Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government Services Canada/Réception des soumissions Travaux publics et Services gouvernmentaux Canada
800 Burrard Street, 2nd floor
800,rue Burrard, 2e étage
Vancouver
British Columbia
V6Z 2V8
Bid Fax: (604) 775-9381

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Public Works and Government Services Canada - Pacific Region
800 Burrard Street, 12th floor
800, rue Burrard, 12e étage
Vancouver
British C
V6Z 2V8

Title - Sujet Potable Water System Upgrade	
Solicitation No. - N° de l'invitation EZ899-133386/A	**Amendment No. - N° modif.** 001
Client Reference No. - N° de référence du client	**Date** 2013-03-26
GETS Reference No. - N° de référence de SEAG PW-$PWY-005-6947	
File No. - N° de dossier PWY-2-35368 (005)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2013-04-04**	**Time Zone** **Fuseau horaire** Pacific Daylight Saving Time PDT
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Pillay, Sal (PWY)	**Buyer Id - Id de l'acheteur** pwy005
Telephone No. - N° de téléphone (604) 775-9386 ( )	**FAX No. - N° de FAX** (604) 775-6633
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:** CSC - William Head Institution - Metchosin, BC	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
Vendor/Firm Name and Address **Raison sociale et adresse du fournisseur/de l'entrepreneur** **Telephone No. - N° de téléphone** **Facsimile No. - N° de télécopieur**	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) **Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)** **Signature** **Date**	

Canada

Refer to the attached Addendum No. 1 dated March 22, 2013.

Addendum # 1

The following changes to the tender documents are effective immediately.

These changes will form part of the tender/contract documents. This addendum shall be read in conjunction with and considered as an integral part of the Contract Documents; these revisions supersede the information contained in the original drawings, specifications or previously issued Addenda. The Tender Price submitted shall include all items of this Addendum.

No consideration will be allowed for any extras due to any Bidder not being familiar with the contents of this Addendum.

This addendum includes the following items:

a) Changes to the contract documents (Drawings and Specifications) as detailed below.

b) Meeting minutes from the tender meeting at William Head Institution on March 21, 2013. Issues discussed at this meeting and recorded in the minutes are now to form part of the tender/contract documents.

c) Attendance Sheet from the Tender Meeting

d) Geotechnical Report from Thurber Engineering.

1. Drawing C001 – Civil Site Plan and Details

1.1. Delete Construction Note 11. The pre-tender meeting is not mandatory.

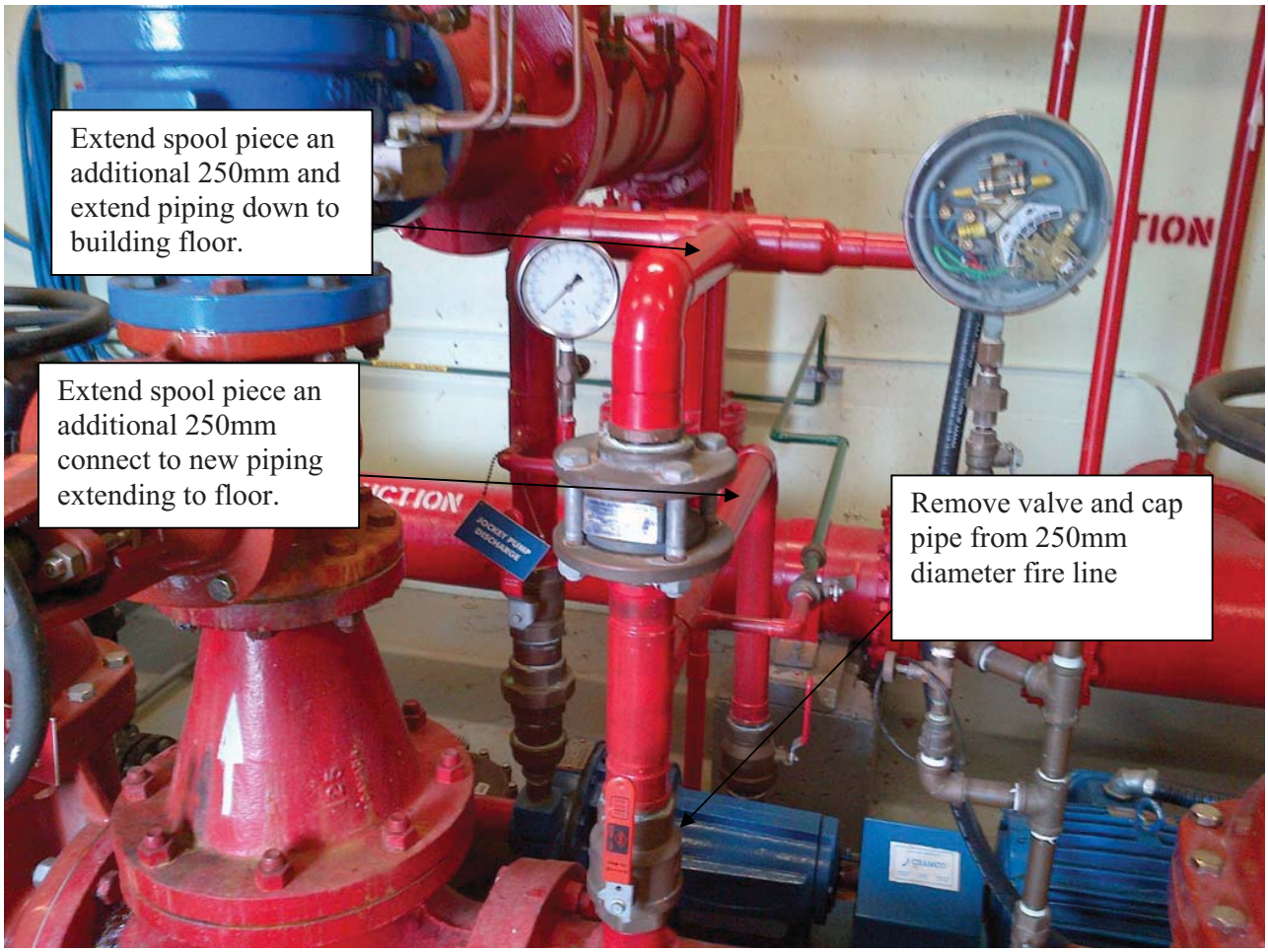
1.2. Replace Construction Note 11 with the following:

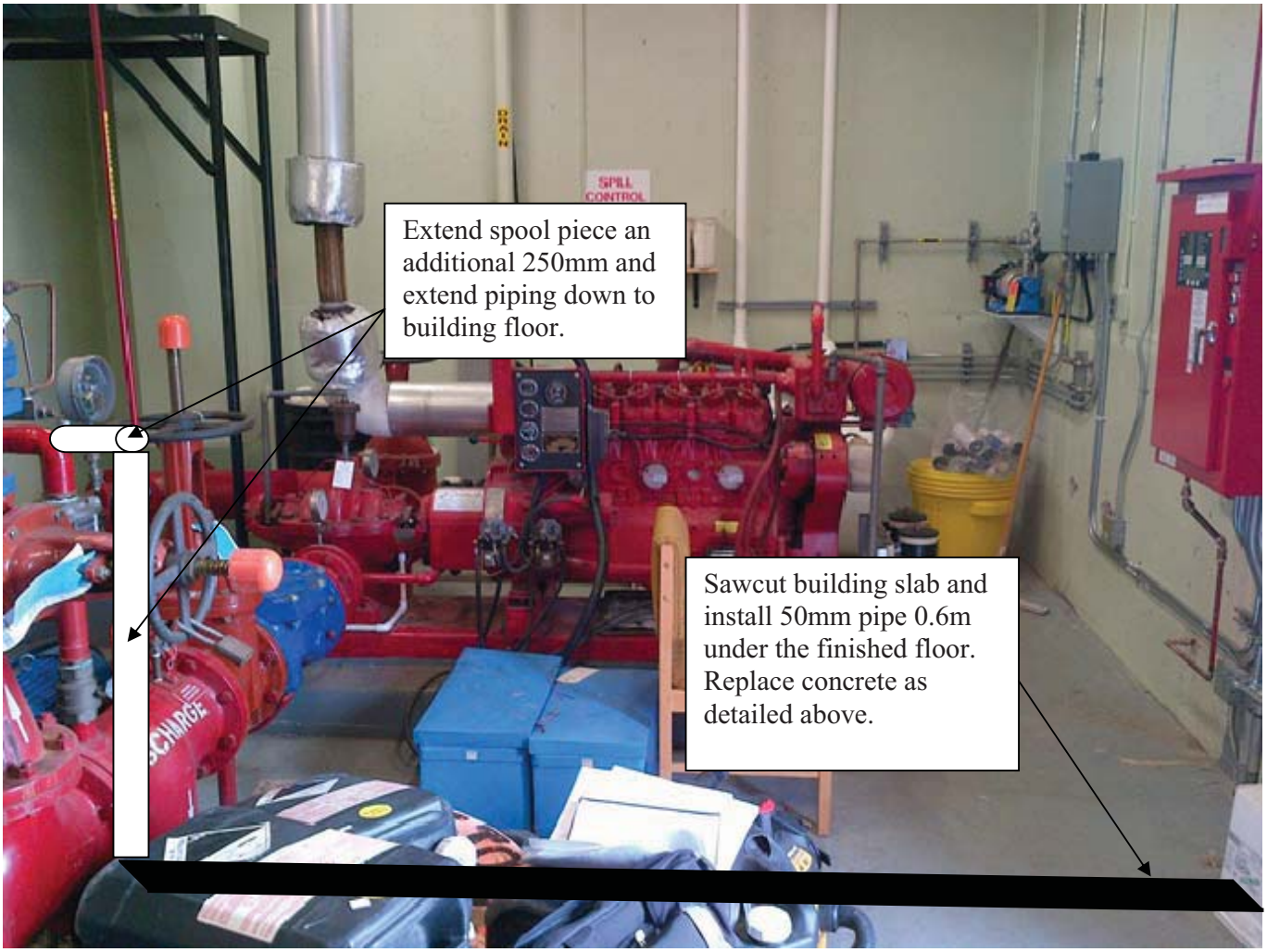
1.2.1. "*Flow from the booster pump and recirc pump to be disconnected from its current tie-in to the new PRV chamber. Exact alignment of 50mm diameter watermain from Building 110 to New PRV chamber to be confirmed on-site with Departmental Representative. Plumbing work required in Building 110 is as detailed below and indicated on the attached photographs. All piping within building is to be new 50mm diameter PVC Schedule 80:*

- *Remove the valve that connects to the 250mm diameter cast iron discharge piping and cap the pipe from the discharge line.*
- *Extend the spool piece of 50mm pipes that come from the jockey pump and recirc pump discharges an additional 250mm diameter further towards the entrance door of the building prior to connecting to the shared 50mm diameter pipe which extends down to the floor.*
- *Extend the 50mm PVC piping down to the building floor south of the 250mm diameter discharge line. Sawcut and remove the existing building floor (0.6m wide trench) and install new 50mm diameter PVC line at 0.5m depth below finished floor elevation. Align pipe to exit building through*

doorway to avoid walls.

- *Replace concrete slab to existing thickness (150mm). Embed and epoxy 15M rebar 150mm minimum into the existing slab 600mm o.c. at mid depth.*
- *Include 15M rebar running parallel to slab sawcut line at 600mm o.c. Include minimum of 2 per trench*
- *Core through the foundation wall for the pipe protrusion.*
- *Install Robar Coupling 1.0m outside building to connect to 50mm diameter PVC pipe outside the building to the new PRV building.*
- *Refer to images below.*




Extend spool piece an additional 250mm and extend piping down to building floor.
Sawcut building slab and install 50mm pipe 0.6m under the finished floor. Replace concrete as detailed above.

Answers to Contractor Questions.

a) Question: Are we required to use to use 100% imported back fill for all the trenches, or are we going to be allowed to use native backfill in the untraveled areas? Are there any soils or environmental reports of the area regarding the existing ground conditions, i.e.: contaminants, bed rock, organics, fill material, etc.

Answer: Contractor should bid assuming all backfill is to be imported. Native backfill may be used only upon approval from the Department Representative.

b) Question: In regards to fill leaving the site, are we going to be required to stockpile and test the material for contaminants before it can leave the site, like I have had to on other federal sites?

Answer: Yes, Contractor is to stockpile and test the material for contaminants before it can leave the site. If the material is clean then the contractor is to dispose of this material. All this work is to be done and included in the Lump Sum price. If the material is not clean, a change order will be initiated to cover disposal of the material. Changes to the specifications are attached.

c) Question: Are you going to require manifests for imported sand and gravels?

Answer: Information required for imported material includes Proctor's, sieve specifications etc. to ensure they meet the specification requirements.

d) Question: On page C-001, inset B, detail item 5. It calls for 90 degree 250mm HxH bends. And then there is a 250mm HxH valve directly after that. I wanted to know if we can plan to install HxF valves and 90's in these locations

Answer: Yes, acceptable.

e) Question: Also on page C-001, under the general construction notes. #4 calls up "pressure class 200 pvc pipe". I have been talking with my suppliers and they all assure me that the standard "class 900" pipe is rated for an operating pressure of 235psi and rated for testing up to 2x that pressure, which certainly meets all the pressure requirements for the job, and is significantly more readily available and of lower cost. Is there any way that we can stick with the c900 pipe? I have attached a brochure from the pipe manufacturer.

Answer: C900 Pipe is acceptable, as long as the pressure rating meets or exceeds that detailed in the contract documents.

f) Question: Is there water on site available for filling and flushing the water lines? We would require access to either a stand pipe or a fire hydrant.

Answer: Contractor may use available hydrants provided proper backflow prevention is utilized.

g) Question: Page C-001 inset A. for the installation of the 250mm pipe form the tie in points to 1m outside the building. Would we be able to install the tie in to the main line and lay pipe directly from the new Tee and Valve, swabbing the pipe with chlorine as we go and using the existing line to flush the new line. Or, are we going to be required to lay 2 short lengths of pipe, cap and test them, then tie them in? This is very important as it will substantially affect the schedule and cost of the install.

Answer: All piping other than the tee fitting itself on the active main will be fully pressure tested, chlorinated and tested prior to making the connection to the tee.

h) Question: Is there any chance to get an asbuilt drawing of the gas main that according to the grounds supervisor on site, runs in very close proximity to the existing water main.

Answer: A drawing cannot be located at this time.

i) Question: Regarding the rebar in the slab for the building, who will be inspecting the rebar before we pour the slab? Are we to find an outside source to do it, or will Stantec provide a structural engineer for that?

Answer: Departmental Representative will inspect the rebar prior to the placement of concrete for the building slab.

End of Addendum #1

Part 1 General

1.1 SECTION INCLUDES

.1 Soil Stripping, Excavating, Trenching and Backfilling required for the complete project including removal and disposal of contaminated soils.

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 35 33 – Health and Safety Requirements.

.3 Section 01 35 43 – Environmental Procedures.

.4 Section 01 45 00 – Quality Control.

.5 Section 01 56 00 – Temporary Facilities and Enclosures.

.6 Section 01 74 19 – Waste Management and Disposal.

.7 Section 31 05 16 – Aggregate Materials.

1.3 MEASUREMENT PROCEDURES

.1 All excavated material will be paid as a lump sum item except for contaminated soil, which will be stockpiled and tested. If the material is deemed contaminated soil, the contactor will be paid to dispose of this material off site or as directed by Engineer.

1.4 REFERENCES

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

.1 ASTM C117- 04, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

.2 ASTM C136- 06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.3 ASTM D422- 63 (2007), Standard Test Method for Particle-Size Analysis of Soils.

.4 ASTM D698-12, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m).

.5 ASTM D4318-10, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

.3 Canadian Standards Association (CSA International)

.1 CAN/CSA-A3000-08, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.1 CSA-A3001-08, Cementitious Materials for Use in Concrete.

.2 CSA-A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.4 U.S. Environmental Protection Agency (EPA)/Office of Water

.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

.5 Worksafe B.C. Health and Safety Act

.6 Canadian Council of the Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines

.7 BC Ministry of Environment (BC MoE), pursuant to the *Environmental Management Act* (EMA, SBC 2003 Chapter 53, current to June 22, 2011).

.1 The Contaminated Site Regulation (CSR, BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 97/2011, May 31, 2011).

.2 Hazardous Waste Regulation (HWR, BC Reg.63/88, O.C. 268/88, including amendments up to BC Reg. 63/2009, April 1, 2009), which includes standards for total concentrations of select substances as well as leachate quality standards.

.3 Standards Triggering Contaminated Soil Relocation Agreements (CSRA, Schedule 7).

.8 Transportation of Dangerous Goods Regulations.

1.5 DEFINITIONS

.1 Excavation classes: two classes of excavation will be recognized; common excavation and rock excavation.

.1 Rock: any sound or solid mass material in excess of 0.5 cubic metres, of such hardness and texture that it cannot be effectively loosened or broken down by mechanical ripping equipment with a minimum drawbar pull of 360 kN and/or by means of heavy duty excavation equipment. Frozen material is not classified as rock.

.2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.

.2 Unclassified excavation: excavation of deposits of whatever character encountered in Work.

.3 Contaminated Soil: Soil containing concentrations of regulated substances that exceed the Contaminated Site Regulations (CSR) (BC Reg. 375/96, last amended March, 2005), CSR Commercial Land Use (CL) Standards for soil and Canadian Council of the Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines for commercial land use.

.4 Topsoil:

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

.2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 25 millimeters in any dimension.

.5 Waste material: excavated material unsuitable for use in Work or surplus to requirements.

.6 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.

.7 Recycled fill material: material, considered inert, obtained from alternate sources and engineered to meet requirements of fill areas.

.8 Unsuitable materials:

.1 Weak, chemically contaminated, and compressible materials.

.2 Frost susceptible materials:

.1 Fine grained soils with plasticity index higher than 10 when tested to ASTM D4318, and classified as CL, CH, CL-ML, ML, and SM with material fine than 0.02 mm exceeding 15%.

.2 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

.9 Unshrinkable fill: very weak mixture of cement, concrete aggregates and water that resists settlement when placed in utility trenches, and capable of being readily excavated.

1.6 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Quality Control: in accordance with Section 01 45 00 - Quality Control:

.1 Submit condition survey of existing conditions as described in EXISTING CONDITIONS article of this Section.

.2 Submit for review by Departmental Representative proposed dewatering and heave prevention methods as described in PART 3 of this Section.

.3 Submit to Departmental Representative written notice when bottom of excavation is reached.

.4 Submit to Departmental Representative testing and inspection results and report as described in PART 3 of this Section.

.3 Preconstruction Submittals:

.1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.

.2 Submit records of underground utility locates, indicating: location plan of existing utilities as found in field, clearance record from utility authority and location plan of relocated and abandoned services, as required.

.4 Samples:

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Inform Departmental Representative at least 4 weeks prior to beginning Work, of proposed source of fill materials and provide access for sampling.

.3 At least 4 weeks prior to beginning Work, inform Departmental Representative of source of fly ash.

.1 Do not change source of Fly Ash without written approval of Departmental Representative.

1.7 QUALITY ASSURANCE

.1 Qualification Statement: submit proof of insurance coverage for professional liability.

.2 Submit design and supporting data at least 2 weeks prior to beginning Work.

.3 Design and supporting data submitted to bear stamp and signature of qualified professional engineer registered or licensed in Province of British Columbia, Canada.

.4 Keep design and supporting data on site.

.5 Engage services of qualified professional engineer who is registered or licensed in Province of British Columbia, Canada in which Work is to be carried out to design and inspect cofferdams, shotcrete excavation retaining walls, shoring, bracing and underpinning required for Work.

.6 Health and Safety Requirements:

.1 Do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

.7 Special Project Procedures:

.1 Comply with Section 01 35 43 /Environmental Procedures.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Divert excess aggregate materials from landfill to local quarry, recycling facility for reuse.

1.9 EXISTING CONDITIONS

.1 Contractor is responsible for fully familiarizing themselves with the existing site conditions prior to tender.

.2 Buried services:

.1 Before commencing work verify and establish location of buried services on and adjacent to site.

.2 Arrange with appropriate authority for relocation of buried services that interfere with execution of work: pay costs of relocating services.

.3 Remove obsolete buried services within 2 m of structure: cap cut-offs.

.4 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed. It is known that there are additional services in the project area that are not shown.

.5 Prior to beginning excavation Work, notify Departmental Representative and authorities having jurisdiction and establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during Work.

.6 Confirm locations of buried utilities by careful test excavations, soil hydrovac methods or other approved method.

.7 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered.

.8 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing and/or re-routing.

.9 Record location of maintained, re-routed and abandoned underground lines.

.3 Existing buildings and surface features:

.1 Conduct, with Departmental Representative, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, pavement, survey bench marks and monuments which may be affected by Work.

.2 Protect existing buildings and surface features from damage while Work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.

.3 Where required for excavation, cut roots or branches as directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Type 1 (bedding and pipe cushion), Type 2 (Granular Sub-base), Type 3 (select subgrade material) and Type 4 (Granular Base) fill: properties to Section 31 05 16 - Aggregate Materials and the following requirements:

.1 Crushed, pit run or screened stone, gravel or sand.

.2 Gradations to be within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.2.

.3 Table:

Sieve Designation	% Passing			
	Type 1	Type 2	Type 3	Type 4
75 mm	-	100	100	-
50 mm	-	-	70-100	-
37.5 mm	-	60-100	-	-
25 mm	100	-	50-100	-

Sieve Designation	% Passing			
	Type 1	Type 2	Type 3	Type 4
19 mm	90-100	35-80	-	100
12.5 mm	65-85	-	-	75-100
9.5 mm	50-75	26-60	-	60-90
4.75 mm	25-50	20-40	22-100	40-70
2.36 mm	10-35	15-30	10-85	27-55
1.18 mm	6-26	10-20	-	16-42
0.600 mm	3-17	5-15	-	8-30
0.300 mm	-	-	-	5-20
0.075 mm	0-5	0-5	2-8	2-8

.2 Type 2 Fill (Granular Sub-base): Properties as follows:

.1 Los Angeles degradation: to ASTM C 131. Max % Loss by mass: 40.

.2 Particles smaller than 0.02 mm: to ASTM D 422, Maximum 3%.

.3 Soaked CBR: to ASTM D 1883, Min 40 when compacted to 95% of ASTM D 698.

.3 Type 3 Fill (Select Subgrade Material): well-graded granular material, unfrozen and free from rocks larger than 75 mm, cinders, ashes, sods, refuse or other deleterious materials meeting the requirements in the above table.

.1 Recovered rock from the work by blasting, trenching or other approved method as per Section 31 23 16.26 – Rock Removal, may be used if crushed and graded to meet requirements of Type 3.

.4 Type 4 Fill (Granular Base): Properties as follows:

.1 Los Angeles degradation: to ASTM C 131. Max. % loss by weight: 45.

.5 Crushed particles: at least 60% of particles by mass within each of following sieve designation ranges to have at least one freshly fractured face. Material to be divided into ranges using methods of ASTM C 136.

.6 Unshrinkable fill: proportioned and mixed to provide:

.1 Maximum compressive strength of 0.5MPa at 28 days.

.2 Maximum cement content of 25 kg/m; with 40% by volume fly ash replacement

.3 Minimum strength of 0.07 MPa at 24 h.

.4 Concrete aggregates: to CSA A23.1/A23.2.

.5 Cement: Type 10 Portland Cement.

.6 Slump: 160 to 200mm.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Prepare sediment and erosion control drawings and sediment and erosion control plan specific to the site that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction and contractor's sediment and erosion control drawings and sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.

.3 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.4 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 SITE PREPARATION

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.3 PREPARATION/PROTECTION

.1 Protect existing features in accordance with Section 01 56 00 - Temporary Facilities and Enclosures and applicable local regulations.

.2 Keep excavations clean, free of standing water, and loose soil.

.3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative's approval.

.4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.

.5 Protect buried services that are required to remain undisturbed.

3.4 CONTAMINATED SOILS

.1 Set up environmental and engineering controls as specified and required as per applicable regulations.

.2 Remove top soil, existing fill material if any and excavate the areas.

.3 Test, handle, load and transport contaminated materials as per the applicable federal, provincial and municipal regulations.

.4 Upon completion of excavation, test the excavated areas for contamination. Obtain PWGSC Representative's approval of excavated area prior to backfilling after the results confirm that all contamination has been removed.

.5 Backfill excavated areas as specified.

3.5 STRIPPING OF TOPSOIL

.1 Strip topsoil where required.

.2 Strip topsoil to existing fill materials and native soil.

.1 Do not mix topsoil with existing fill or native soil.

.3 Stockpile on site within the Limit of Construction of each stage of work.

.1 Stockpile height not to exceed 2 m and should be protected from erosion.

.4 Dispose of unused topsoil off site.

3.6 STOCKPILING

.1 Stockpile fill materials on site within the Limit of Construction of each stage of work.

.1 Stockpile granular materials in manner to prevent segregation. Maximum stockpile height is 2.5 metres.

.2 Protect fill materials from contamination.

.3 Protect fill materials from wet weather conditions, precipitation, and excessive moisture.

.4 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies.

3.7 DEWATERING AND HEAVE PREVENTION

.1 Keep excavations free of water while Work is in progress.

.2 Provide for Departmental Representative's review details of proposed dewatering or heave prevention methods, including dikes, well points, and sheet pile cut-offs.

.3 Avoid excavation below groundwater table if quick condition or heave is likely to occur.

.1 Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.

.4 Protect open excavations against flooding and damage due to surface run-off.

.5 Dispose of water in accordance with Section 01 35 43 - Environmental Procedures to approved collection areas and in manner not detrimental to public and private property, or portion of Work completed or under construction.

.1 Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.

.6 Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas.

3.8 EXCAVATION

.1 Excavate to lines, grades, elevations and dimensions as indicated.

.2 Excavation must not cause bearing capacity failure and settlement of adjacent foundations.

.3 For trench excavation, unless otherwise authorized by Departmental Representative in writing, do not excavate more than 30 m of trench in advance of installation operations and do not leave open more than 15 m at end of day's operation.

.4 Keep excavated and stockpiled materials safe distance away from edge of trench as directed by Departmental Representative.

.5 Restrict vehicle operations directly adjacent to open trenches.

.6 Do not obstruct flow of surface drainage or natural watercourses.

.7 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

.8 Notify Departmental Representative when bottom of excavation is reached.

.9 Obtain Departmental Representative’s approval of completed excavation.

.10 Remove unsuitable material from trench bottom including those that extend below required elevations to extent and depth as directed by Departmental Representative.

.11 Correct unauthorized over-excavation as follows:

.1 Fill under bearing surfaces and footings with Type 1 fill compacted to not less than 95% Standard Proctor maximum dry density.

.2 Fill under other areas with Type 3 fill compacted to not less than 95% of Standard Proctor maximum dry density.

.12 Hand trim, make firm and remove loose material and debris from excavations.

.1 Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil.

.2 Clean out rock seams and fill with concrete mortar or grout to approval of Departmental Representative.

3.9 BEDDING AND SURROUND OF UNDERGROUND SERVICES

.1 Place and compact granular material for bedding and surround of underground services as indicated and as specified in Division 33.

.2 Place bedding and surround material in unfrozen condition.

3.10 BACKFILLING

.1 Do not proceed with backfilling operations until completion of following:

.1 Departmental Representative has inspected and approved installations.

.2 Departmental Representative has inspected and approved of construction below finish grade.

.3 Inspection, testing, approval, and recording location of underground utilities.

.4 Removal of concrete formwork.

.5 Removal of shoring and bracing; backfilling of voids with satisfactory soil material.

.2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.

.3 Do not use backfill material which is frozen or contains ice, snow or debris.

.4 Place backfill material in uniform layers not exceeding 300 mm loose thickness up to grades indicated. Compact each layer before placing succeeding layer.

.5 Backfilling around installations:

.1 Place bedding and surround material as specified elsewhere.

.2 Do not backfill around or over cast-in-place concrete within 48 hours after placing of concrete.

.3 Place layers simultaneously on both sides of installed Work to equalize loading. Difference not to exceed 500 mm.

.4 Where temporary unbalanced earth pressures are liable to develop on walls or other structures:

.1 Permit concrete to cure for minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure and approval obtained from Departmental Representative.

.6 Place unshrinkable fill in areas as indicated.

.7 Consolidate and level unshrinkable fill with internal vibrators.

.8 Install drainage filter system in backfill as indicated.

3.11 RESTORATION

.1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 19 - Waste Management and Disposal, trim slopes, and correct defects as directed by Departmental Representative.

.2 Replace topsoil as indicated and as directed by Departmental Representative.

.3 Reinstate lawns to elevation which existed before excavation.

.4 Reinstate pavements and sidewalks disturbed by excavation to thickness, structure and elevation as indicated.

.5 Clean and reinstate areas affected by Work as directed by Departmental Representative.

.6 Use temporary plating to support traffic loads over unshrinkable fill for initial 24 hours.

.7 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 74 11 – Cleaning.

.2 Section 01 74 19 – Waste Management and Disposal.

1.2 REFERENCES

.1 Definitions:

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

.2 Reference Standards:

.1 U.S. Environmental Protection Agency (EPA)/Office of Water

.1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.

.2 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.

.3 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.4 Include in Environmental Protection Plan:

.1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.

.2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of persons responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

.6 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.8 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.

.9 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.10 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, disinfection water, and water used in flushing of lines.

1.4 SOIL STOCKPILING FACILITIES

.1 Provide, maintain, and operate storage/stockpiling facilities as required.

.2 Install 6 mil polyethylene below proposed stockpile locations to prevent contact between stockpile material and ground. Equip facility with tarps capable of covering stockpiled material and dispose material off site, as directed by engineer.

1.5 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.6 DRAINAGE

.1 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.7 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

.1 Provide temporary enclosures where directed by Departmental Representative.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.8 NOTIFICATION

.1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

.1 Do not take action until after receipt of written approval by Departmental Representative.

.3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products - Not Used

1.9 NOT USED

.1 Not used

Part 3 Execution

3.1 CLEANING

.1 Clean in accordance with Section 01 74 11 – Cleaning.

.2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION