of fine soil material into pipe bedding or sub-bedding from adjacent ground shall not take place.

### **1.05 Basis of Payment**

- .1 Payment for additional excavation and subsequent backfill to be at unit price in Contingencies - Section 01210 except as otherwise stated below. Additional excavation and backfill must be approved by Contract Administrator in advance.
- .2 No extra payment shall be made for extra excavation needed on account of soil heaving at bottom of trench or collapse of trench walls.
- .3 No extra payment shall be made for haul to any part of the site or for haul off site required in disposing of excavated material.
- .4 No payment shall be made for hauling back to site excavated material suitable for backfill that had been previously removed from the site.
- .5 No extra payment shall be made for stockpiling or double handling of excavated materials.
- .6 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 as determined by the Contract Administrator.

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**Part 2 - Products**

**2.01 Backfill Materials**

- .1 Bedding and Cover Materials:
  - .1 Do not include materials greater than 19 mm in size.
  - .2 Sand Fill: material shall meet the following gradation requirements:

Sieve Size	% Passing
26.5 mm	100
4.75 mm	20 - 100
1.18 mm	10 - 100
300 µm	5 - 95
150 µm	2 - 40
75 µm	0 - 20
  - .3 19 mm Crusher Run Limestone shall conform to the requirements of Granular A as specified in OPSS 1010 except for the following:
    - .1 Table 1 - Physical Properties, Percent crushed shall be 100%.
    - .2 Table 2 – Gradation Requirements, Percent passing the
    - .3 75 µm sieve shall be 2 – 10%.
  - .4 19 mm Clear Stone Type I to OPSS 1004 with 100% crushed particles or 50-50 19mm Clear Stone and Crusher Run mix. (To be used only at tie-ins to existing mains or structures).
  - .5 Select Native Material (when specified).
  - .6 Concrete: to OPSS.MUNI 1350 (only acceptable when specified).
  - .7 Reference Region of Durham Standard Drawings
- .2 Select Native Material:
  - .1 Native material in accordance with Subsection 401.05.05.02 of OPSS.MUNI 401.
  - .2 Material at moisture content to enable optimum compaction.

- .3 Granular Materials:
  - .1 Granular A: to OPSS 1010
  - .2 Granular B: to OPSS 1010, Type I modified and Section 02749.
- .4 Unshrinkable Backfill:
  - .1 Unshrinkable Backfill: to OPSS.MUNI 1359
  - .2 Admixtures shall conform to OPSS.MUNI 1303 and the latest MTO designated sources list. Calcium chloride or pozzolanic mineral admixtures shall not be used. Air entraining admixtures may be added if desired by the Contractor.
- .5 Imported material:
  - .1 Material from source approved by Contract Administrator.
  - .2 Materials free from frozen lumps, cinders, ashes, refuse, vegetable or organic matter, rocks and boulders over 150 mm in any dimension, or other deleterious materials.
- .6 Do not use any material until approved by Contract Administrator.
- .7 Do not use shale or thinly bedded limestone, which may break up on exposure or freezing.
- .8 Recycled hot mix asphalt or excess bituminous pavement shall not be used as trench backfill or bedding.
- .9 Do not use frozen material for trench backfill or bedding.

### **Part 3 - Execution**

#### **3.01 Shoring and Bracing**

- .1 Do shoring and bracing to OPSS.MUNI 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 existing asphalt in neat, consistent, parallel lines in accordance with Region of Durham Standard Drawings. Ensure saw-cut edges are clean and vertical.
- .2 Do not use backhoe bucket or drop weight to break pavement.

### **3.04 Removal of Frozen Ground**

- .1 Remove frozen ground in accordance with OPSS 401. Method of removal of frozen ground shall not cause excessive noise or ground vibration.

### **3.05 Removal of Hazardous Materials**

- .1 Remove hazardous materials to Sections 01350 and 01570 and regulations.

### **3.06 Trenching**

- .1 Notify Contract Administrator if bottom of trench appears to be unsuitable for foundation. Excavate unsuitable material as directed by Contract Administrator until satisfactory foundation is attained and backfill with approved granular material.
- .2 Stockpile excavated material suitable for trench backfill.
- .3 Separate materials that are unsuitable for backfill.
- .4 Excavate rock to Section 02316.
- .5 Perform corrective measures ordered by Contract Administrator to rectify deficiencies caused by excess excavation.

### **3.07 Working Mat**

- .1 Place layer of granular material where necessary to protect trench bottom.
- .2 Place working mat layer immediately after excavation has been completed.
- .3 Do not encroach on bedding thickness under pipe.

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**3.08 Backfilling with Unshrinkable Backfill**

- .1 Excavations in the travelled portion of the roadway shall be covered for at least 24 hours with steel plate of sufficient strength to support traffic during this period.
- .2 Where road traffic is not to be accommodated, the backfilled excavation shall be covered with wooden planking or other protection approved by the Contract Administrator for 24 hours.

**3.09 Backfilling Shored Excavations**

- .1 Do not remove bracing until backfill reaches level of bracing.

**3.10 Compaction**

- .1 Perform compaction in accordance with OPSS.MUNI 501. Use Quality Control Method A in accordance with Subsection 501.07.04.02 of OPSS 501. Use Quality Assurance Method A in accordance with Subsection 501.08.02 of OPSS.MUNI 501.

**3.11 Removal of Excavated Materials**

- .1 Manage removal of unsuitable and surplus excavated materials to OPSS MUNI 180. Comply with O.Reg 406/19 – Onsite and Excess Soil Management.
- .2 Transport materials in a manner such that spillage is avoided.

**3.12 Corridor and Creek Crossings**

- .1 Excavate for crossings under highways, railways, pipelines, creeks and utilities in accordance with Contract Drawings and Special Provisions. Any alternative methods must be approved by the Owner or Authority responsible for such highway, railway, pipeline, creek or utility.
- .2 Do not pile excavated materials on or near railway right-of-way.
- .3 Strictly adhere to Local Conservation Authority Permit for storage of materials. Do not store excavated material within regulation limits.

**3.13 Testing**

- .1 Do testing to Section 01450.

END OF SECTION