

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 2010 (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 TAXES

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

1.4 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.

1.5 FIRE SAFETY REQUIREMENTS

- .1 Comply with the National Building Code of Canada 2010 (NBC) for fire safety in construction and the National Fire Code of Canada 2010 (NFC) for fire prevention, fire fighting and life safety in building in use.
- .2 Comply with Human Resources and Skills Development Canada (HRSDC), Labour Canada, Fire Protection Engineering Services Standards.
- .3 Welding and cutting:
 - .1 Before welding, soldering, grinding and/or cutting work, obtain a permit as approved by the Departmental Representative. Store flammable liquids in approved CSA containers inspected by the Departmental Representative. No open flame shall be used unless authorized by the Departmental Representative.
 - .2 At least 48 hours 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 welding permit as defined in NFC 2010 and NBC 2010.
 - .3 Return welding permit to Departmental Representative immediately upon completion of procedures for which permit was issued.

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- .3 A fire watcher as described in NFC 2010 and NBC 2010 shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 10m may be ignited by conduction or radiation.

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

1.7 REMOVED MATERIALS

- .1 Unless otherwise specified, materials for removal become the Contractor's property and shall be taken from site.

1.8 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.

1.9 SLEEVES HANGERS AND INSERTS

- .1 Co-ordinate setting and packing of sleeves and supply and installation of hangers and inserts. Obtain Departmental Representative's approval before cutting into structure.

1.10 HAZARDOUS MATERIALS

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

1.11 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.

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- .3 Water Supply. Departmental Representative will provide continuous supply of potable water for construction use.
- .4 Notify the Departmental Representative and utility companies of intended interruption of services. Obtain requisite permission.
- .5 Give the Departmental Representative 2 weeks notice related to each necessary interruption of any mechanical or electrical service throughout the course of the work. Keep duration of these interruptions to a minimum. Carry out all interruptions after normal working hours preferably on weekends.
- .6 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- .7 Permanent power and lighting systems installed may be used for construction requirements only with prior approval of Departmental Representative provided that warrantees are not affected. Make good damage to electrical system caused by use. Replace lamps which have been used for more than 3 months.
- .8 Remove all temporary facilities from site after use.
- .9 Notify the Departmental Representative and utility companies of intended interruption of services. Obtain requisite permission.

1.12 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.

1.13 PROTECTION

- .1 Protect adjacent site, adjacent landscaping, adjacent fencing, and finished work against damage until take-over.
- .2 Protect adjacent work against the spread of dust and dirt beyond the work areas.
- .3 Protect operatives and other users of site from all hazards.

1.14 USE OF SITE AND FACILITIES

- .1 Execute all work within "Limits of Site" as identified on the drawings.
- .2 Execute work with least possible interference or disturbance to the normal use of adjacent premises and operations of the Vehicle Screening Facility. Make arrangements with Departmental Representative to facilitate work as stated.
- .3 No temporary Contractors Site office will be available within limits of site.
- .4 Parking. One parking space will be made available for the Contractor on the Vehicle Screening Facility site. No other Contractor parking is provided on site at the Vehicle

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Screening Facility or on Parliament Hill. Material can be dropped off but vehicle cannot remain in parking lot. Contractor is responsible for parking.

- .5 Maintain existing services to building and provide for personnel and vehicle access.
- .6 Schedule construction deliveries with the Departmental Representative.
- .7 Protect work temporarily until permanent enclosures are completed.
- .8 Sanitary facilities: Provide temporary sanitary facilities for work force in accordance with governing regulations and ordinances (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
- .9 Clean adjacent roadways where affected by Contractor's equipment.
- .10 Construction Garbage and Debris: Stockpile construction garbage within the Limits of Site and remove from the construction site at the end of each work shift. Schedule garbage removals with building security personnel at direction of Departmental Representative. Waste dumpsters are not permitted to remain on site.

1.15 SITE STORAGE

- .1 Site storage is permitted within the limits of site defined on the drawing. The site storage area shall be secure and equipped and maintained by the Contractor. Site storage area to be kept tidy and clean.
- .2 Do not unreasonably encumber site with materials or equipment.
- .3 Move stored products or equipment which interfere with operations of Departmental Representative or other Contractors.
- .4 Provide off-site secure storage. Arrange for delivery of salvaged material to and from the secure storage facility. Protect salvaged material at all times. Pay all costs.

1.16 BUILDING SMOKING ENVIRONMENT

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

1.17 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.

GENERAL INSTRUCTIONS**1.18 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.

1.19 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 An Authorization for Vehicular Access (AVA) must be submitted and approval obtained for all vehicles entering Parliament Hill grounds.
- .3 Vehicles over 10 tonne gross weight must be accompanied with flagmen.
- .4 Instruct drivers of vehicles associated with the work to exercise care, patience and courtesy when driving on Parliament Hill. Always give right-of-way to pedestrians and exercise extreme care when vehicles commence motion in any direction.
- .5 Shut down vehicle and machinery when inactive to reduce noise and generation of fumes.

1.20 TEMPORARY SHORING SCAFFOLDS AND WORK PLATFORMS

- .1 Design, install, and inspect temporary shoring, scaffolds and work platforms required for work in accordance with 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.
- .3 Additions or modifications to scaffolding must be approved by the Professional Engineer in writing.

1.21 RECORDS

- .1 As work progresses, maintain accurate records to show deviations from technical 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.

1.22 SCHEDULING

- .1 Within two weeks of 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

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Departmental Representative. Update the project schedule once every month if time lines have changed since last update.

- .2 Identify critical path and long lead items in schedule.
- .3 Within main schedule, indicate separate detailed schedule breakdowns for work.
- .4 Include for costs to maintain a flexible schedule and allow for a minimum of 5 separate one day work interruptions to the project schedule. Assume no construction will be possible during work interruptions. Coordinate work and temporary stoppages with the Departmental Representative to accommodate potential changes in schedule. The Departmental Representative will provide a minimum of 1 week advanced notice if work is to be rescheduled or delayed.
- .5 Exterior construction activities regardless of location of grounds where work is likely to create a disturbance to the building occupants shall be performed during off hours from 18:00 to 6:00 hours, and on Saturdays, Sundays and statutory holidays. A disturbance is caused by disruptive work creating vibrations, impacts, noise, dust, fumes or unsightly condition; perceptible to building occupants. The Contractor may be required to cease work for limited periods of time.
- .6 Crane work including delivery and removal must be carried out during "off hours" Monday to Friday from 18:00-6:00 hours and on Saturdays, Sundays and Statutory holidays unless otherwise directed by the Departmental Representative.
- .7 Work requiring the obstruction of roads or obstruction of building access/egress must be carried out on weekends, after Friday 18:00 hours to Monday 6 hours.
- .8 During the dates and times listed below, work is not permitted, and deliveries or removal of materials are not permitted. Also, site construction lighting must be shut down, booms lowered to horizontal position; and audible equipment must be shut off such as compressors, generators, excavation or hoisting equipment, and other noise-producing equipment. Note: Dates and times shown below are subject to change.
 - .1 The Sound and Light event: daily, from July 5 through to the first Monday of September, from 20:30 to 23:00 hours
 - .2 Remembrance Day: November 11, from 10:45 to 11:15 hours.
 - .3 Canada Day: July 1, 6:00 hours to July 2, 01:00 hours
 - .4 Police Memorial Service: Second Sunday of September from 08:30 to 12:30 hours
 - .5 Fire-fighter memorial Service: Second Sunday of September from 8:30 to 12:30 hours
 - .6 Changing of the Guard Ceremony: daily, starting on the Friday prior to Canada Day (July1) to last Friday in August, from 10:00 to 10:30 hours.
 - .7 Budget day
 - .8 State visits, other special events, demonstrations.
- .9 Schedule deliveries and removals to minimize vehicle waiting time on site or adjacent areas. Hours of deliveries and removal shall be limited to:
- .10 From 18:00 to 6:00 hours, and on Saturdays, Sundays and statutory holidays.

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- .11 Materials shall be delivered to the designated loading area, unloaded and immediately transported to the designated materials storage area. Do not allow materials or equipment to remain in the vicinity of the loading area.
- .12 Deliveries or removals using articulated tractor trailers or vehicles with large or heavy items shall be scheduled and approved by the House of Commons Client Representative a minimum of 2 business days in advance.
- .13 Scheduling planting bed installation: The work for the planting bed in the paved area north of the site is to begin on November 8, 2013.

1.23 COST BREAKDOWN

- .1 Before submitting first progress claim submit cost breakdown of amount in detail as approved by Departmental Representative and aggregating the amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.
- .2 Submit a valid Statutory Declaration and Workplace Safety & Insurance Board Certificate with each request for progress payment.

1.24 MATERIAL AND FINISH SUBMITTALS

- .1 Submit duplicate samples of all material and finish samples in project within 20 working days of date of award for review and selection by Departmental Representative. Refer to Section 01 33 00 Submittal Procedures.

1.25 PRE-PURCHASED EQUIPMENT

- .1 The following items have been pre-purchased and will be provided by Departmental Representative for incorporation into the project by the Contractor.
 - 1. Specific door hardware as indicated in 08 71 00 - Door Hardware.
 - 2. Under vehicle inspection systems (UVIS). Three total as identified on drawings.
 - 3. Vehicle lane barriers. Twelve total as identified on drawings.
 - 4. Traffic light for UVIS. Three total as identified on drawings.
 - 5. In ground control loop for UVIS and lift gate. Six total as identified on drawings.
 - 6. Lift gate units. Three total as identified on drawings.
 - 7. 1800 mm high aluminum poles complete with base plates. Six total as identified on drawings.
 - 8. One Equipment Rack in room #6.
- .2 Co-ordinate delivery of the equipment with the Departmental Representative. Include for pick up and transportation within 50 kilometer radius of project site.
- .3 Obtain the necessary Shop Drawings from the Departmental Representative and co-ordinate all details for the complete installation of the equipment.

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1.26 PHASING

- .1 Schedule construction work and deliveries such that they do not impact vehicle screening operations.
- .2 Work within driving aisles below the existing canopy must be scheduled such that a minimum two driving lanes remain operational at all times.
- .3 The central lane will be closed for the duration of the construction period for the use of the Contractor as a staging and shoring area. Under certain circumstances when approved by Departmental Representative, the Contractor may schedule work phasing to minimize the amount of time where only 1 or 2 driving aisles are available for un-impeded use.
- .4 Work requiring the closure of more than one lane must be carried out on weekends, Friday 18:00 hours to Saturday 6:00 hours, Sun 18:00hours to Monday 6:00 hours.
- .5 At no time may all three driving lanes be affected by the construction.
- .6 Suggested electrical service sequence of implementation:

All electrical work shall be phased in such a way so as to minimize downtime and impact on the existing facility. All shutdowns and reductions in service availability including interruptions to the backup generator will be coordinated closely with the Departmental Representative to ensure that client operations are protected. Any work which results in a shutdown or limitation of service availability is to take place on the weekend. What follows is a suggested outlined sequence of implementation. Contractor is responsible to submit as part of mobilization a detailed impact schedule identifying major tasks, interruptions of service and their durations. Contractor is responsible for supplying fuel and fuelling generator for duration of work while generator is supporting operations. generator run time to be minimized.

 - .1 ATS and distribution equipment along with backup generator supply wiring to be installed on new building.
 - .1 Utility power supply cable to be installed from ats to kiosk prepared for final connection to 400a service disconnect.
 - .2 Backup supply from generator to ats will be installed awaiting connection at generator.
 - .3 Supply from new panel b1 to existing panel a1 will be installed awaiting connection at panel.
 - .4 All equipment on new building (ats, panel b1, b2 contactor, etc.) will be installed and connected.
 - .2 Existing 75kva pole mounted transformer is to be replaced with 100kva pole mounted transformer as detailed.
 - .1 Existing redundant 200a service disconnect is to be removed to permit installation of 400a service disconnect.
 - .2 400a service disconnect to be installed, supply to ats to be connected.
 - .3 Transformer to be replaced.
 - .4 Feed for 400a service disconnect for new distribution and existing feed to 200a service panel is to be connected to new transformer.
 - .5 Site generator to support load for duration of utility shutdown to existing site.

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- .3 Connect ats to emergency source and connect panel a1 to panel b1.
 - .1 Work to be coordinated such that time of service interruption to existing panel a1 is minimized.
 - .2 Generator to be taken offline and disconnected from existing distribution.
 - .3 Generator to be connected to new ats.
 - .4 Utility and backup supply to new ats to be isolated, connection to panel a1 to be made.
 - .5 System to be brought back online with panel a1 supplied from new distribution and backup generator connected and operational with new ats.
 - .6 Existing ats to be isolated from utility service and feeder removed as far back as practicable.
- .4 Remove existing ats, install equipment on existing building.
 - .1 Remove existing ats and all associated wiring.
 - .2 Panel a2, a3, relay panel and uvis enclosures to be installed on trailer.
- .5 Arrange for shutdown of panel a1 for final connection of a2, a3.
 - .1 Panel a1 to be isolated to permit connection of feeds to a2 and a3.
 - .2 Connect panel a2 and a3 to panel a1 as indicated.

1.27 DUST CONTROL AND TEMPORARY CONSTRUCTION ENCLOSURE

- .1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of work.
- .2 Do not fasten into existing surfaces to remain. At completion of work remove enclosures, vacuum and clean, reinstate all surfaces to the approval of the Departmental Representative.
- .3 Maintain and relocate protection for phasing until such work is complete.
- .4 All temporary hoarding and dust enclosures shall comply with the National Fire Code of Canada and the National Building Code of Canada.
- .5 Design, construct and maintain temporary "access to" and "egress from" work areas; and safe separation of work areas from non-work areas. These temporary facilities may include: hoarding, fence, signage, stairs, runways, ramps, ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial, national, and other regulations.
- .6 Keep within limits of approved construction site, including avenues of access and egress.
- .7 Hoarding Type 1 (below canopy): purpose made self supporting interlocking welded wire mesh panels and posts minimum 2440 mm high. Support posts with purpose made concrete support blocks or spread footing sufficient for self support.
- .8 Hoarding Type 2: Painted opaque construction hoarding around new VSF building. Wood framed construction with plywood facing and wood trim top and bottom. Paint finish. Refer to drawings.

GENERAL INSTRUCTIONS**1.28 TEMPORARY HEATING AND VENTILATION**

- .1 Provide temporary heating required during construction 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 Maintain temperatures of minimum 10 degrees C where construction is in progress.
- .5 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.
- .6 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.
- .7 On completion of Work for which permanent heating system is used, replace filters and clean all equipment to "as new" condition.
- .8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Departmental Representative.
- .9 Pay costs for maintaining temporary heat. When using permanent heating system pay utility charges.
- .10 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.
 - .2 Enforce safe practices.

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- .3 Prevent abuse of services.
- .4 Prevent damage to finishes.
- .5 Vent direct-fired combustion units to outside.
- .11 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

Part 2 Products**2.1 NOT USED****Part 3 Execution****3.1 NOT USED****END OF SECTION**

PART 1 – GENERAL

1.1 REGULATORY REQUIREMENTS

.1 An investigation into the presence of designated substances for the Vehicle Screening Facility Upgrades at the Parliament Hill Grounds, Ottawa, Ontario was performed in order to meet the requirements of the Canada Labour Code under Part II, section 124 which stipulates that every employer shall ensure that the health and safety at work of every person employed by the employer is protected and those employees are made aware of every “known or foreseeable health or safety hazard” in the work environment. Also, it was performed to meet the requirements of Section 30 of the *Ontario Occupational Health and Safety Act, Revised Statutes of Ontario, 1990, Chapter 0.1*. By having a Designated Substances Report (DSR) conducted, the Departmental Representative will be able to inform his or her employees, contractors, and tenants of any designated substances that may be present and possibly disturbed throughout the duration of the project. The informed Departmental Representative will then be able to impose appropriate health and safety precautions for all applicable personnel as required.

.2 The designated substances identified in the *Occupational Health and Safety Act* and its corresponding regulations are:

- .1 **Acrylonitrile:** “Designated Substance – Acrylonitrile” O.Reg 835 (as amended by O.Reg 490/09)
- .2 **Arsenic:** “Designated Substance – Arsenic” O.Reg 836 (as amended by O.Reg 490/09)
- .3 **Asbestos**
 - .1 “The Regulation Respecting Asbestos” O.Reg 837 (as amended by O.Reg 490/09)
 - .2 “General – Waste Management” O.Reg 347 (as amended by O.Reg 337/09)
 - .3 “Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations” O.Reg 278/05 (as amended by O.Reg 493/09)
 - .4 PWGSC Departmental Policy DP 057 – “Asbestos Management”
- .4 **Benzene:** “Designated Substance – Benzene” O.Reg 839 (as amended by O.Reg 490/09)
- .5 **Coke Oven Emissions:** “Designated Substance – Coke Oven Emissions” O.Reg 840 (as amended by O.Reg 490/09)

- .6 **Ethylene Oxide:** "Designated Substance – Ethylene Oxide" *O.Reg 841* (as amended by *O.Reg 490/09*)
- .7 **Isocyanates:** "Designated Substance – Isocyanates" *O.Reg 842* (as amended by *O.Reg 490/09*)
- .8 **Lead:**
 - .1 "Designated Substance – Lead" *O.Reg 843* (as amended by *O.Reg 490/09*)
 - .2 "General – Waste Management" *O.Reg 347* (as amended by *O.Reg 337/09*)
 - .3 Hazardous Products Act's *Regulations Amending the Surface Coating Materials Regulations* SOR/2010-224
- .9 **Mercury:**
 - .1 "Designated Substance – Mercury" *O.Reg 844* (as amended by *O.Reg 490/09*)
 - .2 "General – Waste Management" *O.Reg 347* (as amended by *O.Reg 337/09*)
- .10 **Silica:** "Designated Substance – Silica" *O.Reg 845* (as amended by *O.Reg 490/09*)
- .11 **Vinyl Chloride:** "Designated Substance – Vinyl Chloride" *O.Reg 846* (as amended by *O.Reg 490/09*)
- .3 All contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

1.2 VALIDITY DATE

- .1 El Houcine Faouzi, Environmental Analyst of the Environmental Services Directorate of the Real Property Branch, PWGSC, conducted the on-site survey for this report on 2013/02/25.
- .2 The work area is located at the Blackburn and PSB Buildings, Ottawa, Ontario. The scope of the work proposed consists of retrofitting an existing trailer, adding a new trailer and performing minor excavation.
 - .1 The scope of work for this report involved a visual inspection of building materials and contents for the presence of suspected designated substances in the project area.
 - .2 No sampling was performed for this DSR

- .3 The visual inspection was limited to readily accessible areas. . No confined space was accessed for the purpose of this report.
- .4 It is possible that the designated substances aforementioned are present in non-accessible areas . No other areas outside the defined work boundaries have been assessed.
- .5 Prior to beginning work, it must be confirmed with the Departmental Representative that no additional designated substances have been brought to the project area.
- .6 In addition, the survey refers to PCBs and halocarbons; however, it does not refer to other substances that may be present in the day-to-day usage for specialized equipment or areas in buildings (i.e. lead shields, fume hoods, etc.).
- .7 There is a possibility that materials which could not be reasonably identified within the scope of this assessment or which were not apparent during previous site visits may exist. Should any designated substance be encountered in the course of demolition, work must be stopped, preventative measures taken, and the Departmental Representative must be notified immediately

PART 2 - DESIGNATED SUBSTANCES

2.1 SURVEY RESULTS

- .1 **ACRYLONITRILE:** Not Identified
- .2 **ARSENIC:** Not Identified
- .3 **ASBESTOS:** Not Identified
- .4 **BENZENE:** Not Identified
- .5 **COKE OVEN EMISSIONS:** Not Identified
- .6 **ETHYLENE OXIDE:** Not Identified
- .7 **ISOCYANATES:** Not Identified
- .8 **LEAD:** Not Identified
- .9 **MERCURY:** Not Identified
- .10 **SILICA: Identified**
Free crystalline silica is present in concrete and stones within the project area.
- .11 **VINYL CHLORIDE MONOMER:** Not Identified

.12 **POLYCHLORINATED BIPHENYLS (PCBs):** Not Identified

.13 **HALOCARBONS:** Not Identified

2.2 RECOMMENDATIONS

1. SILICA

.1 Silica occurs as crystalline material in concrete and stones. Crystalline silica is regulated under "Designated Substance – Silica" O.Reg 845 (as amended by O.Reg 490/09) of the *Occupational Health and Safety Act* as a Designated Substance.

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

.3 The Occupational Health and Safety Branch of the MoL has published the document entitled "*Guideline: Silica on Construction Projects*". This document classifies the disturbance of materials containing silica 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.

2. CONTRACTORS DUTIES

The contractor must review the designated substance report and take the necessary precautions to protect the health and safety of the workers and the environment. As per Section 30(4) of the *Ontario Occupational Health and Safety Act*, the party hiring the contractor (i.e. Departmental Representative) shall ensure that the contractor and subcontractor (if any) for the project has received a copy of the designated substance report prior to entering a binding contract for the supply of work on the project. As per Section 27(2) (a, b, and c) of the *Ontario Occupational Health and Safety Act*, while onsite, the contractor supervisor shall exercise every reasonable precaution for the protection of a worker. If you have any questions about the designated substance report, please contact the Departmental Representative.

END OF SECTION

SUBMITTAL PROCEDURES**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.
- .2 Delays resulting from incomplete or unsatisfactory submittals of Shop Drawings shall be the responsibility of the Contractor.
- .3 Do not proceed with Work affected by submittal until review is complete.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units converted values are acceptable.
- .6 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 Technical Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .7 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Technical 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 Technical Documents is not relieved by Departmental Representative review.
- .11 Keep one reviewed copy of each submission on site.

1.2 MATERIAL AND FINISH SUBMITTALS

- .1 Submit duplicate samples of all material and finish samples for review and selection by Departmental Representative.

1.3 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 award and update log weekly or more frequently as approved 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

SUBMITTAL PROCEDURES

Representative for each submission as appropriate for construction element and as approved by Departmental Representative.

- .3 Present updated log at each project meeting.

1.4 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 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change 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 Technical Documents. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.
- .7 Accompany submissions with transmittal letter containing:
 - .1 Date. Project title and number.
 - .2 Contractor's name and address.
 - .3 Identification and quantity of each shop drawing, product data and sample.
 - .4 Other pertinent data.
- .8 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of the Contractor, supplier and manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Technical 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.

SUBMITTAL PROCEDURES

- .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.
 - .2 Testing must have been within 3 years of date of award for project.
- .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 complete with project name.
- .14 Submit one electronic copy of manufacturers 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.

SUBMITTAL PROCEDURES

- .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, transparency or 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 Technical 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.

1.5 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use. Deliver samples prepaid to Departmental Representative's business address or site office.
- .2 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Technical Documents.
- .3 Where colour, pattern or texture is criterion, submit full range of samples.
- .4 Adjustments made on samples by Departmental Representative are not intended to change price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .5 Make changes in samples which Departmental Representative may require, consistent with Technical Documents.
- .6 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.6 MOCK-UPS

- .1 Erect mock-ups in accordance with Section 01 45 00 - Quality Control and as noted in the individual specification sections.

1.7 CERTIFICATES AND TRANSCRIPTS

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

SUBMITTAL PROCEDURES**Part 2 Products****2.1 NOT USED****Part 3 Execution****3.1 NOT USED****END OF SECTION**

**HEALTH AND SAFETY
REQUIREMENTS**

Part 1 General**1.1 REFERENCES**

- .1 Canadian Standards Association International (CSA).
 - .1 CSA Z462-12. Workplace Electrical Safety.
- .2 Province of Ontario.
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c. 0.1, as amended and O. Reg. 213/91, as amended.

1.2 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 7 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative and authority having jurisdiction, weekly.
- .4 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 3 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 approved by Departmental Representative.

**HEALTH AND SAFETY
REQUIREMENTS**

- .11 Personnel training requirements including, but not limited to, the following:
 - .1 Training and qualifications of personnel and alternates responsible for site safety and health;
 - .2 Training requirements for hazards present on site; and
 - .3 Training for use of protective equipment.

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 PROJECT/SITE CONDITIONS

- .1 Work on site will involve contact with hazardous materials and products as identified in Section 01 14 25 - Designated Substances Report (DSR).

1.7 HAZARDOUS MATERIALS

- .1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources Development Canada, Labour Program.
- .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

1.8 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.

1.9 RESPONSIBILITY

- .1 Be responsible and assume the role of "constructor" as described in the Ontario Occupational Health and Safety Act and regulations for construction projects.

**HEALTH AND SAFETY
REQUIREMENTS**

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

1.10 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Health and Safety Act and Regulations for Construction Projects, R.S.O.
- .2 Comply with NBC 2010 (Part 8, Safety Measures at Construction and Demolition Sites).
- .3 For work in occupied buildings provide the Departmental Representative a minimum of 48 hours notice for work involving designated substances (Ontario Bill 208), hazardous substances and before commencing any painting, caulking, installing carpet or using adhesives.
- .4 Comply with CSA-Z462 for workplace electrical safety.

1.11 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.

1.12 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ the Site Supervisor as the authorized representative as the Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have minimum 2 years' site-related working experience specific to activities associated with hazardous materials as identified.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 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.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work.

1.13 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 Province, and in consultation with Departmental Representative.

1.14 CORRECTION OF NON-COMPLIANCE

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

**HEALTH AND SAFETY
REQUIREMENTS**

- .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.

1.15 POWDER ACTUATED DEVICES

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

1.16 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.
- .2 Assign responsibility and obligation to Health and Safety Officer to stop or start Work when, at Health and Safety Officer's discretion, it is necessary or advisable for reasons of health or safety. Departmental Representative may also stop Work for health and safety considerations.

Part 2 Products**2.1 NOT USED****Part 3 Execution****3.1 NOT USED**

END OF SECTION

Part 1 General**1.1 INSPECTION**

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative or law of Province of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order any part of Work to be examined if Work is suspected to be not in accordance with Technical Documents. If, upon examination such work is found not in accordance with Technical Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Technical Documents, Departmental Representative shall pay cost of examination and replacement.

1.2 INDEPENDENT INSPECTION AGENCIES

- .1 Departmental Representative will appoint and pay for costs of Independent Inspection / Testing Agencies for purpose of inspecting and testing portions of Work, unless indicated otherwise.
- .2 Provide equipment required for executing inspection and testing by appointed agencies. 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 If non compliance or 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.
- .4 Where tests indicate defective work or non-compliance with specifications, Contractor to pay for initial test and all subsequent testing of work to verify acceptability of corrected work.
- .5 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Technical Documents.

1.3 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.

QUALITY CONTROL**1.4 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.

1.5 REJECTED WORK

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

1.6 REPORTS

- .1 Submit 4 copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to the Contractor of work being inspected or tested, manufacturer or fabricator of material being inspected or tested.

1.7 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 Technical Documents or beyond those required by law of Place of Work shall be appraised by Departmental Representative and may be authorized as recoverable.

1.8 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.
- .2 Construct mock-up in locations acceptable to Departmental Representative and as specified in specific Section.
- .3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
- .4 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

QUALITY CONTROL**1.9 MILL TESTS**

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

Part 2 Products**2.1 NOT USED****Part 3 Execution****3.1 NOT USED**

END OF SECTION

COMMON PRODUCT REQUIREMENTS**Part 1 General****1.1 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.
- .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 Technical Documents or by Contractor in event of non-conformance.

1.2 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 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 Technical 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.

1.3 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, contamination, 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.

COMMON PRODUCT REQUIREMENTS

- .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.

1.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work. Transportation cost of products supplied by Departmental Representative will be paid for by Departmental Representative. Unload, handle and store such products.

1.5 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 price or time.

1.6 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.

1.7 CO-ORDINATION

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

1.8 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 approved by Departmental Representative.

1.9 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 all work in a manner to neither damage nor put at risk any portion of Work.

1.10 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate. Inform Departmental Representative of conflicting installation. Install as approved by Departmental Representative.

1.11 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 other organic material plugs 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.

1.12 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

COMMON PRODUCT REQUIREMENTS

- .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.

1.13 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.

1.14 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 occupants.

Part 2 Products**2.1 NOT USED****Part 3 Execution****3.1 NOT USED**

END OF SECTION

EXECUTION**Part 1 General****1.1 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 Effect on Work of Departmental Representative or separate Contractor.
 - .7 Written permission of affected separate Contractor.
 - .8 Date and time work will be executed.

1.2 WASTE MANAGEMENT AND DISPOSAL

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

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 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.

EXECUTION

- .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.

3.2 EXECUTION

- .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 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Technical Documents.
- .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.
- .12 Refinish surfaces to match adjacent finishes. Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

END OF SECTION

CLEANING**Part 1 General****1.1 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Departmental Representative or other Contractors.
- .2 Remove waste materials and debris from site daily at regularly scheduled times and deposit in waste containers at end of each working day. Remove waste materials more frequently as approved by Departmental Representative to ensure a clean and orderly work site. Work site must be suitable for employees and public for emergency egress and safe access after each work shift.
- .3 Do not burn rubbish or waste materials on site.
- .4 Clear snow and ice from access to building. Bank or pile snow in designated areas only. Remove snow from site as approved by Departmental Representative.
- .5 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.
- .6 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 approved by Departmental Representative.
- .7 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 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 for occupancy.

CLEANING**Page 2**

- .2 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .3 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls and floors.
- .4 Clean lighting reflectors, lenses, and other lighting surfaces.
- .5 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .6 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .7 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .8 Broom clean and power 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 from access to building.
- .9 Clean and sweep roofs, gutters, areaways, and sunken wells. Clean roofs, downspouts, and drainage systems.
- .10 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .11 Clean equipment and fixtures to a sanitary condition. Clean or replace filters of mechanical equipment.

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 and Disposal.
- .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 WASTE MANAGEMENT GOALS**

- .1 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, reuse of recyclable and reusable materials have been extensively practiced.
- .2 Accomplish maximum control of solid construction waste.
- .3 Preserve environment and prevent pollution and environment damage.

1.2 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 reusable and 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 at end of its life cycle 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:
 - .1 Salvaging reusable materials from renovation projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .10 Salvage: removal of structural and non-structural materials from deconstruction or disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste sorted into individual types.

**CONSTRUCTION / DEMOLITION
WASTE MANAGEMENT AND DISPOSAL**

- .12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .13 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.
- .14 Waste Management Co-ordinator (WMC): Contractor responsible for supervising waste management activities as well as coordinating required submittal and reporting requirements.
- .15 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 WA (Schedule A).

1.3 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Audit.
 - .2 Waste Reduction Workplan.
 - .3 Material Source Separation Plan.
 - .4 Schedules A, B, C, D and E completed for project.

1.4 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 Waste Audit: Schedule A.
 - .2 Submit 2 copies of completed Waste Reduction Workplan: Schedule B.
 - .3 Submit 2 copies of completed Demolition Waste Audit: Schedule C.
 - .4 Submit 2 copies of Cost/Revenue Analysis Workplan: Schedule D.
 - .5 Submit 2 copies of Materials Source Separation Program description.
- .3 Submit before final payment a complete summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction / disassembly material audit form.
 - .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.

1.5 WASTE AUDIT (WA)

- .1 Conduct WA prior to project start-up.
- .2 Prepare WA: Schedule A.

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

1.6 WASTE REDUCTION WORKPLAN (WRW)

- .1 Prepare WRW prior to project start-up.
- .2 WRW must include but not limited to:
 - .1 Destination of materials listed.
 - .2 Location of project and location of disposal facilities.
 - .3 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
- .3 Describe management of waste.
- .4 Post WRW or summary where workers on site are able to review content.
- .5 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

1.7 DEMOLITION WASTE AUDIT (DWA)

- .1 Prepare DWA, Schedule C, prior to project start-up.
- .2 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

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 approved 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.

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

**CONSTRUCTION / DEMOLITION
WASTE MANAGEMENT AND DISPOSAL****Part 2 Products****2.1 NOT USED****Part 3 Execution****3.1 SELECTIVE DEMOLITION**

- .1 Do not demolish building elements beyond what is indicated on Drawings without approval by Departmental Representative.

3.2 APPLICATION

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

3.3 CLEANING

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

3.4 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 salvaged, recovered, reusable, recyclable materials is not permitted.
- .3 Demolition Waste

Material Type	Recommended Diversion %	Actual Diversion %
Rubble	100	<input type="text"/>
Wood (uncontaminated)	100	<input type="text"/>
Other		<input type="text"/>

.4 Construction Waste

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	<input type="text"/>
Plastic Packaging	100	<input type="text"/>
Rubble	100	<input type="text"/>
Steel	100	<input type="text"/>
Wood (uncontaminated)	100	<input type="text"/>
Other		<input type="text"/>

**CONSTRUCTION / DEMOLITION
WASTE MANAGEMENT AND DISPOSAL**

3.5**WASTE AUDIT (WA)****.1 Schedule A - Waste Audit (WA)**

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
Wood						
Metal						
Other						

3.6**WASTE REDUCTION WORKPLAN (WRW)****.1 Schedule B**

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

3.7**DEMOLITION WASTE AUDIT (DWA)****.1 Schedule C - Demolition Waste Audit (DWA)**

(1) Material Description	(2) Quantity	(3) Unit	(4) Total	(5) Volume (cum)	(6) Weight (cum)	(7) Remarks and Assumptions
Wood and						
Plastics						
Warped Pallet						
Forms						
Plastic						
Card-board						
Wood						
Metal						
Other						

**CONSTRUCTION / DEMOLITION
WASTE MANAGEMENT AND DISPOSAL**

3.8 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 \$(+/-)	(7) Cost (-) Revenue (+)
Wood and Plastics Warped Pallet Forms Plastic Card-board Wood Metal Other						

3.9 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT**.1 Schedule E - Government Chief Responsibility for the Environment**

Ontario	Ministry of Environment and Energy, 135 St. Clair Avenue West, Toronto, ON M4V 1P5 Environment Canada Toronto, ON	(416) 323-4321 (800) 565-4923 (416) 734-4494	(416) 323-4682
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END OF SECTION

Part 1 General**1.1 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 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English and French.
- .4 Copy will be returned after final inspection, with Departmental Representative's comments.
- .5 Revise content of documents as required prior to final submittal.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .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.

1.2 FORMAT

- .1 Organize data in the form of an instructional manual.
- .2 Binders: vinyl, 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.

CLOSEOUT SUBMITTALS

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

1.3 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 Contractors 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.

1.4 AS-BUILTS AND SAMPLES

- .1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
 - .1 Technical Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Technical Documents.
 - .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.

CLOSEOUT SUBMITTALS**1.5 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 Technical 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 Technical 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.

1.6 FINAL SURVEY

- .1 Submit final site survey certificate certifying that elevations and locations of completed Work are in conformance, or non-conformance with Technical Documents.

1.7 EQUIPMENT AND SYSTEMS

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.

CLOSEOUT SUBMITTALS

- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports.
- .15 Additional requirements: as specified in individual specification sections.

1.8 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.

1.9 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.

CLOSEOUT SUBMITTALS

- .3 Deliver to site. Place and store in location as approved by Departmental Representative.
- .4 Receive and catalogue all items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.10 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site. Place and store in location as approved by Departmental Representative.
- .4 Receive and catalogue all items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.11 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site. Place and store in location as approved by Departmental Representative.
- .4 Receive and catalogue all items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

1.12 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.13 WARRANTIES

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

CLOSEOUT SUBMITTALS

- .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 Contractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties, executed in duplicate by Contractors, 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 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, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems such as fire protection, alarm systems, sprinkler systems, lightning protection systems.
 - .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.

CLOSEOUT SUBMITTALS

- .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.
- .5 Procedure and status of tagging of equipment covered by extended warranties.
- .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification will follow oral instructions.

1.14 PRE-WARRANTY CONFERENCE

- .1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to project 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 available, and is responsive to inquiries for warranty work action.

1.15 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Indicate following information on tag:

CLOSEOUT SUBMITTALS

- .1 Type of product/material.
- .2 Model number.
- .3 Serial number.
- .4 Project number.
- .5 Warranty period.
- .6 Inspector's signature.
- .7 Construction Contractor.

Part 2 Products**2.1 NOT USED****Part 3 Execution****3.1 NOT USED****END OF SECTION**