

PART 1 - GENERAL

1.1 SECTION
INCLUDES

- .1 This section provides for the construction of all earth subgrades. The work shall include excavating, hauling, handling and placing in embankments, shaping, compacting, trimming of earth material and applying temporary cover, and the management of excavated material. Suitable excavated earth from roadway cuts, ditching and other associated sites shall be used in embankment construction and as specified in the Contract Documents.

1.2 MEASUREMENT
AND PAYMENT

- .1 Measurement and payment will be by Plan Quantity. The vertical grading tolerances for the finished subgrade shall be ± 30 mm. The horizontal grading tolerances for the finished excavation and fill shall be 0.3 m.
- .1 Elliott Road:
- .1 General Excavation and Grading, Incl. Stripping. Unit of measure is cub.m.
- .2 Rock/Boulder Excavation Over 1.0 cub.m. Unit of measure is cub.m.
- .3 STA 2+040 to STA 2+255 Sub-Excavation Incl. Replacement with Clean Native Materials. Unit of measure is cub.m.
- .4 Realign Creek STA 1+280, linear metres.
- .5 Realign Creek STA 2+160, linear metres.
- .2 LTWMF Site:
- .1 General Excavation and Grading Incl. Stripping. Unit of measure is cub.m.
- .2 For payment purposed, the volume of material excavated in sub-excavation, if required, or over excavations where ordered by the Departmental Representative, shall be added to the bid item for earth excavation and shall be determined on the basis of three rectilinear dimensions measured as follows: (a) Length and width of excavation to nearest 300 mm. (b) Depth of excavation to the nearest 30 mm.
- .3 If, in the opinion of the Departmental Representative, water is required to attain the required fill density as specified in OPSS 501, the Contractor shall supply such quantities as the Departmental Representative may direct and apply the water from equipment approved for that purpose. Measure water in cubic metres per OPSS 501.09.01 b.
- .4 Measure earth borrow in cubic metres by end area method

at source.

- .1 Elliott Road.
- .2 LTWMF Site.

- .5 No extra payment will be allowed for removal off-site or reuse on-site of materials temporarily stockpiled on site per article 2.1.3.

1.3 RELATED SECTIONS

- .1 Section 01 35 43: Environmental Procedures.
- .2 Section 31 11 00: Clearing and Grubbing.
- .3 Section 31 14 13: Soil Stripping and Stockpiling.
- .4 Section 31 23 33.01: Excavating, Trenching and Backfilling.

1.4 REFERENCES

- .1 Ontario Provincial Standard Specifications (OPSS):
 - .1 OPSS 206, Nov 2010, Construction Specification for Grading.
 - .2 OPSS 212, Nov 2008, Construction Specification for Borrow.
 - .3 OPSS 501, Nov 2010, Construction Specification for Compacting.
 - .4 OPSS 1010, Apr 2004, Material Specification for Aggregates - Base, Subbase, Select Subgrade, and Backfill Material.
- .2 American Society for Testing and Materials (ASTM)
 - .1 ASTM D698-07e1, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m³).
- .3 Appendix J : PHAI Dust Management Requirements and Plan 4500-509200-PLA-001.

1.5 EXISTING CONDITIONS

- .1 Known underground and surface utility lines and buried objects are as indicated on site plan based on information provided by utility companies. The extent and/or accuracy of shown utilities cannot be guaranteed. Furthermore additional utilities not shown on the plan(s) may exist. Contractor to obtain actual locates prior to commencement of construction.

1.6 PROTECTION

- .1 Protect existing natural features, pavement, surface or underground utility lines which are to remain as directed by Departmental Representative. If damaged, restore to original or better condition unless directed otherwise.
- .2 Maintain access roads to prevent accumulation of construction related debris on roads.

1.7 QUALITY CONTROL

- .1 Minimum testing requirements for Contractor:
 - .1 Proof roll road subgrade in the presence of the Departmental Representative.
- .2 Provide quality control for compaction of various materials in accordance with OPSS 501 Table 1 with the following modifications:
 - .1 Part 1 (I) lot size to be every lift 9max. 0.6 m), 30 m maximum length in a 'Z' pattern.
- .3 Minimum compaction requirements for road subgrade 98% MDD.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Earth borrow and fill material: Type clean, native, compactable in accordance with OPSS 212.05.01 or SSM to OPSS 1010 Table 2.
- .2 Excavated or graded material existing on site may be suitable to use as fill for grading work if approved by Departmental Representative.
- .3 Excavated materials for re-use as fill at Elliott Road north of CNR crossing or for disposal off-site may be temporarily stockpiled on the lands west of Elliott Road between the CNR and CPR tracks as directed by the Departmental Representative. It shall also include installation of silt fence barriers to prevent materials from washing into existing ditches or watercourses. No extra payment will be made for the silt fences and subsequent site restoration in kind to original contours.
- .4 Surplus excavated materials from Elliott Road may be stockpiled on the LTWMF site at the approval of the Departmental Representative. Surplus excavated materials are to be stockpiled in areas designated by

the Departmental Representative.

PART 3 - EXECUTION

3.1 STRIPPING OF TOPSOIL

- .1 Refer to Section 31 14 13.
- .2 Stripping shall be in accordance with OPSS 206.07.03.07.

3.2 GRADING

- .1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.
- .2 Rough grade to following depths below finish grades as indicated on the drawings.
- .3 Grade ditches to depth indicated
- .4 Prior to placing fill over existing ground, scarify surface to depth of 150 mm. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.
- .5 Compact filled and disturbed areas to maximum dry density to ASTM D698, as follows:
 - .1 95%
- .6 Do not disturb soil within branch spread of trees or shrubs to remain.
- .7 Estimated cut & fill balance (in m³)

	<u>Col-1</u> Earth Excavation, Incl. Stripping (A)	<u>Col-2</u> Earth Fill Required (C)	<u>Col-3</u> Available as Fill (50% of Col-1)(A)	<u>Col-4</u> Earth Borrow (SURPLUS) (Col-2- Col-3)(D)	<u>Col-5</u> To Be Disposed Of (Col-1 -Col-3)
Elliott Rd					
CON1-CPR	6368	4908	3184	1724	3184
CPR-CNR	949	23293	475	22818	475
CNR-S/LIM	7126	89	3563	(3474)	3563
LTWMF Site					
LTWMF	36740	32235	18370	13865	18370
TOTAL	51183	60525	25592	34933	25592

NOTES:

- A. Assumed only 50% of material excavated is suitable as fill material, remainder to be disposed of where designated on LTWMF site.
- B. Estimated quantity of removal and replacement of material below exist grade between CPR and CNR is 16,600 m³ (not included in above figures).
- C. Earth fill required includes 15% volume adjustment factor.
- D. Earth borrow shall be obtained from an off-site source. Beyond the excavation required for this Contract, earth borrow cannot be obtained from Elliott Road or LTWMF Site.
- E. Hauling of earth materials across the CN Level crossing shall not be permitted until the track and road construction is complete.
- .8 Quantities shown above are provided for the Contractor's information only. Excavation quantities do not allow for trench excavation or placement of topsoil and sod or seeding quantity.
- .9 Cross sections showing both the original and proposed construction limits for Elliott Road are provided in the Contract Drawings.
- .10 No granular materials shall be placed on the sub-grade until the sub-grade has been compacted to 95% Standard Proctor Density, and approved by the Departmental Representative.

3.3 TESTING

- .1 Inspection and testing of soil compaction will be carried out by testing laboratory designated by ULC. Costs of tests will be paid by Departmental Representative. Refer to PWGSC SACC Manual.

3.4 SURPLUS MATERIAL

- .1 Remove surplus material and material unsuitable for fill, grading or landscaping off site as directed by Departmental Representative.
- .2 Surplus materials shall be stockpiled on the LTWMF site where designated by the Departmental Representative. The Contractor may only dispose of the surplus materials off-site if the materials are deemed unsuitable and/or not required for future phases of

the Port Granby Project by the Departmental
Representative.