



INVITATION TO TENDER PS 02- 09

**SHELL-GLEN VOLUNTEER FIRE/RESCUE HALL – PHASE 1 TO LOCK-UP
BUILDING ADDITION AND RENOVATIONS**

ADDENDUM NO. 1

1. Where the existing second floor exterior door is to be removed and a new 3'0" x 3'0" window is to be installed in the opening - the opening is to be framed, flashed, sided, drywalled, painted, insulated and a 6ml poly vapour barrier installed as required to make good to existing.
2. Specifications for the 54'x40' wide driveway are outlined in the attached Access Engineering information.
3. The optional driveway portion culvert size is to be a minimum 12" diameter.
4. See attached detail, Figure 1 for the interior and exterior backfill specifications and for the footing bearing and compaction requirements.
5. Patch and repair opening left from the removal and relocation of the radiant heat exhaust duct.
6. Existing water piping system located next to the new access stairs into the purposed addition is not to be moved as shown on drawings. See figures 2 and 3 for photos of water piping system. Run the newly relocated water lines into the building along and fixed to the wall to connect up to existing. Provide and install all necessary fittings as required to connect new to existing system.
7. Detachable access steps for the new addition are to be built so they can be moved if required to allow for easy access to existing water system.
8. Apron and road area to consist of minimum 18" of Type 2 fill - select granular subbase compacted to 98% SPD or better and topped with 6" of Type 1 fill - well graded base compacted to 100% SPD. The ground below the fill is to be graded to allow water to drain away properly.

Figure 1

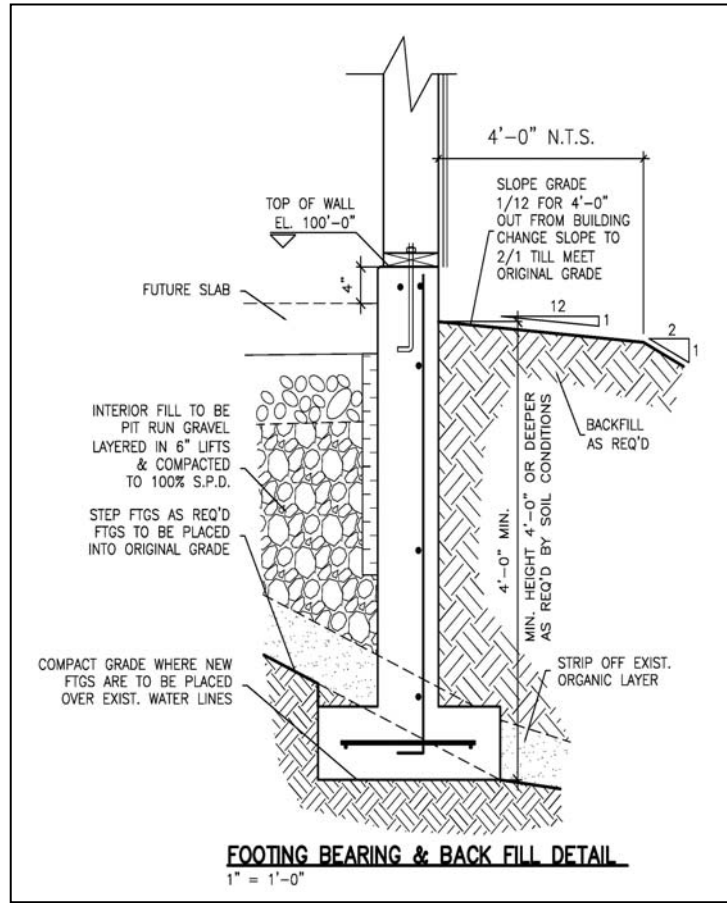


Figure 2



Figure 3



ACCESS ENGINEERING DRIVEWAY SPECIFICATIONS

1.1 Related Work

- | | | |
|----|------------------------|---------------|
| .1 | General Requirements | Section 01016 |
| .2 | Cast-In-Place Concrete | Section 03300 |

1.2 Inspection and Testing

- .1 Assist the Engineer or the appointed testing agency in extracting materials for testing as directed. Testing will be carried out by an agency approved by Engineer and paid for out of Cash Allowances as per Instructions to Bidders.

1.3 Storage

- .1 Store top soil outside the area in which construction work is carried out, or where directed by Engineer.

1.4 Examination

- .1 It shall be the responsibility of the Contractor to examine fully the existing site and any conditions likely to affect the work. Submission of Tender shall be deemed confirmation that tenderer has inspected site and is conversant with existing conditions.
- .2 If required, a soils report will be provided by the Owners.

1.5 Job Conditions

- .1 Ensure that the locations of buried utility and other services have been staked out prior to start of work.
- .2 Protect and support existing work.
- .3 Prevent damage to sides and bottoms of excavated pits and trenches.
- .4 Protect excavation and materials from freezing.
- .5 Provide and maintain adequate temporary pumping and drainage systems to keep excavations and structures free of water. Prevent flow of surface water into excavations. Locate sumps away from foundation elements. Prevent pumped water from carrying soil, in suspension, in sufficient quantity to cause settlement of adjacent earth. Provide sufficient standby equipment to ensure continuity of pumping systems.
- .6 Protect newly graded and filled areas from washouts and settlement.
- .7 Keep excavations free of water until completely backfilled.
- .8 Provide, as required, siltation control devices to adjacent properties and new catch basins where noted on drawings or as requested on site by the Consultant or Project Manager.

1.7 Utilities and Services

- .1 Obtain the exact location of any existing underground service lines from Supply Utility Company and Municipal Authority.
- .2 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings described in Section 01016. Support, shore up and maintain pipes and conduits encountered.
- .3 Remove abandoned utility lines to distance of 2.0m from foundations. Cap or otherwise seal lines at cut-off points.
- .4 Arrange for disconnection of services by others where required or indicated.

1.7 Utilities and Services con't

- .5 Have telephone, hydro and similar services diverted or disconnected, removed or relocated as required by utility companies.
- .6 Assume full responsibility for any damage to existing utilities and services resulting from this work, including third party claims for disruption of services.
- .7 Immediately notify the Engineer and Utility Company concerned in case of damage to or cutting off of an essential service.
- .8 Immediately notify the Engineer should uncharted services be encountered, and wait instructions in writing regarding remedial action.

1.8 Protection

- .1 Protect existing benchmarks, survey iron posts, and pins from damage. Any disturbed survey markers must be replaced by a registered Land Surveyor at no extra cost to the Owner.
- .2 Provide adequate protection measures as required by Section 8 of the Building Code and by local authorities to protect workers and passersby at the site. Fully protect streets and adjacent property throughout the entire construction period.
- .3 Provide shoring and bracing to prevent caving, erosion, or gulying of sides of excavation in accordance with drawings and Worker's Compensation Board requirements.
- .4 Protect streets and property. Do not drive heavy, cleated, or flanged equipment over curbs or sidewalks without protection.
- .5 Effect approved measures to minimize dust as result of this work.
- .6 Do not stockpile excavated material to interfere with site drainage.
- .7 Remove debris spilled on asphalt paved streets and concrete sidewalks at least once daily.

PART 2 - PRODUCTS

2.1 Materials

- .1 Fill and Bedding Aggregate:
 - .1 Generally: for fill types 1 and 2, aggregate shall meet or exceed the standard requirements of the Department of Highways in the location of the project.
 - .2 **Fill Type 1 - Well Graded Base:** consisting of particles with at least one freshly fractured face and meeting the following gradation listed by sieve designation and percentage of material passing by weight.

| <u>Sieve Size (mm)</u> (USA Std size) | <u>Percentage Passing</u> |
|--|---------------------------|
| 19mm | 100% |
| 4.75mm | 40 - 80% |
| 2.36mm | 27 - 65% |
| 1.18mm | 18 - 50% |
| 0.600mm | 12 - 35% |
| 0.300mm | 8 - 25% |
| 0.150mm | 4 - 17% |
| 0.075mm | 2 - 8 % |

- .3 **Fill Type 2 - Select Granular Sub-base** with crushing of oversize aggregate permitted and meeting the following gradation listed by sieve designation and percentage of material passing by weight.

| <u>Sieve Size (mm)</u> (USA Standard) | <u>Percentage Passing</u> |
|--|---------------------------|
| 75mm | 100% |
| 25mm | 50 - 90% |
| 0.15mm | 10 - 16% |
| 0.075 | 0 - 8% |

- .4 **Fill type 3 - Site or Imported Material**, containing no organic or foreign matter and compactable to a density of 95% Modified Proctor. Remove all rocks larger than 150mm (6").

- .5 **Sand:** to CAN3-A23.1-M77 for fine aggregate.

- .6 **Bedding Material:** for underground services, 19mm (3/4") blend of crushed stone or crushed gravel, of uniform grading and quality and graded with in the following limits as expressed by percentage of aggregate passing dimensioned square sieve openings:

| <u>Sieve Size (mm)</u> | <u>Percentage Passing</u> |
|------------------------|---------------------------|
| 25 | 100 |
| 19 | 85-100 |
| 16 | 55-100 |
| 12.5 | 30-70 |
| 9.5 | 15-40 |
| 4.75 | 10% maximum |

- .7 **Drainage tile fill:** screened pea gravel 6mm to 12.5mm (1/4" to 1/2") or 19mm (3/4") clear crushed stone; no fines.

PART 3 EXECUTION

3.1 Preparation

- .1 Topsoil: Remove topsoil completely from areas of excavation for construction, from under areas to be paved or surfaced, from regraded areas and from areas utilized for construction purposes. Store good topsoil, acceptable for reuse where directed by Consultant. Remove and dispose of legally surplus and unsuitable topsoil from site.
- .2 Clearing & Grubbing: Remove trees, logs, shrubs, brush, vegetation, debris, existing foundations, abandoned paving, structures, fences, and other items which are not incorporated into the Work or as otherwise shown on Drawings. Grub out roots of cleared vegetation to at least 450mm (18") below existing grade or lower as required to accommodate new work. Remove from the site and legally dispose of cleared items. If burning of brush is to be utilized, obtain all necessary burning permits from the local governing agency or fire marshall before proceeding. Contractor to pay for all permits.

3.2 Demolition

- .1 Carry out demolition work in strict accordance with safety measures described in the Canadian Code for Construction Safety latest edition and regulations by authorities having jurisdiction.
- .2 Demolish and break up walls, concrete slabs, paving and all other structures likely to retain water, to not less than 0.5 m below finish grade.
- .3 Remove from site all materials not used for back filling and grading.

3.3 Excavation

- .1 Excavate to extent and levels required for construction. Unless specified under work of other Sections, do all excavation required, under this Section. Excavate for footings to undisturbed soil capable of safely supporting design pressures indicated on structural drawings. Refer to structural drawings for additional information.
- .2 Excavate all fill material not suitable for subgrade or base for slab on grade.
- .3 Rough grade site including landscaped areas and provide and shape berms, all to within a tolerance of 50mm (2") of established elevations. Provide subgrade spot checks by a qualified surveyor and confirm subgrade levels are met prior to placement of base material and/or topsoil. Confirm in writing to consultant or Project Manager for acceptable tolerances.
- .4 Place minimum 14MPa (2,000psi) concrete, as specified in Section 03300, in over-excavated areas under foundations, or refill as approved by Consultant. Do not refill over-excavated areas with removed material.
- .5 Rock excavation:
 - .1 Should rock be encountered in areas indicated, but not defined in soil report, cease work, notify Consultant and do not proceed until instructions are given. Payment for rock excavation required but unknown at time of Tender shall be considered as a cost extra to the Contract on the basis of unit prices submitted with Tender. For the purpose of this item, rock shall be limited to boulders over 900 x 900mm (3'0" x 3'0") in size or rock that cannot be removed by a 3/4 yard hydraulic shovel equipped with a rock ripper.
 - .2 Work shall include rock excavation as required for construction to founding elevations indicated on drawings, extended 1.5m (5'0") outside of building walls and other construction, including trenches.
 - .3 Do not excavate by blasting without approval of Consultant.
- .6 Notify Consultant to inspect work immediately after excavation is completed. Give 24 hours notice to Consultant.
- .7 Dispose of all excess and unsuitable excavated materials away from site.

3.4 Added Excavation

- .1 The Engineer may order the excavating carried to depths greater than shown. Such excavating below the levels indicated on the drawings, shall be paid for as extra work.

3.5 Compaction

- .1 Compact fill and subgrade to the following minimum Density densities in accordance with ASTM D698:
 - .1 Backfilling under concrete slabs and trenches: 97% Modified Proctor. All subgrades 95% Modified Proctor.
 - .2 Backfilling under paving and sidewalks: 95% Modified Proctor.
 - .3 Backfilling under seeding, sodding, planting: 85% Modified Proctor.

3.6 Backfilling

- .1 Generally:
 - .1 Specified thicknesses of fill shall be compacted thicknesses.
 - .2 Any special fill requirements called for on structural drawings shall supercede requirements of this Section.
 - .3 Backfill with maximum 200mm (8") deep layers of unconsolidated fill, each consolidated before the next is placed, unless otherwise specified.
 - .4 When backfilling both sides of walls, place fill simultaneously on both inner and outer faces to balance pressure on wall.
 - .5 Do not backfill basement walls until basement floor slab is poured and until floor joists are installed. Concrete should reach specified 28 day strength before backfilling basement walls.
 - .6 Do not backfill or proceed with compaction over material containing frost.

- .2 To raise subgrade levels at paving:
 - .1 Where new exterior subgrade level at paved areas is above existing grades, backfill to new subgrade elevation with 200mm (8") layers of Type 3 fill.
- .3 At foundation walls:
 - .1 Fill entire excavated area under paving or floor slabs, up to underside of fill specified for them, at both interior and exterior walls, with Type 2 fill, except as specified below.
 - .2 At exterior faces of exterior walls enclosing floor areas below grade, Type 2 fill shall be place in a minimum width of 600mm (2'-0") against the walls to within 300mm (1'-0") of finish grade, above this cap with clay layer or concrete or asphalt slab.
 - .3 Above weeping tile: Cover weeping tile with drainage tile fill (peagravel) and filter fabric then backfill with Type 2 fill as previously specified. Where no paving occurs, extend Type 2 fill only to within 450 to 600mm (18" to 24") of subgrade and complete backfilling with a compacted layer of an impermeable seal consisting of clay, clay-silt or equivalent. If clay, clay silt is not available, provide filter cloth cover over Type 2 fill prior to backfilling with natural fill.
- .4 At retaining walls:
 - .1 Unless otherwise specified backfill with Type 3 fill.
 - .2 Fill entire excavated area under paving, up to underside of fill specified for paving, on both high and low sides, with Type 2 fill.

3.7 Fill Under Floor Slabs

- .1 Compact existing subgrade to density specified under 3.4 Compaction Density.
- .2 Do not place fill or proceed with compaction on base containing frost.
- .3 Maintain proper moisture content in fill to ensure specified compaction density.
- .4 Place fill in layers of 200mm (8") maximum, and consolidate each before placing next layer.
- .5 Where undisturbed soil surface is low bring level up to underside of slab fill with Type 2 fill, compacted.
- .6 Slab fill shall be 150mm (6") of Type 1 fill unless indicated otherwise.
- .7 Backfill trenches up to level of underside of slab fill with Type 1 fill.
- .4 Clean sewers thoroughly by drawing a closely fitted wad through them as work proceeds.

3.8 Rough Grading

- .1 Cut or fill the site area to required levels below finish elevations allowing for specified surface treatment.
- .2 Produce the contours shown and confine this work to the area designated on the site layout drawing. Keep rough grades free of boulders, debris, roots, rubbish and foreign material.
- .3 Where required, raise subgrade to rough grade levels with fill Type 3, deposited in layers not to exceed 300mm (12"). Consolidate each layer before placing the next.
- .4 Native material which does not meet requirements for fill Type 3, shall only be used in locations approved by Consultant and in no case closer than 1.2m (4'0") to walls or to mechanical and electrical service trenches, or parking areas and roads.
- .5 Rough grade to the following depth below finished grade:
 - .1 150 mm(6") for sodded and seeded areas.
 - .2 As indicated for pavement sections of work.
- .6 Compact each layer before the next is spread. Slope rough grade away from the building. Compact filled and disturbed areas with vibra roller to standard proctor density, to ASTM D698-78 as follows:
 - .1 95% under landscape areas.
 - .2 98% under paved areas.
- .7 Do not exceed slopes of 1:4 unless indicated otherwise ensure that subgrade is sloped to drain away from building.

3.9 Finish Grading

- .1 Fine grade subgrade, eliminating uneven areas and low spots, ensuring positive drainage. Remove debris, roots, branches, stones in excess of 40 mm (1-1/2") diameter and other deleterious materials. Remove subsoil that has been contaminated with oil, gasoline or calcium chloride, or as directed by Engineer. (If major deleterious conditions exist notify the Engineer.)
- .2 On completion of all building operations and rough grading, finish grade areas shown to avoid sharp changes of gradient unless shown distinctly on drawings to the approval of the Engineers.
- .3 Contours shall follow those shown on drawings and resultant finish grades shall be free of stones, rubbish and foreign material.
- .4 Leave surface smooth, uniform, and firm against deep foot printing and in appearance a fine loose texture.

3.10 Subsidence

- .1 Make good all settlement or subsidence which occurs during the one (1) year warranty period.

3.11 Surplus Material

- .1 Remove from site and legally dispose of all excavated rock, boulders, and disconnected service, building debris, tree stumps, brush, earth, and all other material not suited for backfill .
- .2 Make all necessary arrangements with the proper authorities for trucking and dumping of excavated material.
- .3 Dispose of surplus excavated material not required for fine grading and landscaping on site where directed by Engineer.

3.12 Road Cut Reinstatement

- .1 Restore all trenches and surfaces on public road allowances to condition at least equal to original and to satisfaction of the Engineer.

3.13 Spreading of Topsoil

- .1 Fine grade entire topsoil area to contours and elevations indicated, required or as directed. Eliminate rough spots and low areas to ensure positive drainage. Roll lightly and rake wherever topsoil is too loose.
- .2 Roll topsoil with 50 kilogram (110 lb) roller minimum 900 mm wide to compact and retain surface.
- .3 Leave surface smooth, uniform, firm against deep foot printing, and with a fine loose texture.
- .4 Do not spread topsoil until Engineer has inspected and approved subgrade. This also includes stockpiled topsoil.
- .5 Spread dry topsoil in uniform layers during dry weather over approved , dry, unfrozen subgrade, where sodding is indicated.
- .6 Keep topsoil 40 mm (1-1/2") below finish grade for sodded areas.
- .7 Remove stones, roots, grass, weeds, debris and other foreign non-organic objects from topsoil.
- .8 Manually spread topsoil around trees and plants to prevent damage by grading equipment. Where damage occurs, replace with identical item to Engineer's approval.

3.14 Field Quality Control

- .1 The Owner may engage an inspection and testing company to inspect and report on compliance with the Specification of the work of this Section, and as directed by Consultant.