

## **PART 1 GENERAL**

### **1.1 SECTION INCLUDES**

- .1 Building excavation.
- .2 Dewater excavations.
- .3 Remove and dispose of unsuitable materials off site.
- .4 Backfilling.

### **1.2 SITE COMPACTION TESTING**

- .1 Testing of compacted fill materials may be performed by an independent inspection firm appointed and paid for by the City in accordance with Section 01 45 00 - Quality Control Testing will be performed so as to least encumber the performance of the work.
- .2 The City will pay for the cost of one (1) series of tests only, on the area being evaluated. Pay for costs of additional testing as required due to improper performance of work.
- .3 When work of this section or portions of work are completed to own satisfaction, notify the testing firm to perform density tests. Do not proceed with additional portion of work until results have been verified and approved.
- .4 If, during progress of Work, tests indicate that compacted materials do not meet specified requirements, remove defective work, replace and retest at own expense, as directed by the Contract Administrator.
- .5 Ensure compacted fills are tested and approved before proceeding with placement of surface materials.

### **1.3 SAMPLES**

- .1 Submit minimum 5kg. samples of each type of fill materials to be used. Forward samples to appointed testing firm. Pack tightly in containers to prevent contamination.

### **1.4 PROTECTION**

- .1 Protect bench marks from equipment and vehicular traffic.
- .2 Protect above and below grade utilities which are to remain.
- .3 Protect excavations by shoring, bracing, sheet piling, underpinning or other methods required to prevent cave-in or loose soil from falling into excavation.
- .4 Notify Contract Administrator of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- .5 Protect bottom of excavations and soil adjacent to and beneath foundation from frost.
- .6 Grade excavation top perimeter to prevent surface water run-off into excavation.

**PART 2 PRODUCTS**

**2.1 FILL MATERIALS**

.1	Granular Fill:			
	Sieve Size (um)	50 mm limestone	A-Base	C-Base
		(% passing)	(% passing)	(% passing)
	50,000	100		
	25,000		100	100
	20,000		80-100	
	5,000	25-80	40 -70	25-80
	2500		25-55	
	315		13-30	
	80	5-18	5-18	5-18
.2	Clean gravel: clean natural stone 12-25 mm size, free from fines, shale, clay and friable materials			

**2.2 ACCESSORY MATERIALS**

- .1 Subsurface drainage: 100 mm perforated and non-perforated corrugated plastic tubing c/w related items and geotextile sock as manufactured by Big 'O' Drain Tile Co. Ltd.

**PART 3 EXECUTION**

**3.1 EXCAVATION**

- .1 Excavate subsoil required for building foundations, construction operations and other work.
- .2 Hand trim excavation and leave free of loose matter. Hand trim the last 100 mm of footing bearing surfaces.
- .3 Removed lumped subsoil, boulders and rock.
- .4 Correct unauthorized excavation at no extra cost to City.
- .5 Fill over-excavated areas under structure bearing surfaces in accordance with direction by Contract Administrator.
- .6 Stockpile excavated material to be re-used in area designated on site and remove excess subsoil not being reused, from site.
- .7 Provide shoring to prevent loose soil from cave-in.

**3.2 PREPARATION - BACKFILLING**

- .1 Do not commence with backfilling operations until mechanical and electrical services have been inspected and approved by the Contract Administrator.

- .2 Ensure areas to be backfilled are free from debris, snow, ice and water and that the ground surfaces are not in a frozen condition.
- .3 Proof roll existing subgrade to 95% DPD.
- .4 Cut out "soft" areas of existing sub-grade, backfill with 100 pr 50 mm down crushed limestone granular fill in 200 mm lifts and compact to 95 % SPD.
- .5 Bring up sub-grade elevation with 100 pr 50 mm down crushed limestone granular fill in 200 mm lifts and compact to 95 % SPD.

### **3.3 SUB-GRADE DRAINAGE**

- .1 Fill bottom of trenches with 50 mm sand.
- .2 Install perforated corrugated plastic tubing (weeping tile) and related items on min. slope of 2%.
- .3 Cover drainage tubing with 400 mm minimum top and 300 mm minimum side cover with clean stone.
- .4 Ensure subsurface drainage has be inspected by Contract Administrator prior to covering with stone.

### **3.4 BACKFILLING**

- .1 Backfill areas to rough grades, contours, levels and elevations indicated on Drawings.
- .2 Perform backfilling operations systematically and as early as possible to allow maximum time for natural settlement and compaction.
- .3 Place and compact fill materials in continuous layers not exceeding 200 mm loose depth. Use a method so as not to disturb or damage mechanical and electrical service and foundation wall insulation.
- .4 Maintain optimum moisture content of backfill materials so as to attain required compaction density.
- .5 Backfill simultaneously on each side of foundation walls so as to equalize soil pressures.
- .6 Where temporary unbalanced pressures are liable to develop on walls before floor framing is in place, erect necessary shoring to the approval of Contract Administrator, to counteract imbalance. Leave in place until their removal is approved by the Contract Administrator.
- .7 Backfilling under slab on grade
  - .1 Sub – Base Course: Place and compact two 150 mm layers of C- Base compacted to 100% SPD.
  - .2 Base Course: Place and Compact 150 mm deep base course of A- Base compacted to 100% of SPD.

- .8 Foundation backfilling: backfill perimeter of the foundation s with C – Base placed in 150 mm lifts and compacted to 97% SPD.
- .9 Subsurface drainage: Fill over subsurface drainage: minimum 400 mm clean gravel on top and 300 on sides.

**3.5 SURPLUS MATERIALS**

- .1 Remove from site materials not required or unsuitable for grading or landscaping, to locations approved by Contract Administrator.
- .2 Stockpile areas to be left completely free of all excess fill materials.

END OF SECTION