
PART 1 - GENERAL

- 1.1 RELATED SECTIONS .1 Section 01 35 43 - Environmental Procedures.
- 1.2 REFERENCES .1 American Society for Testing and Materials (ASTM)
- .1 ASTM C117 latest edition, Standard Test Method for Material Finer Than 0.075mm (No.200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136 latest edition, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D422 latest edition, Standard Test Method for Particle-Size Analysis of Soils.
 - .4 ASTM D698 latest edition, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/ft³)(600kN-m/m³).
 - .5 ASTM D4318 latest edition, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-8.1 latest edition, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2 latest edition, Sieves, Testing, Woven Wire, Metric.
- .3 Canadian Standards Association (CSA)
- .1 CAN/CSA-A23.1-14, Concrete Materials and Methods of Concrete Construction.

1.3 DEFINITIONS

- .1 Excavation classes: two classes of excavation will be recognized; common excavation and rock excavation.
- .1 Rock : any solid material in excess of 0.25m³ and which cannot be removed by means of heavy duty mechanical excavating equipment with 0.95 to 1.15m³ bucket. Frozen material not classified as rock.
- .2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.
- .2 Waste material: excavated material unsuitable for use in Work or surplus to requirements.
- .3 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.
- .4 Unsuitable materials:
- .1 Weak and compressible materials under excavated areas.
- .2 Frost susceptible materials under excavated areas.
- .3 Frost susceptible materials:
- .1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D422 and ASTM C136: Sieve sizes to CAN/CGSB-8.1.
- .2 Table
- | <u>Sieve Designation</u> | <u>% Passing</u> |
|--------------------------|------------------|
| 2.00mm | 100 |
| 0.10mm | 45 - 100 |
| 0.02mm | 10 - 80 |
| 0.005mm | 0 - 45 |

.3 Coarse grained soils
containing more than 20% by
mass passing 0.075mm sieve.

.5 Unshrinkable fill: very weak mixture
of Portland cement, concrete
aggregates and water that resists
settlement when placed in utility
trenches, and capable of being
readily excavated.

1.4 MEASUREMENT FOR
PAYMENT

.1 Excavation, Trenching and
Backfilling will not be measured for
payment. Contractor shall include
all costs including plant,
materials, equipment and labour
required to do the work under lump
sum items.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Type 1 fill: to the following
requirements:
.1 Crushed, pit run or screened
stone, gravel or sand.
.2 Gradations to be within limits
specified when tested to ASTM C 136.
Sieve sizes to CAN/CGSB-8.1.

.2 Type 2 fill: selected material from
excavation or other sources,
approved by Departmental
Representative for use intended,
unfrozen and free from rocks larger
than 75 mm, cinders, ashes, sods,
refuse or other deleterious
materials.

.3 Table	
<u>Sieve Designation</u>	<u>% Passing</u>
Type 1	
101.6 mm	100
50 mm	75-100
4.75 mm	25-55
1.2 mm	10-35
0.3 mm	5-20
0.075 mm	0-12

PART 3 - EXECUTION

3.1 SITE PREPARATION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

3.2 EXCAVATION

- .1 Excavate to lines, grades, elevations and dimensions as indicated.
- .2 Excavation must not interfere with bearing capacity of adjacent foundations.
- .3 Dispose of surplus and unsuitable excavated material in approved location off site.
- .4 Do not obstruct flow of surface drainage.
- .5 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.
- .6 Notify Departmental Representative when bottom of excavation is reached.
- .7 Obtain Departmental Representative's approval of completed excavation.

3.3 FILL TYPES AND
COMPACTION

- .1 Use fill of types as indicated.

3.4 BACKFILLING

- .1 Do not proceed with backfilling operations until Departmental Representative has inspected and approved installations.
- .2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
- .3 Do not use backfill material which is frozen or contains ice, snow or debris.
- .4 Place backfill material in uniform layers not exceeding 150mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.
- .5 Backfilling around installations.
.1 Place bedding and surround material as specified elsewhere.
.2 Do not backfill around or over cast-in-place concrete within 24 hours after placing of concrete.
.3 Place layers simultaneously on both sides of installed Work to equalize loading. Difference not to exceed 1.0m.

3.5 RESTORATION

- .1 Upon completion of Work, remove waste materials and debris, trim slopes, and correct defects as directed by Departmental Representative.
- .2 Clean and reinstate areas affected by Work as directed by Departmental Representative.

- .3 Restore site to its normal state
prior to excavation.