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PART 1 GENERAL

1.1 Description

- .1 This Section specifies requirements for Contractor's use of the Project Site.

1.2 General

- .1 The existing Site has space for accommodation for the Contractor's tools and materials. Exact location will be identified in the pre-construction meeting.
- .2 Make arrangements with Owner's Representative if additional areas are required. Obtain written agreements and submit copies to the Owner's Representative.

1.3 Owner/Operations Occupancy

- .1 Operations will occupy premises during the entire construction period for execution of normal and emergency operations. No claims for delays caused by operations will be approved.
- .2 Cooperate with the Owner's Representative and Owner's operations staff in scheduling operations to minimize conflict and to facilitate operation of the station. The needs of operations take precedence.

1.4 Work Areas

- .1 Confine operations within areas designated for construction, storage, and access as determined in the pre-construction meeting.
- .2 Install and maintain fencing around laydown perimeter and storage areas and access routes.
- .3 Do not enter upon or occupy with people, tools, or materials any lands other than public streets, roadways, rights-of-way, or easements shown on Contract Drawings except after written consent has been received from property owner.
- .4 Do not unreasonably encumber Site with materials or equipment.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 General

- .1 This section of the specification forms part of the Contract Documents and shall be read in conjunction with them.
- .2 This section specifies the requirement for measurement and payment of the Work to be performed under the various specifications and as outlined on the Schedule of Quantities.
- .3 Additional instructions for measurement and/or payment for items of the Work may be contained in specific sections of the Technical Specifications where appropriate. In case of conflict between various sections of the specifications, this section takes precedence over the specifications.
- .4 All measurements shall be along a horizontal plane unless otherwise indicated.
- .5 Unless otherwise specified, unit rates and lump sum price bid shall include all labour, materials, supply, installation, tools, equipment, operating and maintenance costs, temporary works, and for supervision, overhead and profit. It is further understood and agreed that the cost for each item includes all sales taxes, permits, and fees, and any or all Municipal, Territorial, and Federal charges in connection with the Work and that costs of a general nature that do not pertain to any one item or for which no particular reference is made in the descriptions are distributed among all items that are bid. Bids are full compensation for the Work necessary to complete each item in the Contract in combination with all other work necessary to the completion of the Work as a whole and not bid as a separate item.
- .6 The whole of the Work shall be on a "Lump Sum" or "Unit Rates" basis as defined in the Schedule of Quantities.
- .7 Payment shall not be made for Work requiring an inspection certificate until the certificate has been issued by the Owner's Representative.
- .8 All costs necessary to complete Work as specified and shown on the Drawings shall be allowed for in the bid prices tendered. Where an item of Work is not shown in the Schedule of Quantities, the cost of the item of Work shall be included with the most appropriate item of Work listed.
- .9 The work descriptions given in the following clauses do not necessarily describe the Work in complete detail. Work not specifically included shall be allowed for as required above.

- .10 Temporary facilities shall include any costs, moving equipment during the course of construction, materials, offices and other items, and any expenses associated with the project, including security fencing, barricades, channelizer barrels, survey, quality control testing, access road, Contractor's Security Escort, etc. Payment shall be on a lump sum basis as a percentage of the work complete, as agreed upon between the Contractor and Engineer.

1.2 Mobilization/Demobilization

1.3 Supply and Delivery

- .1 The prices tendered shall include all labour, equipment, and materials for the fabrication and/or procurement of the materials specified and the delivery of the materials to the Project site.
- .2 For the purposes of this Contract, supply and delivery will be paid once materials have been installed to the satisfaction of the Owner's representative.

1.4 Schedule of Quantities and Unit Prices

- .1 Payments will be made on basis of percentage of completion of the item as estimated by the Owner's Representative.
- .2 Mobilization/Demobilization

- .1 Unit of Measurement: Lump Sum
- .2 Method of Measurement: No Measurement will be made for this item. Payment shall be made based on the following:
 - .1 20% of the lump sum price will be paid upon confirmation by the Owner's Representative that the Contractor has delivered the necessary material and equipment to complete the Work as outlined in the Contract Documents.
 - .2 60% of the lump sum price will be retained and paid on equal monthly installments based on the duration of the construction schedule.
 - .3 20% of the lump sum price will be paid once site clean-up and restoration has been accepted.
- .3 The following items are considered incidental to Mobilization/Demobilization:
 - .1 Bonding,
 - .2 Insurance,
 - .3 Temporary facilities, Testing, and Commissioning,
 - .4 Storage,
 - .5 Existing signage removal/reinstallation,
 - .6 Traffic accommodation plan and traffic accommodation,
 - .7 Existing sanitary and watermain elevation checks for conflict avoidance,
 - .8 Submittals, unless noted as a pay item in the Schedule of Quantities,
 - .9 Project meetings,
 - .10 Project management/coordination/notifications,
 - .11 Pre-construction site review, and
 - .12 Other operations performed or costs incurred before the beginning of work, unless noted as a pay item in the Schedule of Quantities.
 - .13 Provision of safety requirements.
 - .14 Preparation and submission Environmental Management Plan.
- .3 Supply and Install Pre-insulated HDPE DR9 (Water)

- .1 Unit of Measurement: Lineal Meters
- .2 Method of Measurement: The number of lineal meters of pipe actually supplied and installed in the completed and accepted work as measured from end to end along the centre line of the pipe including the length of the fittings or appurtenances.
- .3 Item Includes: Supply, shipping, handling as specified in the specifications and drawings, and supply of all material, equipment, labour, and incidentals necessary including detectable warning/marker tape, fittings, bends, and couplings as indicated on the drawings and outlined in the specifications. Reducers and expansions joints excluded.
- .4 Supply and Install Pre-insulated HDPE DR9 (Sewer)
 - .1 Unit of Measurement: Lineal Meters
 - .2 Method of Measurement: The number of lineal meters of pipe actually supplied and installed in the completed and accepted work as measured from end to end along the centre line of the pipe including the length of the fittings or appurtenances.
 - .3 Item Includes: Supply, shipping, handling as specified in the specifications and drawings, and supply of all material, equipment, labour, and incidentals necessary including detectable warning/marker tape, fittings, bends, and couplings as indicated on the drawings and outlined in the specifications. Reducers and expansions joints excluded.
- .5 Single (1) Pipe Trench
 - .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of single (1) pipe trench actually excavated, backfilled, and compacted in the completed and accepted work as measured along the centre line of the installed pipe including the length of fittings, bends and couplings. Reducers and expansions joints excluded.
 - .3 Item Includes: All common excavation, supply placement and compaction of bedding and backfill material for both (native or approved backfill and sand Bedding) as indicated on the drawings, material testing, compaction testing, drainage ditch restoration, off site disposal of excess material, as built survey every ten (10) lineal metres and at bends, road and driveway restoration with Granular A and Granular B, and supply of all material, equipment, labour and incidentals necessary to complete the work as intended by the contract documents.
- .6 Double (2) Pipe Trench

-
- .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of double (2) pipe trench actually excavated, backfilled, and compacted in the completed and accepted work as measured along the centre line of the installed pipe including the length of fittings, bends and couplings. Reducers and expansions joints excluded. For the purpose of measurement, a double pipe trench is defined as any run of double pipe where the distance between pipes is equal to or less than 1.60m on centre.
 - .3 Item Includes: All common excavation, supply placement and compaction of bedding and backfill material for both (native or approved backfill and sand bedding) as indicated on the drawings, material testing, compaction testing, drainage ditch restoration, off site disposal of excess material, as built survey every ten (10) lineal metres and at bends, road and driveway restoration with Granular A and Granular B, restoration and supply of all material, equipment, labour and incidentals necessary to complete the work as intended by the contract documents.
- .7 Triple (3) Pipe Trench
- .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of triple (3) pipe trench actually excavated, backfilled, and compacted in the completed and accepted work as measured along the centre line of the installed pipe including the length of fittings, bends and couplings. Reducers and expansions joints excluded. For the purpose of measurement, a triple pipe trench is defined as any run of triple pipe where the distance between the sanitary and water pipes is equal to or less than 1.60m on centre.
 - .3 Item Includes: All common excavation, supply placement and compaction of bedding and backfill material for each (native or approved backfill and sand bedding) as indicated on the drawings, material testing, compaction testing, drainage ditch restoration, off site disposal of excess material, as built survey every ten (10) lineal metres and at bends, road and driveway restoration with Granular A and Granular B, and supply of all material, equipment, labour and incidentals necessary to complete the work as intended by the contract documents.
- .8 Supply and Install Lateral Water Service and Water Recirculation Line
- .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of service pipe supplied and actually installed including excavation and backfilling in the completed and accepted work as measured from end to end along the centre line of the pipe including the length of fitting and appurtenances.

- .3 Item Includes: Supply, shipping, handling installation of the water service piping as specified in the specifications and drawings, service tee to water main, main stops, curb stops, tapping of the watermain, building connection, steel service form with cover, pre-insulated casing pipe, steel plates (vehicular protection), and supply of all material, equipment, labour and incidentals necessary to complete the work as intended by the contract documents.
- .9 Supply and Install Lateral Insulated HDPE Sanitary Service
 - .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of pipe actually installed including excavation, backfilling and compaction in the completed and accepted work as measured along the centre line of the installed pipe including the length of fittings, bends, and couplings.
 - .3 Item Includes: Supply, shipping, handling installation of the service piping as specified in the specifications and drawings, connection to the sewer main, saddle, insulation, building connection, and supply of all material, compaction testing equipment, labour, and incidentals necessary to complete the work as intended by the contract documents.
- .10 Single (1) Service Trench Install Water / Sewer Services
 - .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of single (1) service pipe trench actually excavated, backfilled, and compacted in the completed and accepted work as measured along the centre line of the installed pipe including the length of fittings, bends and couplings. Reducers and expansions joints excluded.
 - .3 Item Includes: All common excavation, supply placement and compaction of bedding and backfill material for both (Native or Approved Backfill and Sand Bedding) as indicated on the drawings, material testing, drainage ditch restoration, off site disposal of excess material, compaction testing, as built survey every ten (10) lineal metres and at bends, road and driveway restoration with Granular A and Granular B, and supply of all material, equipment, labour and incidentals necessary to complete the work as intended by the contract documents.
- .11 Double (2) Service Trench Install Water / Sewer Services
 - .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of double (2) pipe services trench actually excavated, backfilled, and compacted in the completed and accepted work as measured along the centre line of the installed pipe including the length of fittings, bends and couplings. Reducers and expansions joints excluded. For the purpose of measurement, a double service trench is defined as any run of double service pipe where the distance between the sanitary and water services is equal to or less than 1.60m on centre.

- .3 Item Includes: All common excavation, supply placement and compaction of bedding and backfill material for both (native or approved backfill and sand bedding) as indicated on the drawings, material testing, compaction testing, drainage ditch restoration, off site disposal of excess material, as built survey every ten (10) lineal metres and at bends, road and driveway restoration with Granular A and Granular B, and supply of all material, equipment, labour and incidentals necessary to complete the work as intended by the contract documents.
- .12 Pre-Fabricated Access Vaults Shop Drawings
 - .1 Unit of Measure: Each
 - .2 Method of Measurement: One shop drawing per maintenance hole.
 - .3 Item Includes: Supply of all material, equipment, labour, and incidentals, including engineering and revisions, necessary to complete the shop drawings.
- .13 Supply Pre-Fabricated Access Vaults
 - .1 Unit of Measurement: Each
 - .2 Method of Measurement: Number of Pre-Fabricated Access Vaults supplied.
 - .3 Item Includes: Supply, shipping, all interior piping (coupling, valves, hydrants, cleanouts, reducers, bends, bleeders, pipe supports, etc.) and appurtenances as specified in the specifications and drawings as well as supply of all material, equipment, labour, and incidentals necessary to complete the work as intended by the contract documents.
- .14 Install Pre-Fabricated Access Vaults
 - .1 Unit of Measurement: Each
 - .2 Method of Measurement: Number of Pre-Fabricated Steel Maintenance Holes installed.
 - .3 Item Includes: All common excavation, supply placement and compaction of bedding and backfill material for both (backfill and sand bedding), connection to existing water and sewer mains, material testing, compaction testing, as built survey (top of access vault in the centre of the access vault, pipe elevations), access vault identification tag/signage, granular fill, supply/installation of board insulation, road and driveway restoration with Granular A and Granular B, and supply of all material, equipment, labour and incidentals necessary to complete the work as intended by the contract documents.

- .15 Access Vaults Spare Parts
 - .1 Unit of Measurement: Lump Sum
 - .2 Method of Measurement: No Measurement will be made for this item. Payment shall be made after delivery of each item or group of items to the Municipality's Operations and Maintenance department, to the satisfaction of the Owner's Representative.
 - .3 Item Includes: Supply and delivery of spare parts in clearly labelled original manufacturer packaging. Include manufacturer name, vendor contact, part number, description of intended use, size, and installation instructions, affixed to packaging.
 - .4 For coupling gaskets, indicate whether or not the gasket is suitable for potable water applications.
 - .5 For 'Misc. Hardware', the lump sum price shall include:
 - .1 Coupling bolts/nuts/washers, set of 10.
 - .2 Sewer cleanout bolts/nuts/washers, set of 10.
- .16 Remove and Dispose of Existing Access Vaults
 - .1 Unit of Measurement: Each
 - .2 Method of Measurement: Number of access vaults removed.
 - .3 Item Includes: Complete removal and disposal of existing steel or concrete access vaults, appurtenances, and bollards, including any tipping fees, cutting off pipes prior to vault removal, supply, placement, and compaction of backfill material, surface restoration, and all material, equipment, labour, tools, and incidentals necessary to complete the Work.
- .17 Remove/Decommission Existing Mains/Services/Culverts
 - .1 Unit of Measurement: Lump Sum
 - .2 Method of Measurement: No Measurement will be made for this item. Payment shall be made based on the percentage of the Work completed, as determined by the Owner's Representative.
 - .3 Item Includes: Decommissioning of the existing watermains, sanitary sewer mains, services, and culverts as indicated on the Drawings. This item includes removal and disposal or abandonment in place of existing pipes as indicated on the Drawings, the supply of waterproof plugs and end caps, the installation of blind flanges at vaults which are to remain, and all labour, materials, equipment, tools, and incidentals necessary to complete the Work.

- .18 Reducers
 - .1 Unit of Measurement: Each
 - .2 Method of Measurement: The number of reducers installed, for the sizes indicated on the Unit Price Schedule.
 - .3 Item Includes: Supply and installation of reducer, and all labour, materials, equipment, tools, and incidentals necessary to complete the Work.
- .19 Tie to Existing Main
 - .1 Unit of Measurement: Each
 - .2 Method of Measurement: The number of completed connections to existing mains.
 - .3 Item Includes: Supply and installation of restraint coupling and stainless steel pipe stiffener inserts, pipe preparation, cutting, fusion, and all labour, materials, equipment, tools, and incidentals necessary to complete the Work.
- .20 Georg Fischer Multi-Joint Vault Connection Coupling
 - .1 Unit of Measurement: Each
 - .2 Method of Measurement: The number of Georg Fischer Multi-Joint vault connection couplings installed, for the sizes indicated on the Unit Price Schedule.
 - .3 Item Includes: Supply and installation of Georg Fischer Multi-Joint vault connection coupling and stainless steel pipe inserts, and all labour, materials, equipment, tools, and incidentals necessary to complete the Work.
- .21 Temporary Utilities / Bypass
 - .1 Unit of Measurement: Lump Sum or Each (As indicated on Schedule of Quantities).
 - .2 Item Includes: Preparation of a detailed temporary utilities / bypass plan, completed to the satisfaction of the Owner's Representative, with regular updates based on field requirements.
 - .3 Item Includes: Supply, installation, and maintenance as specified in the specifications to ensure temporary water and sewer are provided to all residence impacted by construction during the construction period. This item includes all labour, plant, and materials necessary to complete the work.

- .4 Where the Unit Price Item for Temporary Utilities indicates that tie-ins to existing buried water services is included in the Lump Sum price, the price shall include connection of the overland system to buried water services as required, fittings, shut-off of return water, disconnection after new services are installed, excavation, and backfill. Connection to existing buried water services is anticipated at industrial-use buildings.
- .5 Where there is a separate line item for 'Temporary Connection to Existing Buried Water Service (Provisional)', the unit price per connection shall include connection of the overland system to the buried water service, fittings, shut-off of return water, disconnection after new services are installed, excavation, and backfill. This provisional item is to be used if it is not possible or practical to make an overland connection at the building.
- .22 Pole Relocation, Shoring, and Bracing
 - .1 Unit of Measurement: Lump Sum
 - .2 Method of Measurement: Lump Sum.
 - .3 Item Includes: Relocating, shoring, and / or bracing utility poles along utility easements as required to complete the work detailed in the contract drawings and specifications and coordination with the utility owner. This item includes all labour, plant, and materials necessary to complete the work. The Contractor, through coordination with the utility owner's representative, shall determine which poles are to be braced / shored and which poles will be relocated. Bracing/shoring and relocation shall be completed in accordance with the requirements of the utility owner.
- .23 Culverts
 - .1 Unit of Measurement: Lineal Metres
 - .2 Method of Measurement: The number of lineal metres of culvert installed including excavation, backfilling, and bedding, in the completed and accepted work as measured from end to end along the centre line of the pipe including the length of fittings.
 - .3 Item Includes: Supply, shipping, handling installation of the culvert as specified in the specifications and drawings.
- .24 Rip Rap
 - .1 Unit of Measurement: Square Metres
 - .2 Method of Measurement: The number of square metres of rip rap supplied and actually installed.
 - .3 Item Includes: Supply, processing, handling, and installation of the rip rap as specified at culvert ends, or as directed.
- .25 Ditching

- .1 Unit of Measurement: Linear Meters
 - .2 Method of Measurement: the number of linear meters of ditching installed
 - .3 Items Included: Shaping of ditch to match typical cross section, supply, processing, handling, and installation of geotextile material and riprap as specified, or as directed.
- .26 Rock Excavation and Disposal (Provisional)
- .1 Unit of Measurement: Cubic Metres
 - .2 Method of Measurement: The number of cubic metres of rock removed from the trench area to facilitate water and sewer piping and vault installation. The measurement shall be agreed upon by the Contractor and the Owner's Representative in the field by measuring the approximate length, width and depth of the void left by the rock removal. The Contractor shall measure the rock area prior to and after removal for record keeping and quantity verification.
 - .3 Item Includes: Equipment, labour, and incidentals necessary to complete the work as intended by the contract documents, including hydraulic breaking, disposal as directed (on site or off site), excavation, trucking, and stockpiling.
- .27 Asphalt Supply and Installation (Provisional)
- .1 Unit of Measurement: Square Metres
 - .2 Method of Measurement: The number of square metres of asphalt installed following water and sewer piping and vault installation. The measurement shall be agreed upon by the Contractor and the Owner's Representative in the field by measuring the approximate length and width of asphalt installed. The Contractor shall measure the asphalt area prior to and after installation for record keeping and quantity verification.
 - .3 Item Includes: Equipment, labour, and incidentals necessary to complete the work as intended by the contract documents.
- .28 Sand for Use in Rock Fill Areas to Fill Voids (Provisional)
- .1 Unit of Measurement: Cubic Metres
 - .2 Method of Measurement: The number of cubic metres of sand installed in the trench area (below the normal pipe bedding zone) to facilitate water and sanitary sewer piping and vault installation. The quantity shall be agreed upon by the Contractor and the Owner's Representative in the field by measuring the approximate length, width, and depth of sand installation. The Contractor shall measure the sand area prior to and after installation for record keeping and quantity verification.
 - .3 Item Includes: The supply and placement of sand, and all equipment, labour, materials, tools, and incidentals necessary to complete the Work.
- .29 Sub Excavation of Unsuitable Trench c/w Granular 'B' Backfill (Provisional)

- .1 Unit of Measurement: Cubic Metres
- .2 Method of Measurement: The number of cubic metres of unsuitable material removed from the trench area to facilitate water and sewer piping and vault installation. The measurement shall be agreed upon by the Contractor and the Owner's Representative in the field by measuring the approximate length, width and depth of the void left by the excavation. The Contractor shall measure the excavation area prior to and after removal for record keeping and quantity verification.
- .3 Item Includes: Equipment, labour, and incidentals necessary to complete the work as intended by the contract documents, including excavation, disposal as directed (on site or off site), trucking, and stockpiling.

PART 2 MATERIALS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Examination of Site

- .1 Prior to commencing actual construction Work, inspect field conditions in the presence of the Owner and the Owner's representative, examine surface conditions, and stake out all water and sewer alignments and access vault locations as required to ensure correct execution of the Work. Submit a report and photo log to document existing site conditions prior to mobilization.
- .2 Commencement of construction constitutes acceptance of existing conditions and means dimensions have been considered, verified and are acceptable.
- .3 Recording of existing conditions: If rock removal, or construction activities may interfere with foundations of adjacent buildings, roads, fences, retaining walls, driveways, or other structures, take photographs to record existing conditions and review with the Owner's Representative prior to commencing construction.

1.2 Documents/Instructions

- .1 The Owner's Representative will provide a reproducible PDF file that the Contractor can use to produce hard copy Drawings for their use during construction. The Contractor is responsible for the cost of production of hard copy Drawings and Specifications.

1.3 Discrepancies/Omissions

- .1 Notify the Owner's Representative immediately upon discovery of discrepancies or omissions in the Contract Documents or of any doubt as to the meaning or intent of any part thereof.

1.4 Documents on Site

- .1 Maintain one (1) copy of all current Contract Documents and all Shop Drawings on Site, in good condition and available to the Owner's Representative.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Work Included

- .1 This Section is not intended to apply to mill test reports and certificates of compliance, tests to demonstrate or adjust and balance equipment and systems, or other similar requirements for quality control that are Contractor's responsibility. Particular requirements are specified in appropriate Sections related to the product, equipment, or system. Results of such tests shall be submitted 10 working days prior to construction for review by the City of Iqaluit and their representatives.

1.2 Related Requirements

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Owner's Representative are specified in the related Sections.

1.3 Appointment and Payment

- .1 No appointment or payment will be provided for services of testing laboratory for the following:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations, or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment, and balancing of conveying systems, mechanical and electrical equipment, and systems.
 - .4 Mill tests and certificates of compliance.
 - .5 Tests specified to be carried out by Contractor under the supervision of Owner's Representative.
 - .6 Additional tests specified in the following paragraph.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with Contract requirements, the Contractor shall pay costs for additional tests or inspections as the Owner's Representative may require to verify acceptability of corrected Work.

1.4 Contractor's Responsibilities

- .1 Provide labour, equipment, and facilities to:
 - .1 Provide access to Work to be inspected and tested.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspections and tests.
 - .4 Provide storage on-site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .3 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Owner's Representative.

PART 2 PRODUCTS

.1 Not used.

PART 3 EXECUTION

.1 Not used.

PART 4 BASIS FOR PAYMENT

.1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Definitions

- .1 Activity: An element of Work performed during the course of the Project. An activity normally has an expected duration, expected cost, and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (Gantt Chart): A graphic display of schedule-related information. In a typical bar chart, activities or other Project elements are listed down the left side of the chart, dates are shown across the top, and activity durations are shown as date-placed horizontal bars. The Gantt Chart shall be derived from a commercially available computerized project management system.
- .3 Baseline: Original approved plan (for Project, Work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Six (6) day work week with no work to take place on Sundays. Define scheduled Calendar Working Days as part of Bar (Gantt) Chart submission.
- .5 Duration: Number of Work periods (not including holidays or other non-working periods) required to complete an activity or other Project element. Usually expressed as Work Days or Work Weeks.
- .6 Master Plan: A summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: A significant event in the Project, usually the completion of a major deliverable.
- .8 Project Schedule: The planned dates for performing activities and the planned dates for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout Project life cycle.
- .9 Project Planning, Monitoring, and Control System: Overall system operated by Owner's Representative to enable monitoring of Project Work in relation to established milestones.

1.2 Requirements

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and timeframe.

- .3 Limit activity durations to maximum of approximately 10 Working Days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this Contract.

1.3 Submittals

- .1 Submit to the Owner's Representative within fifteen (15) working days of Award of Contract, a Bar (Gantt) Chart, in PDF format, for planning, monitoring, and reporting of Project progress.

1.4 Project Schedule

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes at minimum milestone and activity types as follows:
 - .1 Award,
 - .2 Shop Drawings, samples,
 - .3 Mobilization,
 - .4 Site preparation, removals, and temporary servicing,
 - .5 Site survey and layout,
 - .6 Water and sewer installation,
 - .7 Road construction,
 - .8 Fence installations, and
 - .9 Final completion.

1.5 Project Schedule Reporting

- .1 Update Project Schedule monthly reflecting activity changes and completions, as well as activities in progress.
- .2 Show projected percentage of completion of each item as of first day of month.
- .3 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impacts, with possible mitigation.

1.6 Project Meetings

- .1 Discuss Project Schedule at regular Site meetings, identify activities that are behind schedule, and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 35 30 – Health and Safety Requirements.
- .2 Section 01 35 43 – Environmental Procedures.
- .3 Section 01 45 00 – Quality Control.
- .4 Section 01 55 26 – Traffic Control.
- .5 Section 01 78 00 – Closeout Submittals.
- .6 Section 01 78 23 – Operation and Maintenance Manuals.
- .7 Section 01 78 39 – Project Record Drawings.

1.2 Administrative

- .1 Submit to Owner's Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples, and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .5 Review submittals prior to submission to Owner's Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated, and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6 Notify Owner's Representative, in writing at time of submission, of deviations from requirements of Contract Documents and state reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Owner's Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Owner's Representative's review.
- .10 Keep one reviewed copy of each submission on-site.

1.3 Shop Drawings and Product Data

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are to be provided by the Contractor to illustrate details of a portion of the Work.
- .2 Submit shop drawings bearing the stamp and signature of qualified professional engineer registered or licensed by, and in good standing with, the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG) where required.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes, and other information necessary for completion of the Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to Contract Documents.
- .4 Allow 15 business days for Owner's Representative's review of each submission.
- .5 Adjustments made on shop drawings by Owner's Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Owner's Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Owner's Representative may require. When resubmitting, notify Owner's Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter containing:
 - .1 Date,
 - .2 Project title and number,
 - .3 Contractor's name and address,
 - .4 Identification and quantity of each shop drawing, product data, and sample, and
 - .5 Other pertinent data.
- .8 Submissions shall include:
 - .1 Date and revision dates,
 - .2 Project title and number,
 - .3 Name and address of:
 - .1 Sub-contractor,
 - .2 Supplier, and
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements, and compliance with Contract Documents, and
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication,

- .2 Layout, showing dimensions, including identified field dimensions, and clearances,
 - .3 Setting or erection details,
 - .4 Capacities,
 - .5 Performance characteristics,
 - .6 Standards,
 - .7 Operating weight,
 - .8 Wiring diagrams,
 - .9 Single line and schematic diagrams, and
 - .10 Relationship to adjacent Work.
- .9 Submit one (1) electronic copy of shop drawings for each requirement requested in specification Sections and as requested by Owner's Representative.
- .10 Submit one (1) electronic of test reports for requirements requested in specification Sections and as requested by Owner's Representative.
- .1 Report signed by authorized official of testing laboratory that material, product, or system identical to material, product, or system to be provided has been tested in accordance with specified requirements.
 - .2 Testing must have been within 3 years of date of Contract award for Project.
- .11 Submit one (1) electronic of certificates for requirements requested in specification Sections and as requested by Owner's Representative.
- .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system, or material attesting that product, system, or material meets specified requirements.
 - .2 Certificates must be dated after Contract award of Project, complete with project name.
- .12 Submit three (3) paper copies and one (1) electronic copy of manufacturer's instructions for requirements requested in specification Sections and as requested by Owner's Representative.
- .1 Pre-printed material describing installation of product, system, or material, including special notices and Material Safety Data Sheets concerning impedances, hazards, and safety precautions.
- .13 Submit three (3) paper copies and one (1) electronic of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Owner's Representative.
- .14 Submit one (1) electronic copy of documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .15 Submit three (3) paper copies and one (1) electronic of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Owner's Representative.
- .16 Delete information not applicable to Project.

- .17 Supplement standard information to provide details applicable to Project.
- .18 If upon review by the Owner's Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned, and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.4 Photographic Documentation

- .1 Submit electronic copy of colour digital photography in jpg format, fine resolution, monthly with progress statement as directed by Owner's Representative.
- .2 Project identification: name and number of Project and date of exposure shall be indicated.
- .3 Frequency of photographic documentation: as directed by Owner's Representative

1.5 Certificates and Transcripts

- .1 Immediately after award of Contract, submit Workers' Safety and Compensation Commission (WSCC) status.
- .2 Submit transcription of insurance immediately after award of Contract.

1.6 Required Contractor Submittals

- .1 General
 - .1 This Clause identifies the plans, programs, and documentation required prior to mobilization on Site and during the construction phase.
- .2 Pre-Mobilization Submittals
 - .1 The Contractor shall not begin any Site Work until the Owner's Representative has authorized acceptance of submittals in writing. Submit the following plans and programs to the Owner's Representative for review a minimum of twenty (20) days prior to mobilization to the Project Site.
 - .2 Project schedule, detailing the schedule of the workdays required from Contractor, sub-contractors, suppliers, and consultants to complete each activity of the Project by road segment or location in order to meet the Substantial Completion date. In addition, for each activity, critical elements that could impact the schedule are to be identified. Submission shall include an electronic copy in a Bar Chart (Gantt Chart) format.
 - .3 List of sub-contractors, suppliers, and consultants, their role and their key personnel, including names and positions, addresses, and telephone and cellular numbers.
 - .4 Plan describing methods the Contractor will have to meet their responsibilities as the Prime Contractor for Safety and Traffic Control within the Work limits and to coordinate Work, traffic control, site access, safety, with other Contractors working in or adjacent to the Contract work zone.

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- .5 Contractor Chain of Command, listing key Contractor personnel, including for each: name, position, qualification, experience, and telephone and cellular numbers. The list shall include the names and telephone/cellular numbers for contact persons who are available on a 24-hour basis in the event of emergencies.
 - .6 Work Plan, describing in detail each activity and location, the Contractor's intended methods of construction, and materials, equipment, and labour that will be used to meet Substantial Completion date. The Work Plan must be linked to the Project Schedule.
 - .7 Quality Control Plan in accordance with Section 01 45 00 – Quality Control, including Quality Control checklist examples.
Traffic Management Plan, in accordance with the requirements of Section 01 55 26 –Traffic
 - .8 Environmental Protection Plan (EPP) that meets the requirements of Section 01 35 43 – Environmental Procedures. Submission of EPP must allow 2 weeks for review by the Owner's Representative, in accordance with Section 01 35 43 – Environmental Procedures.
 - .9 Site Access and Detour Plans shall include, but not be limited to, engineered drawings and procedures for accessing all areas of the Work or for proposed detours.
 - .10 Survey Plan describing the Contractor's intended methods of surveying during this Project.
 - .11 Contractor shall develop an "Emergency Procedures Protocol" in consultation with the Owner. On site Plan to address standard operating procedures to be implemented during emergency situations.
 - .12 Health and Safety Plan - The Contractor shall have a Certificate of Recognition (COR) or Registered Safety Plan (RSP) including a site-specific Health and Safety Plan acceptable to the Owner's Representative. The Contractor shall implement and maintain the Health and Safety Plan during the Work. Health and Safety Plan must include in accordance with Section 01 35 30 – Health and Safety Requirements.
 - .13 Utilities Coordination Plan, including notifications to Utility Owners.
 - .14 The Contractor shall not begin any Work on the Site until the Owner's Representative has provided a Notice to Proceed.
- .3 Construction Phase Submittals
- .1 Weekly Progress Reports that outline the detailed Work (Contractor, sub-contractors, suppliers, consultants) completed to date as well as the anticipated Work to be performed for the following week on a day-by-day basis. Work to be linked to activities by road segment or location identified in project schedule and to provide information on materials, equipment, and labour. Alternate Work to be identified if Work, or a portion of, cannot be done due to weather, equipment breakdown, delays in delivery, etc. Weekly Progress Reports shall be submitted at the end of each week.
 - .2 Quality Control Inspection Reports - The Contractor shall maintain a daily inspection report that itemizes the results of all Quality Control inspections conducted by the Contractor. The reports shall be submitted to the Owner's Representative with the Weekly Progress Report. A summary of all Quality
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Control inspections conducted to date shall be submitted by the Contractor with each Weekly Progress Report.

- .3 Shop Drawings and Mix Designs – The Contractor shall submit all design drawings, shop drawings, and mix designs required to fabricate and/or conduct the Work a minimum fifteen (15) business days prior to fabrication / production.

- .4 Temporary Servicing Plan – The Contractor shall submit a comprehensive plan describing materials and procedures for temporary overland potable water servicing and sewer by-pass pumping.

- .5 Progress Photographs:

- .1 Format:

- .1 Electronic: jpg files, minimum three (3) mega pixels.
- .2 Submission requirements: one (1) set of electronic files.
- .3 Identification: Name and number of Project, description of photograph, and date.
- .4 Viewpoints: viewpoints determined by Construction Manager or Owner's Representative.
- .5 Submission Frequency: prior to commencement of Work and weekly thereafter with progress statement, or as directed by Construction Manager or Owner's Representative.
- .6 Covered Works: Any scheduled Work to be completed and covered or buried outside of the scheduled on-site work hours of the Owner's Representative must be approved by the Owner's Representative at least 48 hours prior to the scheduled Work completion. Covered Works must be sufficiently measured and photographed by the Contractor, for quality assurance or inspection requirement purposes, to the satisfaction of the Owner's Representative. Electronic pictures of covered Works shall be emailed to the Owner's Representative daily. If the Work or electronic pictures are unsatisfactory to the Owner's Representative, no payment shall be issued for that quantity of bid item until corrected.

- .7 Submit all electronic pictures as part of closeout package.

- .6 Submit an electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Owner's Representative and authority having jurisdiction, weekly.

- .7 Submit copies of reports or directions issued by Federal and Territorial health and safety inspectors immediately.

- .8 Submit copies of incident and accident reports immediately.

- .4 Project Completion Submittals

- .1 Record Drawings – The Contractor shall submit copies of all Contractor's Drawings revised as necessary to record all as-built changes to the Work and the Contractor shall submit a set of Contract Drawings clearly marked to record as-built changes to the Work.

Record drawings shall be provided to the Owner's Representative within 3 weeks of Substantial Completion.

- .2 Record Surveys – The Contractor shall provide digital survey point files in a CSV and DWG format. Survey files shall include the horizontal and vertical location of all built infrastructure, including pipes, roads, and drainage. Surveys shall be georeferenced to the same mapping projection as used in the development of the Design Drawings. Surveys shall be completed using conventional total station or GNSS survey equipment. Drone collected data is not acceptable.
- .3 Quality Control Records – The Contractor shall submit a PDF electronic file containing an itemized set of project quality control documentation.
- .4 All other documents noted within the Contract Documents, and under Section 01 78 00 – Closeout Submittals.
- .5 The Contractor shall not construe the Owner’s Representative’s authorization of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Authorization of the programs shall not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal or Territorial regulations and this specification, or to adequately protect the health and safety of all workers involved in the Project and any members of the public who may be affected by the Project. The Contractor shall remain solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.
- .6 The Owner may, at their sole discretion, withhold payment from the Contractor for Work completed until acceptable submittal documents have been provided by the Contractor to the Owner’s Representative.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 33 00 – Shop Drawings and Submittals.

1.2 Construction Safety Measures

- .1 Safety is the Contractor's responsibility. The Contractor will be the "Constructor" as defined in the Occupational Health and Safety (OH&S) Act.
- .2 Observe and enforce construction safety measures of National Building Code of Canada (NBCC), latest edition, Part 8, Territorial Government, Workers' Safety & Compensation Commission (WSCC), municipal statutes, WHMIS, and local authorities.
- .3 Before any Work at the Site is started, the Contractor shall have prepared a Health and Safety Plan and Manual for project specific health and safety precautions and programs, safety of property on Site, and for protection of persons adjacent to Site and environment to the extent that they may be affected by conduct of the Work. The plan shall be complete with respect to procedures and actions that the Contractor needs to follow in order for the Contractor and all others to comply with all applicable laws and regulations.
- .4 Contractor to comply with and enforce compliance by workers of Contract Documents, applicable Federal, Territorial, and Local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan and Manual and all other specific Owner's requirements.
- .5 The Contractor shall designate a qualified and experienced safety representative at the Site.

1.3 Submittals

- .1 Make submittals in accordance with Section 01 33 00 – Shop Drawings and Submittals.
- .2 Submit site-specific Health and Safety Plan to Owner: within seven days after date of Notice to Proceed, prior to commencement of the Work. Health and Safety Plan and Manual shall include:
 - .1 Results of site-specific safety hazard assessment, and
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit electronic copies of Contractor's authorized representative's work site health and safety inspection reports to Owner and authority having jurisdiction, weekly.
- .4 Submit copies of reports or directions issued by Federal and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Contractor to maintain up to date WHMIS SDS – Safety Data Sheets on Site in an area accessible to working staff, the Owner's Representative, and the Owner.
- .7 Owner's Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within fifteen (15) business days of receipt. Revise plan as appropriate and resubmit plan to Owner's Representative for acceptance.

- .8 Owner's Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation, or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Owner's Representative; and
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.4 Filing of Notice

- .1 File Notice of Project with Territorial authorities prior to commencing Work and provide a copy to the Owner's Representative. Notice of Project to be posted on Site upon mobilization and remain posted until project completion.

1.5 Safety Assessment and Meetings

- .1 Perform site specific safety hazard assessment related to project.
- .2 Schedule and administer Health and Safety meeting with staff and Owner's Representative prior to commencement of Work.
- .3 Do Work in accordance with Regulatory Requirements.

1.6 Unforeseen Hazards

- .1 When unforeseen or peculiar safety-related factors, hazards, or conditions occur during performance of the Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Territory having jurisdiction and advise Owner's Representative verbally and in writing.

1.7 Correction of Non-Compliance

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Owner's Representative.
- .2 Provide Owner's Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Owner's Representative may stop Work if non-compliance of health and safety regulations is not corrected.
- .4 The Owner's Representative will not be responsible for monitoring health and safety compliance. The Contractor is solely responsible for conformance to OH&S regulations.

1.8 Fire Safety Requirements

- .1 Comply with requirements of NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations, latest edition.
- .2 Comply with local standards and regulations including any requirements set by the Nunavut Fire Marshal's Office (NFMO).

1.9 Overloading

- .1 Ensure no part of Work is subjected to a load which will endanger its safety or will cause permanent deformation.

1.10 Falsework

- .1 Design and construct falsework in accordance with CSA S269.1, latest edition.
- .2 All falsework design shall be certified by a Professional Engineer registered, and in good standing, with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG).

1.11 Scaffolding

- .1 Design and construct scaffolding in accordance with CSA S269.2 M87, latest edition.
- .2 The Shop Drawings shall be submitted to the Owner's Representative and shall include Detail Drawings and Design Calculations for scaffolding. The Owner's Representative will not be responsible for review of scaffolding.
- .3 The Detail Drawings and Design Calculations for scaffolding shall bear the signature and stamp of a Professional Engineer registered, and in good standing, with NAPEG and experienced in scaffolding design.
- .4 The Professional Engineer, whose signature and seal appear on the Detail Design Drawings and Design Calculations, shall inspect and check the completed scaffolding and certify in writing that the scaffolding is in accordance with Calculations and Drawings; certification in writing shall be submitted to the Owner's Representative.
- .5 The scaffolding shall be re-inspected after any change in detail or placement to ensure that it is properly placed, rigid, and secure before commencing Work. Each re-inspection will be certified by the Professional Engineer whose signature and seal appear on the Calculations and Drawings.
- .6 Submit such certifications to the Owner's Representative before commencing Work.

1.12 Materials on Site

- .1 Comply with WHMIS requirements regarding all materials stored on Site. Submit Safety Data Sheets to the Owner's Representative prior to shipping materials.

1.13 Confined Space Entry

- .1 In a confined space in which there is likely to exist hazardous gas, vapor, dust, fumes, or oxygen deficiency, the worker must first test and record atmospheric conditions in the confined space, wear breathing apparatus and safety harness when entering, and monitor atmosphere at all times while working in the confined space.
- .2 At no time will a worker enter a confined space where a hazardous condition exists, without first notifying the supervisor and following the adopted procedure.
- .3 The following procedures shall apply to all confined spaces and/or areas where a potential hazard could exist:
 - .1 Do not enter confined space areas where the safety equipment supplied is not suitable or available.
 - .2 Comply with Regional Safety Specifications.

PART 2 PRODUCTS

.1 Not used.

PART 3 EXECUTION

.1 Not used.

PART 4 BASIS FOR PAYMENT

.1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Environmental Protection Plan (EPP)

- .1 Prior to any construction or on-site Work activities, the Contractor shall develop and submit to the Owner's Representative a comprehensive and project specific EPP for the Owner's review and approval.
- .2 Allow fifteen (15) business days for the Owner to review the EPP and each subsequent revision, if required.
- .3 The Owner may request that subsequent revisions are made to the EPP in the event the document does not sufficiently address all required environmental concerns or mitigations.
- .4 Installation of mitigation measures, construction Works, and delivery of any materials or equipment to Site shall not commence without an approved EPP.
- .5 The EPP shall describe the Contractor's site-specific environmental protection actions and responsibilities during project implementation.
- .6 The EPP shall include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .7 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .8 At a minimum, the EPP shall include the following:
 - .1 Names of persons responsible for ensuring adherence to the Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for identifying 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 A complete list of anticipated vehicles, equipment, and materials.
 - .6 The current Project Schedule.
 - .7 Work Area Site Plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
 - .1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized Work areas.
 - .2 Plan to include all proposed parking, staging, laydown, and refueling areas.
 - .3 Plan to include locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on Site.
 - .4 Plan to include locations of stationary Fire Control equipment.
 - .8 Hazardous Waste Management and Contaminant Prevention Plan.
 - .9 Non-Hazardous Solid Waste Disposal Plan.
 - .10 Air Pollution Control Plan.

- .11 Wastewater Management Plan.
- .12 Spill Response Plan to include procedures, instructions, and reports to be used in the event of an unforeseen spill of a regulated substance.
 - .1 Contractor to always have Spill Remediation kits available on site at all times
- .13 Emergency Response Plan in accordance with the Occupational Health and Safety Act.
- .14 Dewatering Plan.
- .15 Traffic Management Plan.

1.2 Notification

- .1 The Owner's Representative will have the right to notify the Contractor in writing of any observed noncompliance with Federal, Territorial, or Municipal environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection Plan.
- .2 The Contractor is responsible for monitoring and ensuring compliance with Federal, Territorial, and Municipal environmental laws and regulations, permits, and other elements of Contractor's Environmental Protection Plan. Notification by the Owner's Representative is a courtesy only and shall not be relied upon.
- .3 After notification or observation of any noncompliance, inform the Owner's Representative of proposed corrective actions.
- .4 Take action only after receipt of written approval from the Owner's Representative, unless immediate action is necessary to prevent further noncompliance.
- .5 The Owner's Representative may issue a stop work order until satisfactory corrective action has been taken.
- .6 No time extensions or payment adjustments will be allowed for such suspensions.

1.3 Fires

- .1 A fire extinguisher shall be carried and available for use on each machine or vehicle in the event of any fire to prevent the fire from burning the unit or spreading to other fuels in the immediate area.
- .2 Machinery and equipment shall be operated in accordance with all original manufacturer's safety devices to prevent ignition of flammable materials in the area.
- .3 Care shall be taken when extinguishing or disposing of any potential fire ignition source.
- .4 In case of fire, the Contractor (or any staff present) shall follow their own Emergency Response Plan and take immediate action to extinguish the fire provided it is safe to do so and will notify the local fire department and Owner immediately.
- .5 Any fire or burning of waste materials is not permitted.

1.4 Disposal of Wastes

- .1 Do not bury rubbish or waste materials on Site unless approved by the Owner's Representative.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil, or paint thinner into waterways, storm sewers, or sanitary sewers.

1.5 Drainage

- .1 Develop and submit with the EPP a Dewatering Plan indicating procedures for dewatering the groundwater from the identified excavation during construction.
- .2 Develop and submit with the EPP a Traffic Management Plan including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather.
- .3 Provide temporary drainage and pumping as necessary to keep excavations and Site free from water.
- .4 Ensure pumped water into waterways, sewers, or drainage systems is free of suspended materials.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances with use of siltation fences, sedimentation ponds, diversion ditches, silt curtains, sedimentation blankets, slope stabilization, and the like, all in accordance with required environmental regulations and permits.

1.6 Site Clearing and Plant Protection

- .1 Protect vegetation that is to remain on site and on adjacent properties.
- .2 Minimize stripping of topsoil and vegetation.
- .3 Minimize disruption to active layer.
- .4 Restrict tree removal to areas indicated or designated by the Owner's Representative.

1.7 Work Adjacent to Waterways

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material.
- .3 Do not dump excavated fill, waste material, or debris into waterways.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid logs or construction materials across waterways.
- .6 No concrete debris, paint, collected debris from pier/abutment caps, or other foreign materials shall be permitted to enter any watercourse.

1.8 Pollution Control

- .1 Maintain all temporary erosion and pollution control features installed under this Contract.
- .2 Develop and submit with the EPP a Hazardous Waste Management and 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, Territorial, and Municipal laws and regulations for storage and handling of these materials.
- .3 Develop and submit with the EPP a Non-Hazardous Solid Waste Disposal Plan identifying methods and locations for solid waste disposal including clearing debris.
- .4 Develop and submit with the EPP an Air Pollution Control Plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project Site.

- .5 Develop and submit with the EPP a Wastewater Management Plan identifying methods and procedures for management and discharge of wastewater which is directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of groundwater, disinfection water, hydrostatic test water, and water used in the flushing of lines.
- .6 Control emissions from equipment and plant to local authorities' emission requirements.
- .7 Prevent sandblasting and other extraneous materials from contaminating air beyond application area by providing temporary enclosures.
- .8 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.9 Additional Mitigation Measures

- .1 All Work and associated costs related to required environmental mitigation measures are incidental to the Contract scope of Work and are the responsibility of the Contractor.
- .2 Work shall be scheduled so that no site is left in a state of partial completion for an extended period of time or during any shutdown period such as during winter months.
- .3 All disturbed areas from construction activities require rehabilitation as part of the Contract. Erosion of steep banks shall be minimized by limiting foot, vehicle, and equipment traffic.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Summary

- .1 This Section references laws, by-laws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction, and other legally enforceable requirements applicable to Work and that are; or become, in force during performance of Work.

1.2 References to Regulatory Requirements

- .1 Perform Work in accordance with National Building Code of Canada (NBCC), latest edition, including amendments up to tender closing date and other codes of Territorial and Local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code.

1.3 Hazardous Material Discovery

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop Work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition Work. Notify the Owner's Representative.
- .2 Polychlorinated Biphenyl (PCB): stop Work immediately when material resembling PCB is encountered during demolition Work. Notify the Owner's Representative.
- .3 Mold: stop Work immediately when material resembling mold is encountered during demolition Work. Notify the Owner's Representative.

1.4 Building Smoking Environment

- .1 Comply with smoking restrictions and Municipal by-laws.

1.5 Regulatory Requirements

- .1 Except as otherwise specified, the Contractor shall apply for, obtain, and pay fees associated with permits, licenses, certificates, and approvals required by regulatory requirements and Contract Documents, based on General Conditions of Contract and the following:
 - .1 Regulatory requirements and fees in force on date of Bid submission.
 - .2 A change in regulatory requirements or fees scheduled to become effective after date of tender submission and of which public notice has been given before date of tender submission.
- .2 The Contractor shall adhere to the City of Iqaluit's water license, which can be provided upon request..

PART 2 PRODUCTS

2.1 Permits and Licenses

- .1 The Contractor shall apply for, obtain, pay for, and comply with all required construction and equipment permits as required by relevant Local and regional authorities which may include, but not be limited to:
 - .1 Development Permit
 - .2 Building Permit
 - .3 Electrical Permit
 - .4 Quarry Permit
 - .5 Boiler Permit
 - .6 Occupancy Permit
 - .1 The Contractor shall apply for, obtain, and pay for occupancy permits, including partial occupancy permits where required by authority having jurisdiction.
 - .2 The Owner's Representative shall issue appropriate instructions to Contractor for correction to Work where Contract Document deficiencies are required to be corrected in order to obtain occupancy permits, including partial occupancy permits.
 - .3 The Contractor shall correct deficiencies in accordance with Owner's Representative's instructions. Where deficiency is not corrected, the Owner's Representative reserves the right to make corrections and charge the Contractor for costs incurred.
 - .4 The Contractor shall turn occupancy permits over to the Owner's Representative.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 33 00 – Shop Drawings and Submittals.

1.2 Testing by the Contractor

- .1 Testing required to provide quality control to assure that the Work strictly complies with the Contract requirements shall include, but not be limited to:
 - .1 Testing all concrete, grout, reinforcing steel, asphalt concrete pavement, structural backfill, miscellaneous metals, and all source acceptance testing.
 - .2 All testing specified in the Contract Documents.
 - .3 Any other testing required as a condition for deviation from the specified Contract procedures.
- .2 All Quality Control technicians are to be certified by Canadian Council of Independent Laboratories (CCIL) for testing asphalt, aggregates, and concrete, as applicable to the testing requirements for that item of Work.
- .3 The Contractor shall be fully responsible and bear all costs for all quality control testing and shall conduct such testing in the following manner:
 - .1 Provide testing facilities and personnel for the tests and inform the Owner's Representative in advance to enable the Owner's Representative to witness the tests if they so desired.
 - .2 Notify the Owner's Representative when sampling will be conducted.
 - .3 Within one Day after completion of testing, submit test results to the Owner's Representative.
 - .4 Identify test reports with the name and address of the organization performing all tests and the date of the tests.
 - .5 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contract requirements.
 - .6 Testing agencies, their inspectors, and their representatives are not authorized to revoke, alter, relax, enlarge, or release any requirement of the Contract Documents, nor to approve or accept any part of the Work.

1.3 Inspection

- .1 Allow the Owner's Representative access to the Work. If part of the Work is in preparation at locations other than the Place of Work, allow access to such Work whenever it is in progress.
- .2 Give at least 48 hours' notice requesting inspection if Work is designated for special tests, inspections, or approvals by the Owner's Representative's instructions, or law of Place of Work.
- .3 If Contractor covers, or permits to be covered, Work that has been designated for special tests, inspections, or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed, and make good such Work.

- .4 The Owner's Representative shall order part of the Work to be examined if the Work is suspected to not be in accordance with the Contract Documents. If, upon examination, such Work is found to not be in accordance with the Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found to be in accordance with the Contract Documents, the Owner shall pay cost of examination and replacement.

1.4 Contractor's Quality Control Program

- .1 The Contractor shall prepare a Quality Control Program. The purpose of the program shall be to ensure the performance of the Work in accordance with the Contract requirements.
- .2 The Quality Control Program shall be described in a Quality Control Plan. The Contractor shall submit the Plan to the Owner's Representative for review in accordance with Section 01 33 00 – Shop Drawings and Submittals. The Plan shall develop a logical system for tracking and documenting the Quality Control of the Work. A systematic format and a set of procedures patterned on a recognized Quality Control Standard may be acceptable, subject to review by the Owner's Representative.
- .3 The Quality Control Plan shall include the following information:
- .1 Distribution list, providing a list of names to whom the Plan shall be distributed.
 - .2 Title page, identifying the Contract and Contractor.
 - .3 Revision page, identifying the revision number and date of the Plan.
 - .4 Table of contents.
 - .5 Revision control, tabulating the revision number, date of revision, description of revisions, and authorized signature.
 - .6 Details of measuring and testing equipment including methods and frequency of calibration.
 - .7 Purchasing details of all materials and equipment including procurement documents and vendor's Quality Control Program standards.
 - .8 Procedures for inspection of incoming items, in-process inspection, and final inspection and tagging of all supply items.
 - .9 Details of special processes as identified by the Owner's Representative, including qualifications of personnel and certification.
 - .10 Procedures for shipping, packaging, and storage of materials.
 - .11 Procedures for maintaining quality records and Statements of Compliance, including filing and storage of documents for a period of one year after Completion of the Works.
 - .12 Details of any non-conformance, including identification and recording of deficiencies, tagging procedures for "HOLD" or "REJECT" items, and final disposition of non-conformance forms by the Quality Control Manager.
 - .13 Inspection and test checklists, including tabulated checklists describing all manufacturing and delivery activities such as Inspection or Test, frequency of tests, description of tests, acceptance criteria of tests, such as verification, witnessing, or holding tests, and sign-off by the Quality Control Manager and the Owner's Representative, if the Owner's Representative witnesses the tests.

- .14 Forms used to ensure the application of the inspection and test checklist requirements. These forms shall be identified in the checklists and describe all testing requirements for Contract Document compliance.
- .4 The Contractor shall appoint a qualified and experienced project team member as the Quality Control Manager dedicated to quality matters and who will report regularly to the Contractor's management at a level that shall ensure that Quality Control requirements are not subordinated to manufacturing, construction, or delivery. The Quality Control Manager shall be empowered to resolve quality matters expediently and report to the Owner and the Owner's Representative as required.
- .5 The Quality Control Plan shall include samples of all forms to be filled in by the Quality Control Inspectors. All forms shall be signed by the Quality Control Manager and submitted promptly to the Owner's Representative who will add their review signature.
- .6 An independent check of all Work shall be performed by the Contractor. The Contractor shall appoint Quality Control Inspectors to ensure compliance of products and workmanship with Contract requirements.
- .7 At completion of the Work, a bound and itemized copy of all Quality Control documents and reports shall be prepared by the Contractor's Quality Manager and submitted to the Owner's Representative.

1.5 Independent Inspection Agencies

- .1 Independent Inspection Agencies are not needed if contractor has its own certified personnel
 - .1 External inspector or Engineer on record to witness the execution of testing
 - .2 Contractors can use an agency to do a Quality Assurance check
- .2 Independent Inspection/Testing Agencies shall be engaged by the Contractor for the purpose of inspecting and/or testing the Work. The cost of such services shall be borne by the Contractor.
- .3 The following items require independent inspection/testing:
 - .1 Aggregate Source Approval, in accordance with Section 31 05 16 - Aggregates.
 - .2 Compaction Testing, in accordance with Section 31 23 33.01 - Trenching and Backfilling.
 - .3 Compaction Testing, in accordance with Section 32 11 23 - Roadway Grading.
- .4 Provide equipment required for executing inspection and testing by appointed agencies.
- .5 Employment of inspection/testing agencies does not relax the Contractor's responsibility to perform the Work in accordance with the Contract Documents.
- .6 If defects are revealed during inspection and/or testing, the appointed agency shall request additional inspection and/or testing to ascertain the full degree of the defect. The Contractor shall correct defects and irregularities as advised by the Owner's Representative. The Contractor shall pay the costs for retesting and re-inspection.

1.6 Access to Work

- .1 Allow inspection/testing agencies access to the Work and off site manufacturing and fabrication plants.
- .2 Cooperate to provide reasonable facilities for such access.

1.7 Procedures

- .1 Notify the appropriate agency and the Owner's Representative in advance of the requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in the Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on Site. Provide sufficient space to store and cure test samples.

1.8 Rejected Work

- .1 Remove defective Work, whether result of poor workmanship, use of defective products, or damage and whether incorporated into the Work or not, which has been rejected by the Owner's Representative as failing to conform to the Contract Documents. Replace or re-execute in accordance with the Contract Documents.
- .2 Make good other Contractor's Work damaged by such removals or replacements promptly.

1.9 Reports

- .1 Submit electronic copies of inspection and test reports to the Owner's Representative.
- .2 Provide copies to sub-contractor, manufacturer, or fabricator of Work being inspected or tested.

1.10 Tests and Mix Designs

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by law of Place of Work will be appraised by the Owner's Representative and may be authorized as recoverable.

1.11 Mock-Ups

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to the Owner's Representative.
- .3 Prepare mock-ups for the Owner's Representative's review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, the Owner's Representative will assist in preparing schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of the Work or when acceptable to the Owner's Representative.
- .7 Mock-ups may remain as part of the Work.

- .8 Specification Section identifies whether mock-up may remain as part of the Work or if it is to be removed and when.

1.12 Mill Tests

- .1 Submit mill test certificates as required in relevant specification Section or as requested by the Owner's Representative.

1.13 Equipment and Systems

- .1 Submit adjustment and balancing reports for mechanical, electrical, and building equipment systems.
- .2 Refer to relevant Sections for definitive requirements.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 Reference Standards

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.189, Exterior Alkyd Primer for Wood.
 - .2 CAN/CGSB-1.59, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA Group)
 - .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CSA O121, Douglas Fir Plywood.
 - .3 CSA S269.2, Access Scaffolding for Construction Purposes.
 - .4 CSA Z321, Signs and Symbols for the Workplace

1.3 Installation and Removal

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area, and details of fence installation.
- .2 Identify areas which have to be graveled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute Work expeditiously.
- .5 Remove from Site all such Work after use.

1.4 Scaffolding

- .1 Scaffolding shall be in accordance with CSA S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, temporary stairs, and any other equipment required to safely access and complete the Work.

1.5 Hoisting

- .1 Provide, operate, and maintain hoists and cranes required for moving of workers, materials, and equipment. Make financial arrangements with Sub-contractors for use thereof.
- .2 Hoists and cranes shall be operated by qualified operator.

1.6 Site Storage/Loading

- .1 Confine Work and operations of workers by the Contract Documents. Do not unreasonably encumber premises with products.

- .2 Do not load, or permit to be loaded, any part of the Work with a weight or force that will endanger the Work.

1.7 Construction Parking

- .1 Parking will be permitted on Site provided it does not disrupt performance of the Work.
- .2 Provide and maintain adequate access to Project Site.
- .3 Build and maintain temporary roads where indicated and provide snow removal during period of the Work.
- .4 If authorized to use existing roads for access to Project Site, maintain such roads for the duration of the Contract and make good damage resulting from the Contractors' use of roads.

1.8 Security

- .1 Provide Site security measures as required to protect the Work, and as agreed by the Owner.
- .2 Any City of Iqaluit facilities need to remain a secure facility at all times throughout construction. Provide necessary security to ensure the safety of the existing infrastructure.

1.9 Equipment, Tools, and Materials Storage

- .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment, and materials.
 - .1 This includes space conditioning (heating and cooling) as required for proper storage of equipment as per the manufacturer's requirements.
- .2 Locate materials not required to be stored in weatherproof sheds on Site in a manner to cause the least interference with Work activities.

1.10 Temporary Camp Facilities

- .1 The electrical installation for temporary camp facilities shall conform to the National Building Code of Canada.
- .2 The Contractor shall provide drawings and specifications for temporary camp facilities to the City of Iqaluit for review prior to shipping the structures to the Site.

1.11 Sanitary Facilities

- .1 Provide dedicated sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.12 Construction Signage

- .1 Review any proposed signage with the Owner in advance of erecting any signage.
- .2 Provide and erect, as approved by the Owner, a project sign in a location designated by the Owner.

- .3 Construction sign of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.
- .4 No other signs or advertisements, other than warning signs, are permitted on Site.
- .5 Signs and notices for safety and instruction shall be in all official languages. Graphic symbols shall conform to CSA Z321.
- .6 Maintain approved signs and notices in good condition for the duration of the Project and dispose of off-site on completion of project or earlier if directed by the Owner's Representative.

1.13 Protection and Maintenance of Traffic

- .1 Provide measures for protection and diversion of traffic, including provision of watchpersons and flag-persons, erection of barricades, placing of lights around and in front of equipment and Work, and erection and maintenance of adequate warning, danger, and direction signs.
- .2 Protect travelling public from damage to person and property.
- .3 Contractor's traffic on roads selected for hauling material to and from Site to interfere as little as possible with public traffic.
- .4 Verify adequacy of existing roads and allowable load limit on these roads. The Contractor shall be responsible for repair of damage to roads caused by construction operations.
- .5 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .6 Dust control: adequate to ensure safe operation at all times.
- .7 Provide snow removal during period of Work as required to carry out the works safely.

1.14 Clean-up

- .1 Remove construction debris, waste materials, and packaging material from Site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTON

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- .1 Informational and Warning Devices.
- .2 Protection and Control of Public Traffic.
- .3 Operational Requirements.

1.2 RELATED SECTIONS

- .1 Section 01 52 00 – Construction Facilities
- .2 Section 31 24 13 – Roadway Embankments

1.3 REFERENCE STANDARDS

- .1 Manual of Uniform Traffic Control Devices for Canada, (MUTCDC), latest edition, Transportation Association of Canada (TAC).
- .2 Workers' Safety and Compensation Commission (WSCC) Traffic Control Plan requirements.

1.4 TRAFFIC CONTROL PLAN (TCP)

- .1 Prior to commencing Work within any existing right -of-way, and at least fifteen (15) days in advance of the proposed implementation of the traffic control measures, the Contractor shall submit (in PDF format) detailed traffic plans for all proposed lane closures, diversions, etc. to the Owner's Representative, that will impact normal traffic movements. Traffic detours shall be applicable to through traffic movements only. The Contractor shall provide adequate means whereby access is maintained to properties fronting on closed sections of streets. No Work will be permitted until after the traffic plans have been submitted and approved by the Owner's Representative.
- .2 The TCP shall clearly outline the Contractor's strategy for accommodation of motor vehicles and pedestrians throughout construction. The TCP shall include:
 - .1 Figures showing planned detour routes for motor vehicles and pedestrians.
 - .2 Figures showing the type of signage and barricades and the signage and barricade location for each work zone, detour, or closure. For any specific work area, if there is no variance from the latest version of MUTCDC, the figure may simply reference the appropriate Figure number within the latest version of MUTCDC.
 - .3 Figures showing project phasing and proposed schedule.
 - .4 The expected duration of road closures, path closures, and detours.
 - .5 Measures the Contractor intends to take to notify the public of detours and closures.
 - .6 Measures the Contractor intends to take to monitor the effectiveness of signage.
- .3 The Owner's Representative may reject the TCP if it is generic, incomplete, contains errors or if the strategy is not in accordance with the latest version of MUTCDC.

1.5 DETOURS

- .1 Provide and maintain signage and barricades necessary to direct traffic around routes blocked by construction. MUTCDC shall be followed as a guideline.
- .2 All signage and barricades shall be maintained and cleaned daily. Missing signs shall be replaced immediately.
- .3 Type and size of detour signage shall be approved by the Owner's Representative.
- .4 The Contractor must provide fourteen (14) calendar days notice, to all businesses and residents in the area to be affected by detours and road closures, in advance of all planned disruptions to access. Notice shall be given in writing.
- .5 Procedures for effecting detours and/or public traffic flow disruption shall be as follows:
 - .1 The Contractor shall propose method of traffic signage and control to the Owner's Representative.
 - .2 The Owner's Representative shall review proposal and, when satisfied, make recommendation to the Owner.
 - .3 The Owner shall approve, modify, or reject the proposal.
- .6 Once proposal is approved, the Owner will arrange radio advertisements, and advise the Fire Department, Municipal Enforcement, and the RCMP of the traffic control methods the Contractor will follow.
- .7 The Contractor shall effect the detour and/or public traffic flow disruption on the day following the radio advertisements.
- .8 For all road closures:
 - .1 Notification to be provided to the Owner of all road and lane closures 48 hours prior to the closure. The notification is for an Owner working day. Example, notification on Friday will allow for a closure on Monday (or Tuesday on a holiday Monday) at the same hour of the day that the notification is given.
 - .2 Closure only applies to areas where use of flagpersons is required for maintaining two-way traffic.
- .9 The Contractor shall assign a representative on the Site to oversee barricades, signage, and traffic control.
- .10 The Owner will, if necessary, allow the closure of portions of roadways affected by the proposed Work for construction purposes. The Owner may require that only these streets shall be closed at any time. Local traffic to apartments, businesses, and houses shall be maintained.
- .11 The Contractor shall schedule Work such that only one (1) intersection is closed to vehicle traffic at any one time. Roadway closures require the Fire Chief's approval.

1.6 PUBLIC TRAFFIC FLOW

- .1 Provide and maintain flagpersons, traffic signals, barricades, and flares/lights/lanterns as required to direct the flow of equipment used in performance of the Work and to protect public traffic. Make arrangements with local governing authorities when these facilities will disrupt the normal flow of public traffic.
- .2 Unless otherwise authorized, organize working area such that two-way traffic flow is possible at all times.

- .3 Provide detailed sketches of proposed signage plans and traffic flow patterns to the Owner for approval at least fourteen (14) calendar days in advance of any modifications to existing conditions.

1.7 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations, and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 When working on travelled way:
 - .1 Place equipment in position to present minimum of interference and hazard to traveling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
 - .4 Do not close any lanes of road without approval of the Owner's Representative. Before rerouting traffic, erect suitable signs and devices.
 - .5 Keep travelled way graded, free of potholes, and of sufficient width for required number of lanes of traffic.
- .3 Provide minimum 7 m wide temporary roadway for traffic in two-way sections through Work and on detours.
- .4 Provide minimum 5 m wide temporary roadway for traffic in one-way sections through Work and on detours.
- .5 At a minimum, provide gravelled detours or temporary roads to facilitate passage of traffic around restricted construction area.
- .6 Provide and maintain road access and egress to property fronting along the Work under the Contract and in other areas as required, unless other means of road access exist that meet the approval of the Owner's Representative.

1.8 INFORMATIONAL AND WARNING DEVICES

- .1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades, and miscellaneous warning devices as specified in the MUTCDC.
- .3 Place signs and other devices in locations recommended in the MUTCDC.
- .4 Meet with the Owner's Representative prior to commencement of Work to prepare a list of signs and other devices required for the Project. If situations on Site change, revise list to the approval of the Owner's Representative.
- .5 Continually maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability, and location. Clean, repair, or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to conditions existing from day to day.

- .6 The Contractor shall provide notice letters to local residents advising of playground closures, pathway closures, and pathway detours. Notice letters shall include the anticipated effective dates for closures and detours.

1.9 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flagpersons, trained in accordance with, and properly equipped as specified in, the MUTCDC in the following situations:
 - .1 When public traffic is required to pass working vehicles or equipment which block all or part of the travelled roadway.
 - .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high, and traffic signal system is not in use.
 - .3 When work crews or equipment are employed on travelled way over brow of hills, around sharp curves, or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not readily available.
 - .6 In situations where complete protection for workers, working equipment, and public traffic is not provided by other traffic control devices.
 - .7 Delays to public traffic due to Contractor's operations: maximum 15 min.
- .2 Where roadway, carrying two-way traffic, is to be restricted to one lane, for 24 hours each day, provide portable traffic signal system. Adjust, as necessary, and regularly maintain system during period of restriction. Submit timing signal pattern for the Owner's Representative's review and approval.

1.10 OPERATIONAL REQUIREMENTS

- .1 Maintain existing conditions for traffic throughout period of Contract except that, when required for construction under Contract and when measures have been taken as specified herein and approved by the Owner's Representative to protect and control public traffic, existing conditions for traffic to be restricted as follows:

- .1 Construction zone speed limit of 30 km/h at all times.
- .2 Maintain existing conditions for traffic crossing right-of-way except when required for construction.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Installation and Removal

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from Site all such work after use.

1.2 Hoarding

- .1 Erect hoarding around entire perimeter of Site within reasonable distance from buildings as required to facilitate construction and to protect the public, workers, and public and private property from injury or damage and to the approval of the authority having jurisdiction. Ensure hoarding does not interfere with other construction activities on Site.
- .2 Locate all construction trailers, garbage bins, equipment, tools and the like, within the confines of the exterior hoarding.
- .3 Remove barriers prior to completion and final acceptance. Patch and repair surfaces damaged by erection of barriers to original condition.
- .4 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.3 Trenching

- .1 All open trenches shall be protected through the use of barricades, such as jersey barriers at a minimum, when the Contractor is not on Site.

1.4 Guard Rails and Barricades

- .1 Provide secure, rigid guard rails and barricades around open edges of floors and roofs.
- .2 Provide as required by governing authorities.

1.5 Weather Enclosures

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts, and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished, seal off other openings, enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

1.6 Dust Tight Screens

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities and for protection of workers, finished areas of the Work, and the public.
- .2 Maintain and relocate protection until such Work is complete.

1.7 Access to Site

- .1 Provide and maintain access roads as may be required for access to the Work.

1.8 Public Traffic Flow

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform the Work and protect the public.

1.9 Fire Routes

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.10 Protection for Off-Site and Public Property

- .1 Protect adjacent private and public property from damage during performance of the Work.
- .2 Be responsible for damages incurred.

1.11 Protection of Building Finishes

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of the Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with the Owner's Representative the locations and installation schedule three (3) days prior to installation.
- .4 Be responsible for damages incurred due to lack of or improper protection.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Reference Standards

- .1 Within each specifications Section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part, as specifically requested in the specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, the Owner's Representative reserves the right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing shall be borne by the Owner in event of conformance with Contract Documents or by the Contractor in the event of non-conformance.

1.2 Quality

- .1 Products, materials, equipment, and articles incorporated in the Work shall be new, not damaged or defective, and of the best quality for the purpose intended. If requested, furnish evidence as to type, source, and quality of products provided.
- .2 Defective products, whenever identified prior to completion of the Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .3 Should disputes arise as to quality or fitness of products, decision rests strictly with the Owner's Representative based upon the requirements of the Contract Documents.
- .4 Unless otherwise indicated in the specifications, maintain uniformity of manufacture for any particular or like item throughout the Work.
- .5 Permanent labels, trademarks, and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 Availability

- .1 Immediately upon signing the Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify the Owner's Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of the Work.
- .2 In the event of failure to notify the Owner's Representative at commencement of the Work, and should it subsequently appear that the Work may be delayed for such reason, the Owner's Representative reserves the right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 Storage, Handling, and Protection

- .1 Handle and store products in a manner to prevent damage, adulteration, deterioration, and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in the Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from Site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of the Owner's Representative.
- .9 Touch-up damaged factory finished surfaces to the Owner's Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 Transportation

- .1 Pay costs of transportation of products required in performance of the Work.

1.6 Manufacturer's Instructions

- .1 Unless otherwise indicated in the specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify the Owner's Representative in writing, of conflicts between specifications and manufacturer's instructions, so that the Owner's Representative can establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Owner's Representative to require removal and reinstallation at no increase in Contract Price or Contract Time.

1.7 Quality of Work

- .1 Ensure the Quality of Work is of the highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the

Owner's Representative if required Work is such as to make it impractical to produce required results.

- .2 Do not employ anyone unskilled in their required duties. The Owner's Representative reserves the right to require dismissal from Site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with the Owner's Representative, whose decision is final.

1.8 Coordination

- .1 Ensure cooperation of workers in laying out the Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves, and accessories.

1.9 Concealment

- .1 In finished areas, conceal pipes, ducts, and wiring in floors, walls, and ceilings, except where indicated otherwise.
- .2 Before installation, inform the Owner's Representative if there is interference.

1.10 Remedial Work

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of the Work.

1.11 Location of Fixtures

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform the Owner's Representative of conflicting installation. Install as directed.

1.12 Fastenings

- .1 Provide metal fastenings and accessories in same texture, colour, and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive, hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Use No. 304 stainless steel fasteners for interior Work.

- .5 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material, plugs are not acceptable.
- .6 Keep exposed fastenings to a minimum, space evenly, and install neatly.
- .7 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 Fastenings – Equipment

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished, unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal, and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.14 Protection of Work In-Progress

- .1 Prevent overloading of parts of building. Do not cut, drill, or sleeve load bearing structural member, unless specifically indicated without written approval of the Owner's Representative.

1.15 Existing Utilities

- .1 When breaking into or connecting to existing services or utilities, execute the Work at times directed by local governing authorities, with minimum disturbance to the Work, pedestrians, and vehicular traffic.
- .2 Protect, relocate, or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 74 19 - Construction/Demolition Waste Management and Disposal
- .2 Section 01 78 00 – Closeout Submittals

1.2 Project Cleanliness

- .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
- .2 Maintain the Work in a tidy condition, free from accumulation of waste products and debris, other than that caused by the Owner's Representative or other Contractors.
- .3 Remove waste materials from the Site at daily regularly scheduled times or dispose of as directed by the Owner's Representative. Do not burn waste materials on Site, unless approved by the Owner's Representative.
- .4 Clear snow and ice from access to building; bank/pile snow in designated areas only.
- .5 Make arrangements with, and obtain permits from, authorities having jurisdiction for disposal of waste and debris.
- .6 Provide on-site containers for collection of waste materials and debris.
- .7 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
- .8 Dispose of waste materials and debris off Site.
- .9 Clean interior areas prior to start of finishing Work and maintain areas free of dust and other contaminants during finishing operations.
- .10 Store volatile waste in covered metal containers and remove from premises at end of each working day.
- .11 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .13 Schedule cleaning operations so that resulting dust, debris, and other contaminants will not fall on wet, newly painted surfaces, nor contaminate building systems.

1.3 Final Cleaning

- .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery, and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others and leave the Work clean and suitable for occupancy.
- .3 Prior to final inspection, remove surplus products, tools, construction machinery, and equipment.
- .4 Remove waste products and debris other than that caused by the Owner's Representative or other Contractors.
- .5 Remove waste materials from Site at regularly scheduled times or dispose of as directed by the Owner's Representative. Do not burn waste materials on Site, unless approved by the Owner's Representative.
- .6 Make arrangements with, and obtain permits from, authorities having jurisdiction for disposal of waste and debris.
- .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched, or disfigured glass.
- .8 Remove stains, spots, marks, and dirt from decorative work, electrical and mechanical fixtures, furniture fittings, walls, and floors.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres, and screens.
- .11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .12 Inspect finishes, fittings, and equipment and ensure specified workmanship and operation.
- .13 Broom clean and wash exterior walks, steps, and surfaces; rake clean other surfaces of grounds.
- .14 Remove dirt and other disfiguration from exterior surfaces.
- .15 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .16 Sweep and wash clean paved areas.
- .17 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .18 Clean roofs, downspouts, and drainage systems.

- .19 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .20 Remove snow and ice from access to building.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 74 11 – Cleaning
- .2 Section 01 78 00 – Closeout Submittals

1.2 Waste Processing Sites

- .1 Identify appropriate waste processing sites, based on Municipal requirements, as required.

1.3 Storage, Handling, and Protection

- .1 Store materials to be reused, recycled, and salvaged in locations as directed by the Owner's Representative.
- .2 Unless specified otherwise, materials for removal become the Contractor's property.
- .3 Protect, stockpile, store, and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations, and immediately notify the Owner's Representative.
- .7 Protect surface drainage, mechanical, and electrical from damage and blockage.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Provide waybills for separated materials.

1.4 Disposal of Wastes

- .1 Do not bury rubbish or waste materials on Site.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner, or excavation material into waterways, storm sewers, or sanitary sewers.

- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .4 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.
- .5 Dispose of waste in accordance with Municipal and Territorial regulations.

1.5 Use of Site and Facilities

- .1 Execute the Work with the least possible interference or disturbance to normal use of premises.
- .2 Maintain security measures established by existing facility and provide temporary security measures approved by the Owner's Representative as required.

1.6 Scheduling

- .1 Coordinate the Work with other activities at the Site to ensure timely and orderly progress of the Work.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

3.1 Application

- .1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 Cleaning

- .1 Remove tools and waste materials on completion of the Work and leave the work area in a clean and orderly condition.
- .2 Clean-up work area as Work progresses.
- .3 Source separate materials to be reused/recycled into specified stockpiles.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 74 11 – Cleaning
- .2 Section 01 74 19 - Construction/Demolition Waste Management and Disposal
- .3 Section 01 78 39 – Project Record Drawings

1.2 Administrative Requirements

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection:
 - .1 The Contractor shall conduct an inspection of the Work, identify deficiencies and defects, and repair as required to conform to the Contract Documents.
 - .1 Notify the Owner's Representative in writing of satisfactory completion of the Contractor's inspection and submit verification that corrections have been made.
 - .2 Request the Owner's Representative's inspection.
 - .2 Owner's Representative's Inspection:
 - .1 The Owner's Representative and Contractor shall inspect the Work and identify defects and deficiencies.
 - .2 The Contractor shall correct the Work as directed.
 - .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with the Contract Documents.
 - .2 Defects: corrected and deficiencies rectified.
 - .3 Equipment and systems: tested, balanced, adjusted, and fully operational as intended and designed.
 - .4 Certificates required by Utility companies: submitted.
 - .5 Operation of systems: demonstrated to the Owner's Representative's personnel.
 - .6 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of the Work by the Owner's Representative and the Contractor.
 - .1 The arousal of outstanding items shall be completed within 10 working days of notice
 - 1. The Owner has the right to deduct a fee of \$500 per day for any delays in the work being executed
 - .2 When the Work is deemed to be incomplete according to the Owner's Representative, complete outstanding items and request re-inspection.

- .5 Declaration of Substantial Performance: when the Owner's Representative considers deficiencies and defects corrected and the requirements of the Contract substantially performed, make application for Certificate of Substantial Performance.
- .6 Commencement of Lien and Warranty Periods: the date of the Owner's Representative's acceptance of submitted declaration of Substantial Performance to be the date for commencement of the Warranty Period and commencement of the lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment:
 - .1 When the Owner's Representative considers final deficiencies and defects corrected and the requirements of the Contract met, make application for final payment.
 - .2 When the Work is deemed to be incomplete by the Owner's Representative, complete outstanding items and request re-inspection.
- .8 Payment of Holdback: after issuance of the Certificate of Substantial Performance of the Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.3 Operation and Maintenance Data

- .1 Not Used

1.4 Project Record Drawings

- .1 Closeout submittals for Project Record Drawings shall be in accordance with Section 01 78 39 – Project Record Drawings.

1.5 Final Cleaning

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools, and equipment.
- .2 Waste Management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 78 00 – Closeout Submittals

1.2 Record Drawings

- .1 Maintain project “As-Built” Record Drawings and record accurately, deviations from the Contract Documents caused by site conditions and changes ordered by the Owner’s Representative.
- .2 For the purposes of this specification, a deviation from the Contract Documents is defined as a change in a material or product, any change to the original Work scope, a vertical change from the Design Drawings greater than 20 mm and a horizontal change from the Design Drawings greater than 100 mm.
- .3 Mark “As-Built” changes in red coloured ink on one set of whiteprints.
- .4 Record the following deviations:
 - .1 Depths of various elements of foundation in relation to floor level.
 - .2 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - .3 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by Change Order or Field Order.
 - .6 Other significant deviations which are concealed in construction and cannot be identified by visual inspection.
- .5 At completion of Project, and prior to final inspection, neatly transfer “As-Built” notations to second set of whiteprints using red ink. Neatly print lettering and number in size to match original. Lines may be drawn free hand but shall be neat and accurate. Add at each Drawing Title Block Note: “AS-BUILT RECORD”. Also circle on List of Drawings each title and number of Drawing marked with “As-Built” records.
- .6 Submit required information for “As-Built” Record Drawings to Owner’s Representative no more than two weeks following Substantial Completion.
- .7 Provide the Owner’s Representative with digital survey point files for as-built infrastructure. Survey data shall be collected with total station equipment or survey grade GNSS survey equipment and shall be georeferenced to the same mapping projection as used to prepare the Design Drawings.

PART 2 PRODUCTS

.1 Not used.

PART 3 EXECUTION

.1 Not used.

PART 4 BASIS FOR PAYMENT

.1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Description

- .1 This Section specifies requirements for testing, start up, commissioning, and trial operations of the Work. The Contractor shall coordinate this Work with the Owner's Representative and the equipment manufacturers.

1.2 Definitions

- .1 Testing: Testing shall consist of hydrostatic, pressure, pumping, or other tests as described in the Specifications. Testing shall also include all instrumentation and controls for the operation of the facility. Coordinate such Work with the equipment manufacturer. Test results shall be documented.
- .2 Start-up: Start-up for each individual piece of equipment shall consist of the manufacturer's representative inspecting the installation, starting, and running the equipment, and making any adjustments. Start-up for each piece of equipment shall be considered complete when the Owner's Representative is notified, in writing, by the manufacturer's representative that the equipment is installed, checked, and in working order, and is ready to be put into continuous operation.
- .3 Commissioning: Commissioning shall consist of placing individual pieces of equipment and/or process subsystems into continuous operation. During commissioning, equipment shall be verified for mechanical, electrical, and control conformance with the Specifications. Commissioning shall be deemed complete when the Owner's Representative receives notification that the system is ready for trial operation.
- .4 Trial operation: Trial operation shall consist of placing all of the various systems of the Work into continuous operation. Once all systems are online and working as a complete unit, the system shall be operated continuously for 7 days. Trial operation shall be deemed complete after the Work has been operating continuously for 7 days and all process, mechanical, electrical, and instrumentation and controls equipment is free of vibration, overloading, and overheating, and is functioning in accordance with specified rates, methods, and performance.
- .5 Special equipment performance test requirements may exceed commissioning and trial operations as outlined above.

1.3 Submittals

- .1 The Contractor shall submit to the Owner's Representative, in writing, a start-up report indicating, at a minimum, the following:
 - .1 Manufacturers requirements,
 - .2 Approval of successful start-up by the manufacturer and the supplier, and
 - .3 Dates of all tests and results indicating flows, loads, pressures, currents, temperatures, etc.
- .2 The Contractor shall provide a detailed written description of the procedures they plan to follow for the start-up of each system, including methods of calibration, flow routes, tests, and personnel involved. This procedure shall be submitted to the Owner's Representative at least four weeks prior to start-up of the systems.

- .3 The Contractor and the Owner's Representative shall, together, prepare a written procedure for commissioning and trial operations of the Work. The Contractor shall accept the direction and coordination assistance of the Owner's Representative for both commissioning and trial operation.
- .4 Start-up, commissioning, and trial operations shall not commence until the procedure has been approved by the Owner's Representative.
- .5 Fifteen (15) business days advance notice shall be given to the Owner's Representative before the testing and start-up of each system.

1.4 Responsibility

- .1 The Contractor shall be responsible for testing, start-up, commissioning, and trial operation. The Owner's Representative shall witness testing and start-up, as required. The Contractor shall coordinate Equipment Supplier's Representatives for this Work and operator training.
- .2 The operating authority shall be responsible for system operation and monitoring during Trial Operations. The Contractor shall be expected to respond to calls from the Owner when system faults, alarms, or problems are identified during the trial operation. The Trial operation period shall be restarted once all identified issues have been addressed.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

3.1 Testing and Start-up

- .1 When equipment installation has been completed by the Contractor to the standards indicated by the Specifications and instructions by the Equipment Manufacturers, the Contractor shall arrange for the services of the Equipment Manufacturer's Technical Representative.
- .2 The Equipment Manufacturer's Technical Representative shall inspect the installation to ensure that the equipment has been installed in accordance with the manufacturer's requirements. If the installation is not in order, the Contractor shall make adjustments in accordance with instructions of the Equipment Manufacturer's Technical Representative. The equipment shall be started and run, and adjustments made at this time.
- .3 Calibrate, test, and operate the Work for trial operation. Following satisfactory start-up, the Manufacturer's Technical Representative shall advise the Owner's Representative, in writing, that the installation has been installed, checked, and is in working order.

3.2 Commissioning and Trial Operations

- .1 The Owner's Representative shall request that the equipment be operated to demonstrate that it performs as specified. If the Owner's Representative notes deficiencies, the deficiencies shall be corrected immediately by the Contractor. The Contractor shall advise the Owner's Representative, in writing, when the deficiencies have been corrected.
- .2 Deficiencies of a serious nature, as determined by the Owner's Representative, shall be corrected by the Manufacturer's Representative.

- .3 The Contractor and Owner's Representative shall jointly commission the Work in accordance with the written procedure for commissioning. The Contractor shall provide sufficient labour for the duration of the commissioning period. The Contractor shall make necessary adjustments during commissioning to put the Work into continuous operation.
- .4 The following subsystems shall be individually tested by the Contractor:
 - .1 Temporary Bypass Piping.
 - .2 Temporary Service Piping.
 - .3 Vault Components.
 - .4 Water Distribution Piping.
 - .5 Lateral Service Shut-off Valves.
- .5 During the trial operation period, the Contractor shall provide the labour necessary to respond to calls from the Owner to maintain the Work in operation outside normal working hours to ensure continuous operation of the Work.
- .6 The Contractor shall demonstrate and simulate failures and ensure all alarms and safety features perform to the expectations.
- .7 The Work shall be considered Substantially Complete and ready for use at the end of the Trial Operation Period provided the 7-day running test has been satisfactorily completed and all other requirements of the Construction Lien Act have been met.

3.3 Construction Completion Certificate

- .1 The Contractor shall be required to prepare and use a Construction Completion Certificate (CCC) for each system of the Work.
- .2 The CCC shall include the following:
 - .1 Description of system,
 - .2 Test results including areas for the Owner's Representative's and the Contractor's signatures,
 - .3 Test deficiencies,
 - .4 Start-up results including areas for the Owner's Representative's and the Contractor's signatures,
 - .5 Start-up deficiencies, and
 - .6 Instrument Calibration Sheets (as commissioned).
- .3 The CCC shall include, as attachments, records such as Suppliers' Representatives' Reports, Alignment Reports, instrumentation loop checks, as well as any other relevant information.

3.4 Operator Training

- .1 Provide operator training on equipment operation and maintenance.
- .2 The training can be combined with start-up and trial operation.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 35 30 – Health and Safety Requirements.

1.2 Reference Standards

- .1 Canadian Standards Associations (CSA Group)
 - .1 CSA S350, Code of Practice for Safety in Demolition of Structures.

1.3 Existing Conditions

- .1 Structures to be demolished to be based on their condition on date that tender is accepted.
- .2 Items to be salvaged, as identified by the Owner and/or the Owner's Representative, to be carefully removed, protected, and delivered to the Owner .

1.4 Demolition Drawings

- .1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams, or details showing sequence of demolition Work and supporting structures and underpinning.

1.5 Protection of Existing Structures, Infrastructure, and Surface Features

- .1 Prevent movement, settlement, and damage of adjacent structures, services, and parts of existing building to remain. Provide bracing, shoring, and underpinning as required. Make good any damage caused by demolition.
- .2 Take precautions to support affected structures and, if safety of building being demolished or adjacent structures or services appears to be endangered, cease operations, and notify the Owner's Representative.
- .3 Prevent debris from blocking surface drainage systems, process equipment, mechanical systems, and electrical systems which must remain in operation.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

3.1 Preparation

- .1 Disconnect and re-route electrical and other service lines entering areas to be demolished in accordance with authorities having jurisdiction. Post warning signs on electrical lines and equipment which must remain energized to serve other equipment during period of demolition.

- .2 Piping, equipment, instruments: remove and relocate as shown.
- .3 Do not disrupt active or energized utilities designated to remain undisturbed.

3.2 Safety Code

- .1 Unless otherwise specified, carry out demolition work in accordance with Section 01 35 30 – Health and Safety Requirements.
- .2 Blasting operations are not permitted.

3.3 Demolition

- .1 Demolish and remove existing piping, valves, and any other items identified to be removed on Drawings.
- .2 At end of each day's work, leave Work in safe condition so that no part is in danger of toppling or falling. Protect interiors of parts to be demolished from exterior elements at all times.
- .3 Demolish to minimize dust generation.
- .4 Do not sell or burn materials on-Site.
- .5 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.

3.4 Environmental Protection

- .1 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from Site and dispose of in safe manner to minimize danger at Site or during disposal.
- .2 Make good all surfaces remaining after demolition.

3.5 Salvage

- .1 Items to be salvaged: As directed by the Owner and/or the Owner's Representative.
- .2 Carefully dismantle items containing materials for salvage and stockpile salvaged materials on-Site.
- .3 The Contractor shall provide the Owner with the opportunity to take possession of salvaged access vaults and access vault components. If desired by the Owner, removed steel access vaults and associated valves, fittings, hydrants, etc. are to be salvaged and provided to Owner. Location to be determined. For concrete access vaults, hydrants are to be salvaged and provided to the Owner.

PART 4 BASIS FOR PAYMENT

- .1 Separate payment shall not be made for items in this Section. Included costs in related items.

END OF SECTION