Part 1 General

1.1 RELATED REQUIREMENTS

.1 The list of work sections in this division is indicative and non-exhaustive. It does not exclude the works described in the other specification sections, shown in the drawings or necessary for the execution of the works in keeping with overall intent of the plans.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 01 56 00 - Temporary Barriers and Enclosures.

.4 Section 02 41 13 - Selective Site Demolition.

.5 Section 31 11 00 - Clearing and Grubbing.

.6 Section 31 23 33.01 Excavating, Trenching and Backfilling.

.7 Section 31 23 16.26 - Rock Excavation.

.8 Section 33 41 00 – Sewer pipe.

.9 Section 32 11 16.01 - Granular Base.

.10 Section 32 91 19.13 - Topsoil Placement and Finish Grading.

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

.1 ASTM D698-00ae1, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,000 ft-lbf/ft^3) (600 kN-m/m^3).

.2 Ministère des Transports du Québec

.1 Cahier des charges et devis généraux (CCDG) - latest edition.

1.3 DEFINITIONS

.1 Rock Excavation :

.1 Material from solid masses of igneous, sedimentary or metamorphic rock which, prior to removal, was integral with parent mass. Material that cannot be ripped with reasonable effort from Caterpillar D9L or equivalent to be considered integral with parent mass.

.2 Boulder or rock fragments measuring one cubic metre or more in volume.

.2 Common Excavation: Excavation of materials that are not Rock Excavation or Stripping.

.3 Unclassified Excavation: Excavation of whatever character other than stripping encountered in the work.

.4 Stripping: Excavation of organic material covering original ground.

.5 Embankment: Material derived from usable excavation and placed above original ground or stripped surface up to top of subgrade.

.6 Waste Material: Material unsuitable for embankment or embankment foundation, or material surplus to requirements.

.7 Borrow Material: Material obtained from areas outside right-of-way and required for construction of embankments or for other portions of work.

.8 Topsoil: Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

1.4 QUALITY ASSURANCE

.1 Regulatory requirements :

.1 For ground stability and safety reasons, using explosives during course of Work is strictly prohibited; comply with regulations from authorities having jurisdiction.

.2 Adhere to Provincial and National Environmental requirements when potentially toxic materials are involved.

.2 Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, installation instructions and warranty terms.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Excess materials are to be diverted from landfill to site approved by Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Embankment materials require Departmental Representative’s approval.

.2 Material used for embankment not to contain more than 3% organic matter by mass, frozen lumps, weeds, sod, roots, logs, stumps or other unsuitable material.

.3 Borrow material :

.1 Obtain from borrow pit approved by Departmental Representative.

Part 3 Execution

3.1 COMPACTION EQUIPMENT

.1 Compaction equipment must be capable of obtaining required densities in materials on project. Equipment that does not achieve specified densities must be replaced or supplemented.

3.2 WATER DISTRIBUTORS

.1 Apply water with equipment capable of uniform distribution.

3.3 STRIPPING OF TOPSOIL

.1 Remove topsoil and perform finish grading in accordance with Section 31 14 13 – Stripping and Stockpiling Soil.

.2 Remove unused topsoil to location determined by Departmental Representative.

.3 Upon completion of excavation and embankment construction, spread organic stripping on slopes and trim or remove from site if quantity exceeds ability to grade on site.

3.4 EXCAVATING

.1 General :

.1 Notify Departmental Representative when waste materials are encountered and remove to depth and extent directed.

.2 Replace with approved embankment material and compact. Excavated materials may be reused if they are approved by Departmental Representative.

.3 Treat ground slopes, where subgrade is on transition from excavation to embankment, at grade points as directed by Departmental Representative.

.2 Drainage :

.1 Maintain profiles, crowns and cross slopes to provide good surface drainage.

.3 Rock excavation :

.1 Refer to Section 31 23 16.26 - Rock Excavation.

.2 During excavation: When rock is encountered, notify Departmental Representative in sufficient time to enable measurements to be made to determine volume of rock.

.3 Shear rock down to 300 mm below storm water pipe invert in the trench dug for this purpose.

.4 Dynamiting to facilitate rock removal is strictly prohibited. Contractor to remove rock using backhoe equipped with percussion drill type vibrating head or other method approved by Departmental Representative. Obtain authorized schedule for such work beforehand; schedule to be strictly followed.

.5 Reduce overbreak and increase stability of rock faces by using appropriate processes.

3.5 BACKFILL

.1 Scarify or bench existing slopes in side hill or sloping sections to ensure proper bond between new materials and existing surfaces. Method used is subject to Departmental Representative's prior approval.

.2 Do not place material that is frozen nor place material on frozen surfaces except in areas authorized.

.3 Maintain crowned surface during construction to ensure ready run-off of surface water.

.4 Drain low areas before placing materials.

.5 Where material consists of rock :

.1 Place to full width in layers of sufficient depth to contain maximum sized rocks, but in no case is layer thickness to exceed 1 m.

.2 Distribute rock material to fill voids with smaller fragments to form compact mass.

.3 Fill surface voids at subgrade level with rock spalls or selected material to form earth-tight surface.

.4 Do not place boulders and rock fragments with dimensions exceeding 150 mm within 300 mm of pavement subgrade elevation.

.6 Deductions from excavation will be made for overbuild of embankments. Stockpile a certain quantity of this material in locations authorized by Departmental Representative.

3.6 SUBGRADE COMPACTION

.1 Prior to each compacting operation, notify Departmental Representative so as to ensure laboratory representatives are present to take samples and perform tests necessary.

.2 Compact each layer to minimum 95% maximum dry density, ASTM D698 (AASHTO T99), except top 150 mm of subgrade.

.3 Add water or dry as required to bring moisture content of materials to level required to achieve specified compaction.

3.7 FINISHED SURFACE

.1 Shape entire roadbed to within 25 mm of design elevations.

.2 Finish slopes, ditch bottoms and borrow pits true to lines, grades and drawings where applicable. Scale slope by removing loose fragments, for cut slopes in bedrock steeper than 1:1.

.3 Remove rocks over 150 mm in dimension from slopes and ditch bottoms.

.4 Hand finish slopes that cannot be finished satisfactorily by machine.

.5 Round top of backslope to 1.5 m both sides of top of slope.

.6 Trim between constructed slopes and edge of clearing to provide drainage that is free of humps, sags and ruts.

3.8 PROTECTION

.1 Maintain finished surfaces in condition conforming to this section until acceptance by Departmental Representative.

END OF SECTION