

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 01 – Work related general information.
- .2 Section 31 05 16 – Aggregate.
- .3 Section 31 32 19.01 – Geotextile.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136-05, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D422-63/2002, Standard Test Method for Particle-Size Analysis of Soils.
 - .4 ASTM D4318-05, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 DEFINITIONS

- .1 Excavation classes: one classe of excavation will be recognized; common excavation.
 - .1 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.
- .2 Unclassified excavation: excavation of deposits of whatever character encountered in Work.
- .3 Topsoil:
 - .1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
- .4 Waste material: excavated material unsuitable for use in Work or surplus to requirements.
- .5 Recycled fill material: material, considered inert, obtained from alternate sources and engineered to meet requirements of fill areas.
- .6 Unsuitable materials:
 - .1 Weak, chemically unstable, and compressible materials.
 - .2 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-8.2.

.2 Table:

Sieve Designation	% Passing
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 45

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

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures. (MG-20, quarry run and 50-150 mm stone)
- .2 Preconstruction Submittals:
 - .1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.
 - .2 Submit records of underground utility locates, indicating: location plan of existing utilities as found in field and location plan of relocated and abandoned services, as required.
- .3 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Inform Departmental Representative at least 4 weeks prior to beginning Work, of proposed source of fill materials and provide access for sampling.
 - .3 Submit 70 kg samples of type of fill specified .

1.5 QUALITY ASSURANCE

- .1 Do not use soil material until written report of soil test results are reviewed and approved by Departmental Representative.
- .2 Health and Safety Requirements:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for [reuse] [recycling] in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.7 EXISTING CONDITIONS

- .1 Buried services:
 - .1 Before commencing work verify location of buried services on and adjacent to site.
 - .2 Confirm locations of buried utilities by careful test excavations.
 - .3 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing or re-routing. Costs for such Work to be paid by Departmental Representative.

- .4 Record location of maintained, re-routed and abandoned underground lines.
- .5 Confirm locations of recent excavations adjacent to area of excavation.
- .2 Existing buildings and surface features:
 - .1 Conduct, with Departmental Representative, condition survey of existing buildings, fencing, service poles, wires, pavement, survey bench marks and monuments which may be affected by Work.
 - .2 Protect existing buildings and surface features from damage while Work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Fill material: properties to Section 31 05 16 - Aggregate

Part 3 Execution

3.1 SITE PREPARATION

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

3.2 PREPARATION/PROTECTION

- .1 Protect existing features in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .2 Keep excavations clean, free of standing water, and loose soil.
- .3 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
- .4 Protect buried services that are required to remain undisturbed.

3.3 STOCKPILING

- .1 Stockpile fill materials in areas designated by Departmental Representative.
 - .1 Stockpile granular materials in manner to prevent segregation.
- .2 Protect fill materials from contamination.
- .3 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies.

3.4 EXCAVATION

- .1 Advise Departmental Representative at least 7 days in advance of excavation operations for initial cross sections to be taken.
- .2 Excavate to lines, grades, elevations and dimensions as indicated on drawings.

- .3 No compensation will be paid for excavation outside the demolition limits shown on drawings or determined by the Departmental Representative
- .4 Excavation must not interfere with bearing capacity of adjacent foundations.
- .5 Keep excavated and stockpiled materials safe distance away from edge of trench as directed by Departmental Representative.
- .6 Restrict work done with construction equipment in close proximity to non-backfilled trenches.
- .7 Dispose of surplus and unsuitable excavated material off site.
- .8 Do not obstruct flow of surface drainage or natural watercourses.
- .9 Obtain Departmental Representative approval of completed excavation.
- .10 Install geotextiles in accordance with Section 31 32 19.01 - Geotextiles.

3.5 FILL TYPES AND COMPACTION

- .1 Use types of fill as indicated on drawings. Compaction densities are percentages of maximum densities obtained from ASTM D1557.
 - .1 Fills harbour interior side
 - .1 Ensure that no material is frozen in place
 - .2 Put material in place on a clean and unfrozen surface, without snow and ice.

3.6 BACKFILLING

- .1 Vibratory compaction equipment should allow to obtain materials with density required for work
- .2 Do not proceed with backfilling operations until Departmental Representative has inspected and approved installations.
- .3 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
- .4 Do not use backfill material which is frozen or contains ice, snow or debris.
- .5 Place backfill material, GM20, in uniform layers not exceeding 150 mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.
- .6 Profiled and compacted alternately to obtain a foundation layer equally and uniformly compacted.
- .7 Add, if required, water during compaction to obtain density required
- .8 Correct surface irregularities by loosening the soil and adding or removing material until the surface meets the specified tolerances

3.7 IMPLEMENTATION OF CONCRETE BLOCKS MATTRESS TYPE ARMAFLEX

- .1 The putting in place mattress must be done with the device provided by the Ministerial Representative.
- .2 To install mattress putting them down from the top of the slope to the down.

3.8 RESTORATION

- .1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 21 - Construction/Demolition Waste Management and Disposal, trim slopes, and correct defects as directed by Departmental Representative.
- .2 Clean and reinstate areas affected by Work as directed by Departmental Representative.

END OF SECTION