

Question/Answer:

1. Is there chemical testing available for the site soils if any material is required to be disposed of offsite?

Answer: As per geotechnical report provided in Addendum #1.

2. After visiting the site, the stockpile of material on the west side of the property is currently smaller than what is shown on the existing grading plan. Should we still base our excavation pricing on the existing elevations provided in drawing C2

Answer: base the cut / fill on the survey and the grading plan as that is the most current information we have on the existing grades.

3. Soils report section 6.2 states to remove disturbed native soils, are we required to remove any disturbed soil below the topsoil under the new asphalt parking, driveways or sidewalks?

Answer: As per section 6.10 of the geotechnical report

4. Soils report section 6.2 states to remove disturbed native soils, are we required to remove any disturbed soil below the topsoil under the building footprint?

Answer: As per geotechnical report

ADDITIONAL/UPDATED DOCUMENTS:

5. **Trenching, Backfilling & Compaction Specification:**

Add Specification 02315 to this project, as a minimum standard specification not to supersede any other standards or specifications set out elsewhere within the Tender documents.

6. **Exterior Concrete & Asphalt Pavements Specification:**

Add Specification 02515 to this project, as a minimum standard specification not to supersede any other standards or specifications set out elsewhere within the Tender documents.

Attached: Specification 02315 "Trenching, Backfilling & Compaction" (4-pages), Specification 02515 Asphalt and Concrete Pavements (3-pages)

PART 1 GENERAL

1.1 DESCRIPTION

- .1 This Section is supplemental to OPSS 401 and shall not supersede conflicting specifications within OPSS 401. This is a minimum standard Specification and any higher standard specification found elsewhere within the tender documents, or referred to in the Tender documents, shall be used.

1.2 RELATED SPECIFICATION

- .1 Construction Specification Section 02220 - Excavating, Backfilling and Compacting for Structures

1.3 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 Engineer.
- .3 Standard Proctor Density: As defined in ASTM D698.

1.4 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.

PART 2 PRODUCTS

2.1 BACKFILL MATERIALS

.1 Bedding and Cover Materials:

- .1 Do not include materials greater than 19 mm in size.
- .2 Sand shall conform to the requirements of OPSS Granular 'M' as specified in OPSS 1010.
- .3 Granular 'A' to OPSS 1010
- .4 16 mm Clear Stone to OPSS 1004 Table 2.
- .5 Select Native Material (when specified).
- .6 Concrete: to OPSS.MUNI 1350 (only acceptable when specified).

.2 Select Native Material:

- .1 Native material in accordance with Subsection 401.05.05.02 of OPSS 401. Refer also to the geotechnical report appended to this Specification.
- .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

.4 Unshrinkable Backfill:

- .1 Unshrinkable Backfill: to OPSS 1359
- .2 Admixtures shall conform to OPSS 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 Consultant.
 - .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 Consultant.
- .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.

PART 3 EXECUTION

3.1 PAVEMENT REMOVAL

- .1 Saw-cut existing asphalt in neat, consistent, parallel lines. Ensure saw-cut edges are clean and vertical.
- .2 Do not use backhoe bucket or drop weight to break pavement.

3.2 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.

3.3 TRENCHING

- .1 Notify Consultant if bottom of trench appears to be unsuitable for foundation. Excavate unsuitable material as directed by Consultant until satisfactory foundation is attained and backfill with approved granular material.
 - .1 Soils on site are classified as Type 3 soils.
 - .2 Stockpile excavated material suitable for trench backfill.
 - .3 Separate materials that are unsuitable for backfill.
- .2 Perform corrective measures ordered by Consultant to rectify deficiencies caused by excess excavation.

3.4 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.

3.5 BEDDING

- .1 Class B bedding to OPSD 802.
- .2 Minimum bedding thickness below pipe to be 150 mm.

3.6 COMPACTION

- .1 Do compaction to OPSS 501.
 - .1 Stone in sub drain areas to be compacted using several passes of a 250-kg minimum weight vibratory plate. The plate compactor should not be so large that it breaks/crushes the individual stone particles or the sub drain pipes.
 - .2 Backfill to be compacted to 95% SPMDD. This is to be increased to 98% SPMDD within 0.6 m of the road subgrade surface.
 - .3 Lifts not to exceed 200 mm thickness.
 - .4 Use Quality Control Method A in accordance with Subsection 501.07.04.02 of OPSS 501.
 - .5 Use Quality Assurance Method A in accordance with Subsection 501.08.02 of OPSS 501.

3.7 DISPOSAL OF EXCAVATED MATERIALS

- .1 Dispose of unsuitable and surplus excavated materials to OPSS 180.
- .2 Transport materials in a manner such that spillage is avoided.

3.8 TESTING

- .1 Do testing to Section 01450

End of Section 02315

PART 1 - GENERAL**1.1 General Conditions**

- .1 The Information to Tenderers and Division 1 General Requirements shall form a part of this Section.
- .2 This is a minimum standard Specification and any higher standard specification found elsewhere within the tender documents, or referred to in the Tender documents, shall be used.

1.2 Work Included

- .1 The Contractor shall supply all labour, materials, equipment and services necessary to complete the Pavements as shown on the drawings and as specified herein and including the following items of work:
 - .2 Placing asphalt onto previously prepared road, playground, parking and sidewalk in the areas and to the elevations shown on the site plan drawings.
 - .3 Place all new concrete, sidewalk, walkways, curbs and miscellaneous site concrete (footings for signs, benches etc.) as indicated on the drawings included related sub-base installation.
 - .4 Restoration of asphalt pavements, concrete curbs and sidewalks to match existing where disturbed under this contract.

1.3 Co-ordination

- .1 All work shall be carried out in co-ordination with the City and the Owner to create minimum interference with access to or along public roads. Maintain existing School activities during construction.

1.4 Testing and Inspection

- .1 The General Contractor will engage the services of an independent testing company to confirm the satisfactory placing and compaction of backfill materials. Reports shall be forwarded promptly to the Consultant's office. (Refer Section 312310). The payments for the testing and inspection shall be drawn from a Cash Allowance (refer Division 1) set aside for this purpose.

1.5 Standards:

- .1 All work in this section shall be carried out to OPSS requirements Regional, City Engineering standards whichever is more stringent.
- .2 Start of asphalt paving operation implies the contractor's acceptance of the work by Division 312310 (sub-base of pavements).

1.6 As Built Grading:

- .1 At the completion of the project, the Contractor shall be responsible for providing to the Engineer, a marked-up drawing signed by the site superintendent, of the as built finished elevations confirming the pavement and landscaped areas were built in accordance with the design drawings approved for Site Plan Agreement.

PART 2 - MATERIALS**2.1 Materials**

- .1 All granular materials shall satisfy the requirements of OPSS. 1010.
- .2 All asphalt shall satisfy the requirements of OPSS. 1150.
- .3 Site concrete shall be as specified to OPSS 1350 with a minimum strength of 32 MPa in 28 days, a maximum slump of 70 mm (3") and an air content of 6% ± 1.5% and W/C ratio a maximum of 0.45.
Water: Verify that no salts are present which will cause efflorescence.
Cement: Portland Standard type 10, conforming to the requirements of CSA A5.
Aggregate: Natural sand, gravel, or crushed rock. CSA Standard A23.1 shall govern for approval and control of fine and coarse aggregates, and their grading. Provide aggregate from the same source for entire Project for concrete exposed to view.
Air Entraining Admixture: To provide 6% entrainment to meet specified requirements of CSA Standard A266.1:
- .4 Expansion joint material shall be 12 mm (½") Flexcell fibreboard as manufactured by Sternson Limited, or approved equal.

PART 3 - EXECUTION**3.1 Preparation**

- .1 Beneath the access road and parking pavement confirm the placement of the specified thickness of granular "A" and "B" materials and compaction of 100% Standard Proctor Dry Density.
- .2 Test compaction using an approved testing agency and forward results to the Engineer. If the sub-base thickness is insufficient, report to the Consultant. Carry out further compaction until the specified level is reached.
- .3 Contractor shall verify that all surfaces slope in accordance with grades and are true to the elevations shown on the drawings prior to placing asphalt courses.

3.2 Restoration of Existing Paved Areas.

- .1 The contractor shall restore the existing road surfaces to conditions equal to that required by City Standards. Ensure joints between existing and new asphalt is square and straight; match surface levels on each side of the joint.
- .2 Backfill service trenches for the full height with compacted Granular "B" material (Section 02400).

3.3 Concrete Sidewalks and Pavements

- .1 Concrete sidewalks and pavements shall be, unless otherwise noted in this specification, constructed in accordance with the minimum requirements of OPSS 351 and OPSD 303.01 and OPSD 303.03. All slabs shall be a minimum of 100 mm (4") thick using 32 MPa concrete reinforced with 152 x 152/MW 18.7 x MW 18.7 WWF placed not more than 40 mm (1.5") from the top surface. Provide joints as specified in OPSD 310.01; light broom finish the surface, and round all edges and joints to a 12 mm (1/2")radius.

Note: control joints in external sidewalk slabs shall be placed in a pattern specified on the landscape plan. Saw joints shall be at no greater than 2134 mm centres (7 feet), expansion joints at 5400 centres (18 feet).

Ensure that all concrete walkways positively slope away from the building at a min. 1.5% gradient delivering storm water away from the building.

Concrete barrier and rolled curbs [where indicated] shall be constructed to OPSS 353 and OPSS 354 in accordance with OPSD 600.03 from 32 MPa concrete

3.4 Clean-up

- .1 Clean all roadways, sidewalks, curbs, etc. to leave in an acceptable condition.

3.5 Asphalt Pavements

- .1 Access Roadway- Heavy Duty
 Used by passenger vehicles as well as delivery and garbage trucks and the occasional fire truck. The asphalt pavement provide 80 mm (3.15") thick HL8 base course and 50 mm (2.0") HL3 surface course.
- .2 Parking area- Light Duty
 Used by passenger vehicles only. The asphalt pavement provide 50mm(2") thick HL8 base course and 40 mm (1.5") HL3 surface course.
- .3 Pathways and Playground surface:
 Used by pedestrian traffic and ride on light duty snow removal equipment only HL3M 50mm (2.0")
- .4 Test for the compaction of the asphalt pavement and submit results to the Engineer for review. Each layer shall be compacted as recommended by the Soils Engineer, to the specifications of the Niagara Peninsula Standard Contract Document or the City specifications whichever governs this project.

END OF SECTION 02515