Part 1 General

1.1 MINIMUM STANDARDS

.1 Materials shall be new and work shall conform to the minimum applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the National Building Code of Canada 2015 (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.

1.2 PRECEDENCE

.1 For Federal Government projects, Division 01 Sections take precedence over technical specification sections in other Divisions.

1.3 WORK ZONE LOCATIONS AND IDENTIFICATION

.1 Contractor shall be responsible and assume the role of “Principal Contractor” for all work zone locations. Submit written acknowledgement to Departmental Representative of this responsibility within 3 weeks of contract award.

.2 Install proper site separation and identification in order to maintain “Time and Space” at all times throughout the duration of the contract.

1.4 TAXES

.1 Pay all taxes properly levied by law (including Federal, Provincial and Municipal).

1.5 FEES, PERMITS AND CERTIFICATES

.1 Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction.

1.6 FIRE SAFETY REQUIREMENTS

.1 Comply with the National Building Code of Canada 2015 (NBC) for fire safety in construction and the National Fire Code of Canada 2015 (NFC) for fire prevention, fire fighting and life safety in building in use.

- .1 The National Building Code (NBC): for fire safety and fire protection features that are required to be incorporated in a building during construction.
- .2 The National Fire Code (NFC):
  - .1 The on-going maintenance and use of the fire safety and fire protection features incorporated in buildings.
  - .2 The conduct of activities that might cause fire hazards in and around buildings.
  - .3 Limitations on hazardous contents in and around buildings.
  - .4 The establishment of fire safety plans.
  - .5 Fire safety at construction and demolition sites.

.2 Welding and cutting:

- .1 Store flammable liquids in approved CSA containers

.2 At least 7 days prior to commencing cutting, welding or soldering procedure, provide to Departmental Representative:

.1 Notice of intent, indicating devices affected, time and duration of isolation or bypass.

.2 Completed hot works permit as defined in the NFC.

.3 Return hot works permit to Departmental Representative immediately upon completion of procedures for which permit was issued.

.3 A fire watcher shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 15m may be ignited by conduction or radiation.

.4 Where work requires interruption of fire alarms or fire suppression, extinguishing or protection systems:

.1 Provide watchman service as described in NFC; In general, watchman service is defined as an individual conversant with Fire Emergency Procedures, performing fire picket duty within an unprotected and unoccupied (no workers) area once per hour.

.2 Retain services of manufacturer for fire protection systems on daily basis or as approved by Departmental Representative, to isolate and protect all devices relating to:

.1 Modification of fire alarms, fire suppression, extinguishing or protection systems; and/or.

.2 Cutting, welding, soldering or other construction activities which might activate fire protection systems.

.5 Inform fire alarm system monitoring agency and local Fire Department immediately prior to isolation.

1.7 FIELD QUALITY CONTROL

.1 Carry out Work using qualified licensed workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.

.2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers.

.3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

1.8 HAZARDOUS MATERIALS

.1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) and/or Workplace Hazardous Materials Information System 2015 (WHMIS 2015) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and the provision of Material Safety Data Sheets (MSDS) and/or Safety Data Sheets (SDS).

1.9 TEMPORARY UTILITIES

.1 Existing services required for the work, excluding power required for space heating, may be used by the Contractor without charge. Ensure capacity is adequate prior to imposing additional loads. Connect and disconnect at own expense and responsibility.

.2 Maximum power supply of 15 amps at 120V, single phase, is available and will be provided for general construction usage at no cost. Connect to existing power supply in accordance with Canadian Electrical Code. Power provided must not be used for space heating at any time.

.1 Contractor is responsible for power generation once service to building is cut off.

.3 Remove all temporary facilities from site after use.

.4 Where Work involves interruption of existing power service to adjacent portions of other buildings or campus systems, give Departmental Representative a minimum of five working days notice for necessary interruption throughout course of work. Keep duration of interruptions to a minimum. Carry out interruptions on weekends.

1.10 PROTECTION

.1 Protect finished work against damage until take-over.

.2 Protect adjacent work against the spread of dust and dirt beyond the work areas.

.3 Protect Adjacent landscaping, roadways, parking areas and pathways. Reinstate any damage to existing areas caused by the work to the approval of the Departmental Representative.

1.11 USE OF SITE AND FACILITIES

.1 Execute all work within “Limits of Site” as identified on the drawings.

.2 Provide temporary construction fencing for entire perimeter of exterior construction zone and exterior storage area. Reinstate site upon removal of temporary construction fencing.

.3 14 days from contract award, contractor to provide dust mitigation plan as outlined in 1.25 (Dust Control and Temporary Construction Enclosure) below.

.4 Execute work with least possible interference or disturbance to the normal use of adjacent premises and operations. Make arrangements with Departmental Representative to facilitate work as stated.

.5 Provide temporary Contractor's Site office within limits of site as follows:

.1 Locate all Contractor site offices and trailers within the “Limits of Site” to the approval of the Departmental Representative.

.2 Inside dimensions minimum 3.6 m long x 3 m wide x 2.4 m high, with floor 0.3 m above grade, complete with 4 operable windows and one lockable door.

.3 Insulate building and provide cooling system to maintain 22 degrees C inside temperature at 30 degrees C outside temperature.

.4 Provide marked and fully stocked first-aid case in a readily available location.

.5 Provide and pay for temporary telephone, fax and data hook up, lines and equipment necessary for own use.

.6 Parking. No contractor or sub-contractor parking is provided on site. Contractor and sub contractors are responsible for parking arrangements. Limited parking may be allowed in the staging area at the discretion of the Departmental Representative.

.7 Turf disturbed by vehicular traffic, storage and staging shall be reinstated to new condition with sod and maintained for a period of not less than one year following the substantial completion.

.8 Maintain existing services to adjacent buildings and provide for personnel and vehicle access.

.9 Schedule all construction deliveries within regular hours with the Departmental Representative. Deliveries are not to occur after regular hours.

.10 Protect work temporarily until permanent enclosures are completed.

.11 Sanitary facilities: Provide temporary sanitary facilities for work force in accordance with governing regulations and ordinances (minimum one male and one female temporary toilet) on site in location approved by the Departmental Representative. Maintain supply of paper towels and toilet tissue. Maintain facilities to approval of Departmental Representative. Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

.12 Use of the existing elevator by construction personnel is permitted. Elevator operation and maintenance is the responsibility of the Contractor.

.13 Clean adjacent roadways daily where affected by Contractor's equipment.

1.12 SITE STORAGE

.1 The Departmental Representative will assign storage area on site within the limits of construction which shall be equipped and maintained by the Contractor.

.2 Do not unreasonably encumber site with materials or equipment.

1.13 CUT PATCH AND MAKE GOOD

.1 Cut existing surfaces as required to accommodate new work.

.2 Remove all items so shown or specified.

.3 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.

1.14 EXAMINATION

.1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.

.2 Provide photographs of surrounding properties, objects and structures liable to be damaged or be the subject of subsequent claims.

.3 Before commencing work, establish location and extent of services lines in area of work and notify Departmental Representative of findings.

1.15 TESTING LABORATORY SERVICES

.1 Departmental Representative will appoint and pay for costs of inspection and testing services, unless indicated otherwise.

.2 Provide safe working areas and assist with testing procedures, including provisions for materials or services and co-ordination, as required by testing agency and as authorized by Departmental Representative.

.3 Where tests indicate non-compliance with specifications, contractor to pay for initial test and all subsequent testing of work to verify acceptability of corrected work.

1.16 SIGNS

.1 Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etc, in both official languages or by the use of commonly-understood graphic symbols to the Departmental Representative's approval.

.2 No advertising will be permitted on this project.

1.17 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" site and work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.18 TEMPORARY SCAFFOLDS AND WORK PLATFORMS

.1 Design, install, and inspect temporary scaffolds and work platforms required for work in accordance with CSA Z797-09, relevant municipal, provincial and other regulations.

.2 Provide engineered design drawings, signed and sealed by qualified Professional Engineer licensed in the province of Ontario, for temporary shoring, scaffolds and work platforms , where prescribed.

.3 Additions or modifications to scaffolding must be approved by the Professional Engineer in writing.

1.19 NOISE CONTROL

.1 Limit the number of heavy construction vehicles (excavators or equivalent) operating on site at the same time to 6.

.2 During the concrete structure demolition phase, only 1 excavator performing concrete demolition with a demolition hammer should be operated at any given time.

.3 Hours of operation for the deconstruction site must comply with the City of Ottawa Noise by-Law and should be limited to the hours of 7:00am-5:00pm.

.4 Construction traffic not permitted after regular hours.

.5 Multiple, independent deconstruction activities that produce high noise levels should be arranged to occur simultaneously when permissible in order to limit the total duration of noise exposure at noise sensitive points of reception.

.6 All equipment should be properly and regularly maintained. This will help to minimize the operating noise levels.

.7 All large diesel-powered construction vehicles/equipment (excavators, etc.) should be equipped with mufflers to reduce engine and exhaust noise.

.8 Locate stationary noise sources such as air compressors and temporary generators as far away as possible from noise sensitive points of reception.

.9 Use equipment that is most suitable for the job - avoid using over or under-powered equipment, as this will result in higher noise levels.

.10 Do not leave engines idling when not in use.

.11 Where possible, use equipment that breaks concrete by crushing it instead of drilling.

.12 Back-up beepers installed on construction vehicles should have a maximum sound power level of 100 dBA (corresponding to a SPL rating of 92 dBA at 1m).

1.20 HOISTING

.1 Provide, operate and maintain hoists and cranes as required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists and cranes to be operated by qualified operator.

.3 Submit full lift plan for craning of materials, for review by Departmental Representative.

1.21 SURVEY REQUIREMENTS

.1 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.1 Establish lines and levels, locate and lay out, by instrumentation.

.2 Stake for grading, fill and topsoil placement and landscaping features.

.3 Establish pipe invert elevations.

.2 Existing Services:

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.

.2 Remove abandoned service lines within excavation. Cap or otherwise seal lines at cut-off points as directed.

.3 Location of Equipment and Fixtures:

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

.4 Records:

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of foundation demolition, prepare a certified survey showing dimensions, locations, angles and elevations of pile caps to remain.

.3 Record locations of maintained, re-routed and abandoned service lines.

1.22 RECORDS

.1 As work progresses, maintain accurate records to show deviations from contract drawings. Just prior to Departmental Representative's inspection for issuance of final certificate of completion, supply to the Departmental Representative 1 set of white prints with all deviations neatly inked in. The Departmental Representative will provide two sets of clean white prints for this purpose.

1.23 BUILDING SMOKING ENVIRONMENT

.1 Smoking is not permitted in the Building or on site. Obey smoking restrictions on building property.

1.24 TRAFFIC MANAGEMENT

.1 The only vehicle access to the site will be via Heron Road to the north of the site.

.2 Contractor to provide a traffic management plan, to be approved by Departmental Representative prior to any demolition work.

.3 Traffic Management plan must include:

.1 Identification of vehicle access points and permitted times for all vehicle types.

.2 Show access control points and gates. Clearly show full site enclosure for off hours.

.3 Material loading/unloading zones and truck routing through site.

.4 The pedestrian sidewalk on the south side of the site will be closed during the majority of deconstruction activities. Show temporary re-routing of pedestrians in that area.

.5 When traffic is being stopped to allow trucks to leave the site, only 2 trucks at a time can leave the site.

.6 Contractor to follow MTO's Ontario Traffic Manual Book 7.

.4 Additional information to develop traffic management plan:

.1 Flag person must be provided for trucks entering and exiting site.

.2 Contractor must maintain the integrity of traffic management plan throughout the entirety of the demolition/construction project.

.3 Construction vehicle marshalling on the Confederation Heights Campus is not permitted. Vehicles are to arrive, be loaded/unloaded and leave site.

.4 Trucks accessing the site will only be permitted to travel on designated truck routes, in accordance with Ottawa's truck route map.

.5 Contractor is to ensure that all road ways used for construction vehicle traffic are kept free from the accumulation of debris, dust nuisance, mud and ponding water.

.5 Contractor to respond to any complaints, in writing indicating action to be taken, to resolve issues brought forth by the Departmental Representative or residents of the area.

1.25 DUST CONTROL AND TEMPORARY CONSTRUCTION ENCLOSURE

.1 Contactor to provide a dust management plan, to be approved by Departmental Representative prior to any demolition work.

.2 Dust management plan must include:

.1 Objectives to be achieved:

.1 Minimize dust migration to surrounding businesses and residential areas.

.2 Ensure the safety of all people in the area including workers.

.3 Minimize environmental impacts from dust migration.

.2 Identify/recognize areas that are in need of protection from potential emissions from demolition activities.

.3 Methods to be applied in addressing potential emissions.

.1 Pollution prevention practises are preferred to controls that contain the pollution after it has been generated.

.4 The people responsible for managing and implementing the plan,

.5 The records to be maintained that demonstrate adoption of actions and compliance with any government environmental requirements

.6 Contractors dust management plan should integrate as much as possible the Best Practices for the Reduction of Air Emissions From Construction and Demolition Activities prepared for Environment Canada in 2005.

.7 The contractor's dust management plan should document the size, location, timing, prevailing winds, geographical features, landscape, and nature of the construction activities and relate them to communities that will be sensitive to potential emissions from the site. It is important that the contractor identify/recognize areas that are in need of protection from the potential emissions from construction activities.

.3 Provide dust tight screens or partitions to localize dust generating activities within building, and for protection of workers.

1.26 SCHEDULING

.1 14 days from contract award, submit a detailed bar chart construction schedule for work, indicating anticipated progress stages within time of completion. When schedule has been reviewed by the Departmental Representative, take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative. Submit revised schedule based on comments given by Departmental Representative 5 days after receiving comments.

.2 Identify phasing, critical path, and long lead items in schedule. See broad brush project phasing listed below.

.3 Carry out work during "regular hours". "regular hours" defined as: Monday -Friday from 7:00am to 5:00pm. "After regular hours" defined as: Monday - Friday from 5:00pm to 7:00am and on Saturdays, Sundays, and Statutory Holidays.

.4 Carry out all electrical interruptions on weekends, from 06:00 on Saturday to 23:00 on Sunday.

.5 Give the Departmental Representative a minimum of five working days' notice for work to be carried out during "after regular hours".

1.27 PROJECT PHASING

.1 Within the main project construction schedule indicate detailed phasing required to complete the project.

.2 All work shall be phased so as to minimize electrical building power shutdowns and impact on the existing campus. All shutdowns and reductions in service availability shall be coordinated closely with the Departmental Representative to ensure that campus operations are protected. Any work which results in a shutdown or limitation of service availability is to take place on the weekend.

.3 The following indicates minimum phasing requirements to be included in the project construction schedule as dictated by user identified restrictions. This phasing is meant as a guide to which the contractor will add more detailed sub-phasing. Minimum Project Phasing Requirements:

.1 Phase 1 – Deconstruction:

.1 Strip out interiors:

.1 Remove fitting, fixtures, millwork, remove interior finishes;

.2 Sequentially remove HVAC units, plumbing fixtures, piping and ductwork;

.3 Sequentially de-energize electrical panels, disconnect and remove electrical equipment, remove de-energized wiring, cabling, and conduit;

.4 Demolish non-structural interior partitions, door frames, and doors.

.2 Phase 2 – Exterior Demolitions:

.1 Sequentially cut off, remove, and cap existing building site services (obtain Departmental Representative approval for exact timing);

.2 Demolish and re-build campus service tunnel stump and waterproof;

.3 Remove exterior windows and frames, remove exterior wall panels, remove non-structural infill exterior walls;

.4 Demolish concrete structure, remove foundation walls and footings to top of pile cap;

.5 Remove underground services below the basement slab and footings and within limits of excavation;

.6 Cut existing power from Central Heating Plant (CHP) to Insurance Building and to Building 'B' at Manhole G5, and splice feeder from CHP to feeder to Building 'B'. Work to be performed by Hydro Ottawa. Work to be performed on weekend, obtain approval from Departmental Representative for exact timing.

.3 Phase 3 - Greenfield Landscaping:

.1 Carry out Landscaping and make good site.

.4 The contractor is to include in the schedule any additional detailed sub-phasing required to complete the construction work.

.5 Schedule all site measurement, shop drawings submittals and allow for specified approval times by Departmental Representative to suit the order of operations as indicated above.

1.28 DEMOLITION RESTRICTIONS

.1 Demolition by explosives is not permitted.

.2 Demolition to be performed to mitigate dust/silica migration and outlined in dust management plan.

1.29 COST BREAKDOWN

.1 Before submitting first progress claim submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating the Contract Amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

1.30 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction/demolition period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

- .1 Facilitate progress and protect Work against dampness and cold.
- .2 Prevent moisture condensation on surfaces.
- .3 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .4 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.5 Permanent heating system of building not to be used unless written permission is provided from Departmental Representative. Be responsible for damage to heating system if use is permitted. Pay costs for maintaining temporary heat when using permanent heating system.

.6 Pay costs for maintaining temporary heat. When using permanent heating system pay utility charges.

.7 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

- .1 Conform with applicable codes and standards.
- .2 Enforce safe practices.
- .3 Prevent abuse of services.
- .4 Vent direct-fired combustion units to outside.

.8 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction/demolition.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 GENERAL

1.1 REFERENCES

.1 Federal Legislation

.1 Canada Labour Code, Part II, section 124 and 125. Canada Occupational Health and Safety Regulations

.2 Transportation of Dangerous Goods Act, 1992 (TDGA)

.3 Canada Consumer Product Safety Act
1. Surface Coating Materials Regulations SOR/2005-109.

.4 Canadian Environmental Protection Act, 1999 (CEPA)
1. PCB Regulations (SOR/2008-273)
2. Federal Halocarbon Regulations, 2003 (SOR/2003-289)

.2 Provincial Legislation

.1 Ontario Occupational Health and Safety Act, R.S.O. 1990, 2010 edition.
1. Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).
2. Ontario Regulation 278/05 – Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations, (O.Reg. 278/05).
3. Ontario Regulation 213/91 for Construction Projects (O.Reg. 213/91)

.2 Ontario Environmental Protection Act, R.R.O. 1990,
.1 Ontario Regulation 347/09, General – Waste Management (O.Reg. 347/09).
.2 Ontario Regulations 362/90 – Waste Management, PCBs (O.Reg. 362/90)
.3 Ontario Regulation 463/10, Ozone Depleting Substances and Other Halocarbons (O.Reg. 463/10).

.3 Canadian General Standards Board (CGSB).

.4 Canadian Standards Association (CSA International). CAN/CSA-Z94.4-11 - Respiratory Protection

.5 Underwriters' Laboratories of Canada (ULC).

.6 American Conference of Governmental and Industrial Hygienist’s Threshold Limit Values (TLV’s) and Biological Exposure Indices(BEIs) 2013.

1.2 DEFINITIONS

.1 Asbestos-Containing Materials (ACMs): means material that contains 0.5 per cent or more asbestos by dry weight as per Ontario Regulation 278/05, as amended.

.2 Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.3 HEPA vacuum: High Efficiency Particulate Arrestor filtered vacuum equipment with a filter system capable of collecting and retaining fibers greater than 0.3 microns in any direction at 99.97% efficiency.

.4 Lead-Containing Materials: means material that contains 0.009 per cent or more lead content by weight (90 ppm) as per the Federal Canada Consumer Product Safety Act's Surface Coating Materials Regulations SOR/2005-109.

.5 Time-weighted average exposure limit (TWAEL): the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week as prescribed by Ontario Regulation 490/09 Designated Substances, as amended.

1.3 DESIGNATED SUBSTANCES

Confirm with the Departmental Representative that no additional designated substances have been brought to the project area prior to beginning work.

Should any additional material, suspected to be a designated substance, be encountered within the project area, any disturbance of such material must be stopped, precautionary measures taken, and the Departmental Representative must be notified immediately. Do not proceed until written instructions have been received.

1. ACRYLONITRILE: Not Identified
2. ARSENIC: Not Identified
3. ASBESTOS: **Identified**

Update 2018-07-17: Items in section 1.3.3.1 below have been removed from the building during a previous project. In case a similar material is observed that might not have been accessible at the time, notify the Departmental Representative immediately.

.1 Based on analytical laboratory results, the following bulk samples collected from the Insurance Building were confirmed to be Asbestos-Containing Materials:

.1 Approximately 246 instances of friable parging cement associated with pipe fittings (including, but not limited to, pipe elbows, hangers, tees, end-caps and reducers) containing 25-50% Chrysotile, are present throughout building. Several instances of this material were noted in an un-encapsulated state within radiant heating units throughout the building.

.2 Approximately 185 linear meters (m) of friable pipe insulations, containing 25-50% Chrysotile are present throughout building. These materials are generally in good condition where visible. Some concealed materials were observed in poor or fair condition.

.3 Approximately 12 m^2 of friable duct insulation containing 25-50% Chrysotile was identified in corridor CR003 and was generally observed to be in good condition.

.4 Approximately 200 instances of non-friable Duct Sealant, containing 1.1% Chrysotile was identified on perimeter radiators.

.5 Approximately 50 m^2 of non-friable Transite, containing 30% Chrysotile was identified.

.2 The following materials are assumed or suspected to contain asbestos:

.1 Cast iron drainpipe joint caulking in bell fittings (suspect ACM, not sampled), present throughout the building.

.3 Based on analytical laboratory results, the following bulk samples collected from the Insurance Building were confirmed to not contain regulated concentrations of asbestos:

.1 12”x12” Vinyl Floor Tile, Grey;
.2 Brown Baseboard Mastic;
.3 White and Grey Plaster;
.4 12”x12” Vinyl Floor Tile, Beige;
.5 Yellow Baseboard Mastic;
.6 Brown, Battleship Linoleum;
.7 Black Tar behind Foam Insulation;
.8 White Caulking; and,
.9 Terra Cotta Mortar;
.10 Brick Mortar;
.11 Concrete Block Mortar;
.12 Roofing materials; and,
.13 Stone Mortar.

4. BENZENE: Not identified

5. COKE OVEN EMISSIONS: Not identified

6. ETHYLENE OXIDE: Not Identified

7. ISOCYANATES: Not Identified

8. LEAD: **Identified**

.1 The following paints in the Insurance Building are confirmed to contain lead higher than the 90 part per million (ppm) limit established by the Canada Consumer Product Safety Act’s Surface Coating Materials Regulations SOR/2005-109:

.1 Grey paint on the perimeter radiation units observed throughout the project areas, in good condition, contains 1590 ppm lead; and
.2 Yellow paint on walls observed throughout the project areas, in good condition, contains 2860 ppm lead.

.2 Based on the historic composition of the building materials, lead is also suspected to be present in the following materials within the project area:

.1 Solder on copper piping and copper shielding;
.2 Ceramic tile glazing;
.3 Terrazzo floor joints;
.4 Emergency light batteries; and,
.5 Server room batteries and other batteries.

9. MERCURY: **Identified**

.1 Mercury is assumed to be present in the following:
.1 Fluorescent light fixtures containing fluorescent light tubes were observed throughout the project area. Fluorescent light tubes contain mercury in a vapour form and in the phosphor coating on the lamp tube.
.2 Mechanical room and mechanical equipment thermometers and equipment switches.

10. SILICA: Identified
.1 Based on the historic composition of building materials, silica is expected to be present in the following materials noted in the project areas:
.1 Concrete and cement materials;
.2 Ceramic tiles, marble, mortars and grout;
.3 Drywall and associated building materials; and,
.4 Flooring compound layers.

11. VINYL CHLORIDE MONOMER: Not Identified

12. POLYCHLORINATED BIPHENYLS (PCBs): **Suspected**
.1 During the site investigation, fluorescent light fixtures containing T-12 light tubes were observed in select project areas within the Insurance Building. The ballasts associated with these light fixtures are suspected to contain PCBs, unless proven otherwise.

13. MOULD: Not Identified

14. HALOCARBONS: **Suspected**

In general, halocarbons are suspected to be present in the base-building heating and cooling equipment, computer room air conditioning units, condensing units and water fountains.

15. OTHER HAZARDOUS MATERIALS: Not Identified.

1.4 RECOMMENDATIONS

.1 ASBESTOS

.1 All work must be done in accordance with O.Reg 278/05 (as amended).
.2 The disturbance of ACMs on construction and demolition projects in the province of Ontario is governed by *O.Reg 278/05*, as amended. This regulation classifies all asbestos disturbances as Low Risk (Type 1), Moderate Risk (Type 2), or High Risk (Type 3), each of which has defined precautionary measures. All asbestos materials are subject to specific handling and disposal precautions, and must be removed prior to demolition. The Ontario Ministry of Labour (MoL) must be notified of any project involving removal of more than a minor amount (e.g. typically 1 square metre) of friable asbestos material.
.3 Identified friable ACMs (e.g. pipe/elbow/fitting/duct insulation) require a minimum of Type 2 abatement procedures under Ontario Regulation 278/05, as amended, when disturbing/removing/repairing one (1) square metre or less of the material. Should demolition, disturbance, or repair be required of more than one (1) square metre of friable ACM, Type 3 abatement procedures are required. It should be noted that the removal of

an unlimited quantity of piping insulation can be completed using Type 2 glovebag procedures, provided that the application of the glovebag does not result in the release of asbestos fibres (e.g. from damaged fittings) and that the glovebag seal can be maintained throughout the removal process.

.4 Type 1 work procedures can be used for the removal of non-friable materials (transite, duct sealant), provided that the material can be wetted and removed using only non-powered hand tools. If these conditions cannot be met, then more stringent (e.g., Type 2 or Type 3) procedures are necessary.

.5 Disposal of asbestos waste must be done in accordance with “General – Waste Management” O.Reg 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The waste must be disposed at a licensed waste disposal site. Proper notification must be issued to the Departmental Representative prior to transportation of waste.

.2 LEAD

.1 All work involving disturbance of lead-containing materials must be done in accordance with O.Reg 490/09 (as amended).

.2 Follow recommendations provided in the Ontario Ministry of Labour (MoL) Guideline entitled “Guideline: Lead on Construction Projects”. This guideline classifies all lead disturbances as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, and assigns different levels of respiratory protection and work procedures for each classification.

.3 Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne lead levels that exceed the TWAEL of 0.05 milligram per cubic metre (mg/m3) prescribed by O.Reg 490/09 (as amended).

.4 Even at low concentrations, there may be a potential for exposure to high concentrations of lead depending on the activities performed that disturb the lead-containing materials. At low lead concentrations, conducting a risk assessment to assess the potential for exposure is required to determine the need to follow precautionary measures.

.5 Disposal of construction waste containing lead must be done in accordance with O.Reg 347/90 – General Waste Management, as amended, under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The classification of the waste is dependent upon the result(s) of leachate test(s). The waste can be classified as “hazardous, “non-hazardous” or “registerable solid waste” depending on the results of the leachate test.

.3 MERCURY

.1 All work involving disturbance of mercury-containing equipment must be done in accordance with O.Reg 490/09 (as amended).

.2 Follow recommendations provided in the MoL Guideline entitled “The Safe Handling of Mercury: A Guide for the Construction Industry”. This document provides advice on how to reduce the risk of mercury exposure, and outlines clean-up methods for spills.

.3 When removal of fluorescent light tubes is required, the tubes should be removed intact from the fixtures. Other sources of liquid mercury should be removed intact to prevent worker exposure.

.4 Disposal of waste containing mercury must be done in accordance with "General – Waste Management" O.Reg 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act.

.4 SILICA

.1 Comply with O.Reg 490/09 (as amended) when performing works that may disturb silica-containing materials. The regulation provides requirements for allowable exposure levels.

.2 Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is present in select materials within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.

.3 Follow recommendations provided in the MoL Guideline entitled "Guideline: Silica on Construction Projects". This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

.5 POLYCHLORINATED BIPHENYLS (PCBs)

.1 Comply with PCB Regulations (SOR/2008-273) made pursuant to the Canadian Environmental Protection Act, 1999 (CEPA 1999).

.2 Follow recommendations provided in the Environment Canada guideline "Identification of Lamp Ballasts Containing PCBs to determine whether or not the fluorescent light fixture ballasts contain PCBs.

.3 Disposal of waste containing PCBs must be done in accordance with "General – Waste Management" O.Reg 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act.

.6 HALOCARBONS

.1 Halocarbon refrigerants must be captured and reclaimed by a licensed technician in any suspected halocarbon-containing equipment that is taken out of service. Appropriate records of equipment decommissioning must be maintained in accordance with requirements of the Federal Halocarbon Regulations, 2003.

END OF SECTION

1 GENERAL

1.1 CASH ALLOWANCES

.1 Include in Contract Price specified cash allowances.

.2 Cash allowances, unless otherwise specified, cover net cost to subcontractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation, and other authorized expenses incurred in performing Work.

.3 Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.

.4 Contract Price will be adjusted by written order to provide for excess or deficit to each cash allowance.

.5 Include progress payments on accounts of work authorized under cash allowances in progress claims.

.6 Amount of each allowance is as follows:

.1 Allowance of $25,000 for Hydro Ottawa services as described in Division 26 and ‘E’ series drawings.

2 PRODUCTS

2.1 NOT USED

.1 Not Used.

3 EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Submit to Departmental Representative, all submittals listed for review. Submit promptly and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an 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 Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated 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 Delays resulting from incomplete or unsatisfactory submittals of Shop Drawings shall be the responsibility of the Contractor.

.7 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent Work are coordinated.

.9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative’s review of submittals.

.10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.11 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWING LOG

.1 Prepare a shop drawing log and maintain the log during the complete construction period. Submit draft Shop Drawing log within 14 days of contract award and update log weekly or more frequently as directed by Departmental Representative.

.2 Log to include a comprehensive schedule for the submission of all shop drawings required for the execution of the work. Provide for a review time by Departmental Representative for each submission as appropriate for construction element and as approved by Departmental Representative.

.3 Present updated log at each project meeting.

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 Contractor to illustrate details of a portion of Work.

.2 Submit shop drawings bearing stamp and signature of qualified Professional Engineer registered or licensed in Provinces of Ontario, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of 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 design drawings and specifications.

.4 Allow 7 business days for Departmental Representative's review of each submission.

.5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of any 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.
- .5 Other pertinent data.

.8 Submissions shall include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of subcontractor, supplier and manufacturer.
- .4 Contractor's stamp, signed by Contractor’s authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .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.
  - .10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit one electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit one electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit one electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental 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 accord with specified requirements.

.13 Submit one electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental 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 specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit one electronic copy of manufacturer’s instructions for requirements requested in specification Sections and as requested by Departmental 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.

.15 Submit one electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.16 Submit one electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.17 Delete information not applicable to project. Supplement standard information to provide details applicable to project.

.18 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, marked up electronic copy 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.

.19 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that the Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.20 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Province of Ontario

.1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.O.1, as amended and O. Reg. 213/91 as amended - Updated 2017.

.2 National Research Council Canada

.1 National Building Code (NBC). 2015.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.

.4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS/WHMIS 2015 MSDS/SDS - Material Safety Data Sheets and/or Safety Data Sheets.

.7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 3 days after receipt of comments from Departmental Representative.

.8 Departmental 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 Departmental Representative.

.10 Departmental Representative will provide details of on-site Contingency and Emergency Response Plan. Address all standard operating procedures to be implemented during emergency situations as directed by Departmental Representative.

.11 Submit to the Departmental Representative for review: one (1) complete Hazard Assessment Site Specific Health and Safety Plan (HASSSP) in an index format, and in a three ring binder. Once the Departmental Representative has review and accepts the HASSSP binder the Departmental Representative will return to the contractor for site use.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.4 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.5 MEETINGS

.1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.6 HAZARDOUS MATERIALS

.1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) and/or Workplace Hazardous Materials Information System (WHMIS 2015) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and the provision of Material Safety Data Sheets (MSDS) and/or Safety Data Sheets (SDS) acceptable to Ontario WHMIS Regulation 860.

.2 Demolition of asbestos can be hazardous to health. Should material resembling spray or trowel applied asbestos be encountered in the course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Do not proceed until written instructions have been received

1.7 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.8 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.

.3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

.4 Appoint a supervisor who is an employee of the contractor to be present and available at all times for the duration of the project.

1.9 COMPLIANCE REQUIREMENTS

.1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91.

.2 Comply with NBC 2015 (Part 8, Safety Measures at Construction and Demolition Sites).

.3 Comply with the Health and Safety requirements of CSA Z462 – Workplace Electrical safety.

.4 Comply with the Health and Safety requirements of CSA Z460 – Control of Hazardous Energy.

1.10 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province of Ontario and authorities having jurisdiction and advise Departmental Representative verbally and in writing.

1.11 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ the Site Supervisor as the authorized representative as a Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have working knowledge of occupational safety and health regulations.

.2 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.3 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.4 Be on site during execution of Work.

1.12 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Ontario, and in consultation with Departmental Representative.

1.13 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.14 POWDER ACTUATED DEVICES

.1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.15 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.16 ACCIDENT AND INCIDENT REPORTS

.1 The Contractor shall advise the Departmental Representative of any accident, injury, near-miss incident, fire, explosion or chemical spill occurring at the Work site and any visit to

the site by a governmental enforcement official. The contractor shall provide a written report within 24 hours of any accident, injury, near-miss incident, fire, explosion or chemical spill.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.

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

.4 Environmental protection plan to include:

- .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
- .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
- .3 Names and qualifications of persons responsible for training site personnel.
- .4 Descriptions of environmental protection personnel training program.
- .5 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- .6 Drawings showing locations of proposed temporary excavations or embankments, material storage areas, structures, sanitary facilities, and stockpiles of excess materials including methods to control runoff and to contain materials on site.
- .7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
- .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.
- .9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.
- .12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance

with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.2 FIRES

.1 Fires and burning of rubbish on site are not permitted. Provide supervision, attendance and fire protection measures as directed.

1.3 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.4 DRAINAGE

.1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.2 Provide a Storm Water Pollution Prevention Plan (SWPPP) as part of the erosion and sedimentations control plan.

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

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

.5 Provide temporary drainage and pumping as necessary to keep excavations and site free from water. Refer to section 31 23 33.01 - Excavating trenching and backfilling for dewatering requirements.

.6 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

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

1.5 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties.

.2 Protect roots of trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.3 Minimize stripping of topsoil and vegetation.

.4 Restrict tree removal to areas indicated or designated by Departmental Representative.

1.6 POLLUTION CONTROL

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

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

.3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.

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

1.7 FUEL AND OIL MANAGEMENT

.1 Exercise care in handling of fuels to minimize the potential for fuel spills. Report immediately any fuel spills to Departmental Representative. Contractor is responsible for any clean up or repair resulting from any spills.

.2 Prepare a spill contingency plan to address potential spill material, response actions and a spill response contact list.

.3 Provide spill kits and containment for any stationary equipment, eg. Drip pans.

1.8 NOTIFICATION

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

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

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

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection / Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.2 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.3 PROCEDURES

.1 Notify appropriate agency and Departmental Representative in advance of 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 an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.4 REPORTS

.1 Submit 4 copies of inspection and test reports to Departmental Representative.

.2 Provide copies to Subcontractor of work being inspected or tested, manufacturer or fabricator of material being inspected or tested.

1.5 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as may be requested.

.2 The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work shall be appraised by Departmental Representative and may be authorized as recoverable.

1.6 MILL TESTS

.1 Submit mill test certificates as requested and as required of specification Sections.

1.7 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

.2 Refer to appropriate specification sections for definitive requirements.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 73 03 - Execution Requirements.

1.2 REFERENCES

.1 Within text of each specifications section, reference may be made to reference standards. Conform to referenced standards, in whole or in part as specifically requested in specifications. Conform to latest date of issue of referenced standards in effect on date of submission of Tenders, except where specific date or issue is specifically noted.

.2 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.3 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.3 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.

.3 Defective products, whenever identified prior to completion of 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.

.4 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.6 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.

1.4 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in 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 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 and moisture sensitive materials 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 Departmental Representative.

.9 Touch-up damaged factory finished surfaces to Departmental 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 Work.

.2 Transportation cost of products supplied by Departmental Representative will be paid for by Departmental Representative. Unload, handle and store such products.

1.6 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in 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 Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

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

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves 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 Departmental Representative, whose decision is final.

1.8 CO-ORDINATION

.1 Ensure cooperation of workers in laying out 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 Departmental Representative if there is interference. Install as directed by Departmental Representative.

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 Work.

1.11 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate. Inform Departmental Representative of conflicts.

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 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any organic material are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 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 any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

1.15 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and building occupants. Protect pedestrian 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

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of any element of Project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of any operational element.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Departmental Representative or separate contractor.

.3 Include in request:

- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Date and time work will be executed.

1.2 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching. After uncovering, inspect conditions affecting performance of Work.

.2 Beginning of cutting or patching means acceptance of existing conditions.

.3 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.4 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction / Demolition Waste Management.

Part 2 Products

2.1 MATERIALS

.1 Provide materials as required for original installation. Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

Part 3 Execution

3.1 EXECUTION REQUIREMENTS

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work. Remove samples of installed Work for testing.

.5 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.6 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.7 Cut rigid materials using masonry saw or core drill.

.8 Restore work with new products in accordance with requirements of Contract Documents.

.9 Refinish surfaces to match adjacent finishes. Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

.1 Remove waste materials and debris from site at regularly scheduled times and deposit in waste containers at end of each working day. Remove waste materials more frequently as directed by Departmental Representative to ensure a clean and orderly work site.

.2 Do not burn waste materials on site.

.3 Provide on-site containers for collection of waste materials and debris. Provide appropriate sized disposal bins and locate bins on site where directed by Departmental Representative. Empty waste disposal bins daily or more frequently at times as directed by Departmental Representative.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. Dispose of waste materials and debris at designated dumping areas off site.

.5 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.6 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.7 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANING

.1 When Work is Substantially Performed and prior to final review, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work. Remove waste products and debris other than that caused by others, and leave Work clean and suitable.

.2 Remove stains, spots, marks and dirt from decorative work, and existing to remain elements.

.3 Clean existing and new light standards.

.4 Broom clean and wash exterior walks, steps and surfaces. Rake clean other surfaces of grounds. Sweep and wash clean paved areas. Remove dirt and other disfiguration from exterior surfaces. Remove snow and ice

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction / Demolition Waste Management.

.2 Provide and use clearly marked separate bins for recycling.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 02 41 16 – Structure Demolition.

.2 Section 02 41 99 – Demolition for Minor Works.

1.2 WASTE MANAGEMENT GOALS

.1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's Waste Management Plan and Goals.

.2 Waste Management Goal: 80 percent of total Project Waste to be diverted from landfill sites. Provide Departmental Representative with documentation certifying that waste management, recycling, use of recyclable materials have been extensively practiced.

.3 Accomplish maximum control of solid construction waste.

.4 Preserve environment and prevent pollution and environment damage.

1.3 DEFINITIONS

.1 Class III: non-hazardous waste - construction renovation and demolition waste.

.2 Cost / Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.

.3 Demolition Waste Audit (DWA): relates to actual waste generated from project.

.4 Inert Fill: inert waste. Exclusively asphalt and concrete.

.5 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate recyclable waste material into material categories from other types of waste at point of generation.

.6 Recyclable: ability of product or material to be recovered and re-manufactured into new product for reuse.

.7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes: Returning reusable items including pallets or unused products to vendors.

.10 Separate Condition: refers to waste sorted into individual types.

.11 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

.12 Demolition Waste Audit (DWA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.

.13 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.14 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from DWA (Schedule A).

1.4 DOCUMENTS

.1 Maintain at job site, one copy of following documents:

.1 Demolition Waste Audit (DWA)-Schedule A.

.2 Waste Reduction Workplan (WRW)-Schedule B.

.3 Material Source Separation Plan.

.4 Schedules A and B, completed for project.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Prepare and submit following prior to project start-up.

.1 Submit 2 copies of completed Demolition Waste Audit: Schedule A.

.2 Submit 2 copies of completed Waste Reduction Workplan: Schedule B.

.3 Submit 2 copies of Cost/Revenue Analysis Workplan: Schedule D.

.4 Submit 2 copies of Materials Source Separation Program plan.

.3 Submit before final payment a complete summary of waste materials salvaged for reuse, recycling or disposal by project.

.1 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled, co-mingled and separated off-site or disposed of.

.2 For each material reused, sold or recycled from project, include amount in tonnes quantities by number, type and size of items and the destination.

.3 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.6 DEMOLITION WASTE AUDIT (DWA)

.1 Conduct DWA prior to project start-up.

.2 Prepare DWA: Schedule A.

.3 Record, on DWA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

1.7 WASTE REDUCTION WORKPLAN (WRW)

.1 Prepare WRW prior to project start-up.

.2 WRW should include but not limited to:

.1 Destination of materials listed.

.2 Location.

.3 Security.

.4 Protection.

.5 Clear labelling of storage areas.

.6 Details on materials handling and removal procedures.

.7 Quantities for materials to be reused or recycled and materials sent to landfill.

.3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.4 Describe management of waste.

.5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.

.6 Post WRW or summary where workers at site are able to review content.

.7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.

.8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

1.8 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

.1 Prepare CRAW: Schedule D.

1.9 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP and have ready for use prior to project start-up.

.2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.

.3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.4 Provide containers to deposit reusable and recyclable materials.

.5 Locate containers in locations as directed by Departmental Representative, to facilitate deposit of materials without hindering daily operations.

.6 Locate separated materials in areas which minimize material damage.

.7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition. Transport to approved and authorized recycling facility.

.8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.

.1 Ship materials to site operating under Certificate of Approval.

.2 Materials must be immediately separated into required categories for reuse or recycling.

1.10 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused and salvaged in locations as directed by Departmental Representative.

.2 Protect surface drainage, mechanical and electrical from damage and blockage.

.3 Prevent contamination of materials to be 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.

1.11 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste, volatile materials, mineral spirits, oil or paint thinner into waterways, storm, or sanitary sewers.

.3 Keep records of construction waste including:

.1 Number and size of bins. Waste type of each bin.

.2 Total tonnage generated. Tonnage reused or recycled.

.3 Reused or recycled waste destination.

.4 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.12 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Maintain security measures established by existing facility. Provide temporary security measures approved by Departmental Representative.

1.13 SCHEDULING

.1 Coordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 APPLICATION

.1 Do Work in compliance with WRW.

.2 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 Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

3.3 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

.2 On-site sale of reusable or recyclable materials is not permitted.

.3 Construction Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	[___]
Plastic Packaging	100	[___]
Rubble	100	[___]
Steel	100	[___]
Wood (uncontaminated)	100	[___]
Other		[___]

3.4 DEMOLITION WASTE AUDIT

.1 Schedule A - Demolition Waste Audit (DWA):

(1) Material Description	(2) Quantity 1	(3) Unit	(4) Total	(5) Volume (cum)	(6) Weight (cum)	(7) Remarks and Assumptions
Wood						
Wood Stud						
Plywood						
Baseboard-Wood						
Door Trim - Wood						
Cabinet						
Doors and Windows						
Panel Regular						
Slab Regular						
Wood Laminate						
Byfold - Closet						
Glazing						

3.5 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B

(1) Material Category	(2) Person Responsible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material Destination
Wood and Plastics							
Chutes							
Warped Pallet Forms							
Plastic Packaging							
Card-board Packaging							
Other							
Doors and Windows							
Painted Frames							
Glass							
Wood							
Metal							
Other							

3.6 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

.1 Schedule D - Cost/Revenue Analysis Workplan (CRAW)

(1) Material Description	(2) Total Quantity (unit)	(3) Volume (cum)	(4) Weight (cum)	(5) Disposal Cost/Credit $(+/-)	(6) Category Sub-Total $(+/-)
Wood					
Wood Stud					
Plywood					
Baseboard - Wood					
Door Trim - Wood					
Cabinet					
Doors and Windows					
Panel Regular					
Slab Regular					
Wood Laminate					
Bi fold - Closet					
Glazing					
		(7) Cost (-) / Revenue (+)			

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 02 41 16 – Structure Demolition.

.2 Section 26 05 00 – Common Work Results for Electrical.

.3 Section 33 11 16 – Site Water Utility Distribution and Piping.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.3 Copy will be returned after final inspection, with Departmental Representative's comments.

.4 Revise content of documents as required prior to final submittal.

.5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, two draft copies of operating and maintenance manuals in English.

.6 Make revisions to operating and maintenance manuals as per comments provided by Departmental Representative. Submit 4 final copies and 2 digital copies of operating and maintenance manuals in both English and French.

.7 If requested, furnish evidence as to type, source and quality of products provided.

.8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.9 Pay costs of transportation.

1.3 FORMAT

.1 Organize data in the form of an instructional manual.

.2 Binders: hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: Manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.4 CONTENTS - EACH VOLUME

.1 Table of Contents:

.1 Provide title of project.

.2 Date of submission.

.3 Names, addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

.4 Schedule of products and systems, indexed to content of volume.

.2 For each product or system: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.5 AS-BUILTS AND SAMPLES

.1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to the Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.6 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of black line opaque drawings provided by Departmental Representative.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents. Maintain manufacturer's certifications, inspection certifications, field test records, and other documentation as required by individual specifications sections.

.7 Provide 2 hard copies of CCTV scan of west storm sewer to Departmental Representative both before and after work.

1.7 MATERIALS AND FINISHES

.1 Building Products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

.2 Include instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional requirements: as specified in individual specification sections.

1.8 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative’s approval.

.3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittal.

.7 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Conduct joint 4 month and 9 month warranty inspection, measured from time of acceptance, by Departmental Representative.

.9 Include information contained in warranty management plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

.2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, and landscaping.

.3 Provide list for each warranted equipment, item, feature of construction or system indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location where installed.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.4 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.

1.9 PRE-WARRANTY CONFERENCE

.1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.

.2 Departmental Representative will establish communication procedures for:

.1 Notification of construction warranty defects.

.2 Determine priorities for type of defect.

.3 Determine reasonable time for response.

.3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION