This Addendum forms part of the Contract Documents and amends the applicable information contained in the original tendering documents.

BID SPECIFICATIONS

Section 02 83 10, List Number 1.5 SUBMITTALS **Change**:

2. Provide proof of Contractor's General and Environmental Liability Insurance to Provide proof of Contractor’s General and Pollution Liability Insurance

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Comply with requirements of this Section when performing the following Work: Type 1 Operation.

.1 Removal of lead based coatings with a chemical gel or paste and fibrous laminated cloth wrap on walls.

.2 Removal of lead based coatings or materials using a power tool with an effective dust collection system equipped with a HEPA filter.

.3 Removal of lead based coatings or materials with a non-powered hand tool, other than manual scraping and sanding.

.4 Removal white coloured paint on the exterior block wall in the area where the door is to be installed shall be removed with a chemical paste and fibrous laminated cloth wrap or with a non-powered hand tool, other than manual scraping and sanding.

.5 Cleanup of white coloured flaking and loose paint on the exterior block walls shall be removed with a non-powered hand tool, other than manual scraping and sanding.

1.2 REFERENCES

.2 Department of Justice Canada.

.1 Canadian Environmental Protection Act (CEPA), 1999.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 WHIMS Safety Data Sheets (SDS).

.4 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.5 Transport Canada (TC).

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

.6 Ontario Ministry of Environment (MoE).

.1 R.R.O. 1990, Reg. 347, General – Waste Management, as amended.

.7 Ontario Ministry of Labour (MoL).

.1 Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA).

.1 O.Reg. 213/91, Construction Projects.

.2 R.R.O. 1990, Regulation 490/09, “Designated Substances”.

.2 Guideline: Lead on Construction Projects, September 2004, as revised.

.8 Canada Consumer Product Safety Act Surface Coating Materials Regulations SOR/2005-109, as amended.

1.3 DEFINITIONS

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

.2 Authorized Visitors: Departmental Representative or designated representatives.

.3 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects over cuts and tears, and elsewhere as required to provide protection and isolation. For protection of underlying surfaces from damage and to prevent lead dust entering in clean area.

.4 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

.5 Action level: employee exposure, without regard to use of respirators, to airborne concentration of lead of 50 micrograms per cubic meter of air (50 ug/m^3) calculated as 8-hour time-weighted average (TWA). Minimum precautions for lead abatement are based on airborne lead concentrations less than 0.05 milligrams per cubic meter of air for removal of lead-based paint by methods noted in paragraph 1.1.

.6 Competent person: Departmental Representative capable of identifying existing lead hazards in workplace taking corrective measures to eliminate them.

.7 Lead dust: wipe sampling on vertical surfaces and/or horizontal surfaces, dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead in dust per square foot.

1.4 MEASUREMENT PROCEDURES

.1 Removal of white paint on the coloured paint on the exterior block wall in the area where the door is to be installed shall be measured by the square metre. Measurement shall be made prior to the start of removal operations.

.2 Removal of white coloured flaking and loose paint on the exterior block walls shall shall be measured by the square metre. Measurement shall be made prior to the start of removal operations.

1.5 SUBMITTALS

.1 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead-based paint waste in accordance with requirements of authority having jurisdiction.

.2 Provide proof of Contractor's General and Pollution Liability Insurance.

.3 Quality Control:
- .1 Provide Departmental Representative necessary permits for transportation and disposal of lead-based paint waste and proof that lead-based paint waste has been received and properly disposed.
- .2 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead-based, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:
- .1 Safety Requirements: worker and visitor protection.
  - .1 Protective equipment and clothing to be worn by workers and visitors in work Area include:
    - .1 Respirator NIOSH approved and equipped with replaceable HEPA filter cartridges, acceptable to Authority having jurisdiction. Suitable for type of lead and level of lead dust exposure. Provide sufficient amount of filters.
    - .2 Half mask respirator: half-mask particulate respirator with N - series filter, and 95% efficiency could be provided.
  - .2 Eating, drinking, chewing, and smoking are not permitted in work area.
  - .3 Ensure workers wash hands and face when leaving work area. Facilities for washing are determined by the Departmental Representative.
  - .4 Visitor Protection:
    - .1 Provide approved respirators to Authorized Visitors to work areas.
    - .2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of lead waste in sealed double thickness 0.15 mm thick bags or leak proof drums. Label containers with appropriate warning labels.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Various paints and surface coatings contain detectable concentrations of lead.

.2 Refer to the following for details on lead-based materials:

.1 *Designated Substances and Hazardous Building Materials Survey – Barrier-Free Washroom Re-fit, Burlington Lift Bridge, 1157 Beach Boulevard, Hamilton, ON.* Prepared by Stantec Consulting Ltd. and dated December 17, 2018.

.3 Notify Departmental Representative of lead-based materials discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

1.9 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify following in writing:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.

.2 Provincial MOL.

.3 Disposal Authority.

.2 Inform sub trades of presence of lead-based materials identified in Existing Conditions.

.3 Provide Departmental Representative copy of notifications prior to start of Work.

.4 Hours of Work: perform work involving lead abatement at hours specified by the Departmental Representative. Include in Contract additional costs due to this requirement.

1.10 INSTRUCTIONS

.1 Provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in aspects of work procedures, and in use, cleaning, and disposal of respirators.

.2 Instruction and training related to respirators includes, at minimum:

.1 Proper fitting of equipment.

.2 Inspection and maintenance of equipment.

.3 Disinfecting of equipment.

.4 Limitations of equipment.

.3 Instruction and training must be provided by competent, qualified person.

.4 Supervisory personnel to complete required training.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Polyethylene 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.

.2 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.

.3 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual lead paint residue.

.4 Lead waste containers: metal type acceptable to dump operator with tightly fitting covers and 0.15 mm thickness sealable polyethylene liners.

.1 Label containers with pre-printed bilingual cautionary Warning Lead clearly visible when ready for removal to disposal site.

PART 3 - EXECUTION

3.1 SUPERVISION

.1 One Supervisor for every ten workers is required.

.2 Supervisor must remain within work area during disturbance, removal, or handling of lead-paints.

3.2 PREPARATION

.1 Remove and store items to be salvaged or reused.
- .1 Protect and wrap items and transport and store in area specified by Departmental Representative.

.2 Work Area:
- .1 Shut off and isolate HVAC system to prevent dust dispersal into other building areas. Conduct smoke tests to ensure duct work is airtight.
- .2 Pre-clean fixed casework and equipment within work area, using HEPA vacuum and cover and seal with polyethylene sheeting and tape.
- .3 Clean work area using HEPA vacuum. If not practicable, use wet cleaning method. Do not raise dust.
- .4 Seal off openings with polyethylene sheeting and seal with tape.
- .5 Protect floor surfaces covered from wall to wall with polyethylene sheets.
- .6 Maintain emergency fire exits or establish alternatives satisfactory to Authority having jurisdiction.
- .7 Where water application is required for wetting lead based materials, provide temporary water supply appropriately sized for application of water as required.
- .8 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical cables and equipment.

.3 Do not start work until:
- .1 Arrangements have been made for disposal of waste.
- .2 Tools, equipment, and materials waste containers are on site.
- .3 Arrangements have been made for building security.
- .4 Notifications have been completed and preparatory steps have been taken.

3.3 LEAD ABATEMENT

.1 Removal of lead-based coatings with a chemical gel or paste and fibrous laminated cloth wrap; or removal equipped with HEPA filters; or removal with using power tools, non-powered hand tool, other than manual scraping and sanding.

.2 Remove lead-based paint in small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of stripping work, wire brush and wet sponge surface from which lead-based paint has been removed to remove visible material. During this work keep surfaces wet.

.5 After wire brushing and wet sponging to remove visible lead-based paint, wet clean entire work area, and equipment used in process. After inspection by Departmental Representative apply continuous coat of slow drying sealer to surfaces of work area. Do not disturb work area for 8 hours no entry, activity, ventilation, or disturbance during this period.

3.4 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative will result in work stoppage, at no cost to the Departmental Representative.

.2 Departmental Representative will inspect work for:
- .1 Adherence to specific procedures and materials.
- .2 Final cleanliness and completion.
- .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 LEAD SAMPLING - WORK AREAS

.1 From beginning of Work until completion of cleaning operations, the Departmental Representative may be on site to collect air samples either inside or outside of the Lead Work Area in accordance with standard methods for workplace air sampling and analysis.

- .1 This air monitoring does not relieve the Contractor of any responsibility for air monitoring inside the Lead Work Area to verify that the respiratory protection in use provides a suitable protection factor.

.2 Use results of air monitoring inside the Lead Work Area to establish type of respirators to be used. Workers may be required to wear sample pumps for up two full-shift periods.

- .2 If airborne lead concentrations are above the protection factor of respirators in use, the Contractor shall:
  - .1 Stop abatement.
  - .2 Introduce more stringent engineering controls.
  - .3 Use a higher protection factor in respiratory protection for persons inside the Lead Work Area.

.3 If air monitoring shows that airborne lead concentrations outside the Lead Work Area exceed 0.025 mg/m³, the Contractor shall maintain and clean these areas, in same manner as applicable to the Lead Work Area, at no additional cost to the Departmental Representative.

.3 Final clearance air monitoring will be performed at the sole discretion of the Departmental Representative.

.2 Final air monitoring results must show airborne lead levels less than 0.005 mg/m³.

.3 If air monitoring results show airborne lead levels in excess of 0.005 mg/m³, the Contractor shall re-clean the Lead Work Area at no additional cost to the Departmental Representative.

.4 Repeat as necessary until airborne lead levels are less than 0.005 mg/m³.

.4 The following criteria shall be used to define an acceptable level of cleanliness after lead abatement activities:

.2 Where removal of paints and other surface coatings has been performed to accommodate the project scope of work:

.1 Visibly free of paint(s), primer(s), and surface coating(s), and/or associated dust.

.2 Residual lead dust concentration less than:

.1 430 micrograms/square metre for interior floor surfaces

.2 2,691 micrograms/square metre for interior windowsills

.3 8,611 micrograms/square metre for exterior surfaces

.4 Repeat cleaning as necessary until lead concentrations are below specified levels, at no additional cost to the Departmental Representative.

3.6 FINAL CLEANUP

.1 Following cleaning and when lead wipe surfaces sampling are below acceptable concentrations, proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls towards the centre of work area. Vacuum visible lead based particles observed during cleanup, immediately, using HEPA vacuum.

.3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.

.4 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

.5 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

3.7 Re-establishment of Objects and Systems

.1 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work: Type 2 Operation.

.1 Removal or disturbance of lead based paint by scraping or sanding using non-powered hand tools.

.2 Manual demolition of white exterior lead based paint coated on block wall by striking wall with sledgehammer or similar tool.

1.2 SECTION INCLUDES

.1 Requirements and procedures for disturbance or abatement of lead-based paints.

1.3 REFERENCES

.1 Department of Justice Canada.

.1 Canadian Environmental Protection Act (CEPA), 1999.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Safety Data Sheets (SDS).

.3 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.4 Transport Canada (TC).

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

.5 Ontario Ministry of Environment (MOE).

.1 R.R.O. 1990, Reg. 347, General – Waste Management, as amended.

.6 Ontario Ministry of Labour (MOL).

.1 Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA).

.1 O.Reg. 213/91, Construction Projects.

.2 R.R.O. 1990, Regulation 490/09, “Designated Substances”.

.2 Guideline: Lead on Construction Projects, September 2004, as revised.

.7 Canada Consumer Product Safety Act Surface Coating Materials Regulations SOR/2005-109, as amended.

.8 Environment Council of Ontario (EACO)

.1 Lead Guideline for Construction, Renovation, Maintenance or Repair, October 2014.

1.4 DEFINITIONS

.1 Manual demolition of white exterior lead based paint coated on block wall shall be measured by the square metre. Measurement shall be made prior to the start of removal operations.

1.5 DEFINITIONS

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

.2 Authorized Visitors: Departmental Representative or designated representatives and representatives of regulatory agencies.

.3 Occupied Area: areas of building or work site that is outside Work Area.

.4 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

.5 Airlock: ingress or egress system, without permitting air movement between contaminated area and uncontaminated area. Consisting of two curtained doorways at least 2 m apart.

.6 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another. Typically constructed as follows:

- .1 Place two overlapping polyethylene sheets over existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and secure other sheet along opposite vertical side of doorway.
- .2 Reinforce free edges of polyethylene with duct tape and add weight to bottom edge to ensure proper closing.
- .3 Overlap each polyethylene sheet at openings 1.5 m on each side.

.7 Action level: employee exposure, without regard to usage of respirators, to an airborne concentration of lead of 50 micrograms per cubic meter of air calculated as 8 hour time-weighted average (TWA). Intermediate precautions for lead abatement are based on airborne lead concentrations greater than 0.05 milligrams per cubic meter of air within Work Area.

.8 Competent person: Departmental Representative capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.

.9 Lead in Dust: wipe sampling on vertical and/or horizontal surfaces, dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead in dust per square foot.

1.6 SUBMITTALS

.1 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead-based paint waste in accordance with requirements of authority having jurisdiction.

.2 Provide: Provincial and local requirements for Notice of Project Form.

.3 Provide proof of Contractor's General and Environmental Liability Insurance.

.4 Quality Control:
- .1 Provide Departmental Representative necessary permits for transportation and disposal of lead-based paint waste and proof that it has been received and properly disposed.
- .2 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, entry and exit from Work Area, and aspects of work procedures and protective measures.
- .3 Provide proof that supervisory personnel have attended lead abatement course, of not less than two days duration, approved by Departmental Representative. Minimum of one supervisor for every ten workers.

.5 Product data:
- .1 Provide documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
  - .1 Encapsulants.
  - .2 Amended water.
  - .3 Slow drying sealer.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead paint, in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:

- .1 Safety Requirements: worker and visitor protection.
  - .1 Protective equipment and clothing to be worn by workers and visitors in Work Area includes:
    - .1 Respirator NIOSH approved and equipped with filter cartridges with assigned protection factor of 50, acceptable to Authority having jurisdiction. Suitable for type of lead and level of lead dust exposure in Lead Work Area. Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.
    - .2 Disposable type protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

.2 Requirements for workers:
- .1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters, clean coveralls and head covers before entering Equipment and Access Rooms or Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.
- .2 Remove gross contamination from clothing before leaving work area. Place contaminated work suits in receptacles for disposal with other lead - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. When not in use in Work Area, store work footwear in Equipment and Access Room. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from Work Area or from Equipment and Access Room.
- .3 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers not to use this system as means to leave or enter work area.

.3 Eating, drinking, chewing, and smoking are not permitted in Work Area.

.4 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual lead abatement.

.5 Ensure workers wash hands and face when leaving Work Area. Facilities for washing are located as indicated by the Departmental Representative.

.6 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.

.7 Ensure no person required to enter Work Area has facial hair that affects seal between respirator and face.

.8 Visitor Protection:
- .1 Provide protective clothing and approved respirators to Authorized Visitors to Work Areas.
- .2 Instruct Authorized Visitors in use of protective clothing, respirators and procedures.
- .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Work Area.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, and Municipal regulations. Dispose of lead waste in sealed double thickness 0.15 mm thick bags or leak proof drums. Label containers with appropriate warning labels.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.9 EXISTING CONDITIONS

.1 Various paints and surface coatings contain detectable concentrations of lead.

.2 Refer to the following for details on lead- materials:

1. Designated Substances and Hazardous Building Materials Survey – Barrier-Free Washroom Re-fit, Burlington Lift Bridge, 1157 Beach Boulevard, Hamilton, ON. Prepared by Stantec Consulting Ltd. and dated December 17, 2018.

.3 Notify Departmental Representative of lead-based material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

1.10 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify the following in writing, where appropriate:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.
.2 Provincial Ministry of Labour.
.3 Disposal Authority.

.2 Inform sub trades of presence of lead-based materials identified in Existing Conditions.

.3 Provide Departmental Representative copy of notifications prior to start of Work.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Polyethylene: 0.15 mm unless otherwise specified; in sheet size to minimize joints.

.2 FR polyethylene: 0.15 mm woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.

.4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for trapping residual lead paint residue.

.5 Lead waste containers: metal or fibre type acceptable to dump operator with tightly fitting covers and 0.15 mm sealable polyethylene liners.

.1 Label containers with pre-printed bilingual cautionary Warning Lead clearly visible when ready for removal to disposal site.

PART 3 - EXECUTION

3.1 SUPERVISION

.1 Approved Supervisor must remain within Lead Work Area during disturbance, removal, or other handling of lead-based paints.

3.2 PREPARATION

.1 Remove and wrap items to be salvaged or reused, and transport and store in area specified by Departmental Representative.

.2 Work Area:

- .1 Shut off and isolate HVAC system to prevent dust dispersal into other building areas. Conduct smoke tests to ensure duct work is airtight.
- .2 Pre-clean fixed casework, and equipment within work areas, using HEPA vacuum and cover with polyethylene sheeting sealed with tape.
- .3 Clean work areas using HEPA vacuum. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum.
- .4 Seal off openings, corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.
- .5 Cover floor surfaces in work area from wall to wall with FR polyethylene drop sheets to protect existing floor during removal.
- .6 Build airlocks at entrances and exits from work areas to ensure work areas are always closed off by one curtained doorway when workers enter or exit.
- .7 At point of access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used:
  - .1 CAUTION LEAD HAZARD AREA (25 mm).
  - .2 NO UNAUTHORIZED ENTRY (19 mm).
  - .3 WEAR ASSIGNED PROTECTIVE EQUIPMENT AND RESPIRATOR (19 mm).
  - .4 BREATHING LEAD CONTAMINATED DUST CAUSES SERIOUS BODILY HARM (7 mm).
- .8 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Authority having jurisdiction.
- .9 Where water application is required for wetting lead-based materials, provide temporary water supply by use of appropriately sized hoses for application of water as required.
- .10 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.3 Worker Decontamination Enclosure System:
- .1 Worker Decontamination Enclosure System includes Equipment and Access Room and Clean Room, as follows:
  - .1 Equipment and Access Room: construct between exit and work areas, with two curtained doorways, one to the rest of suite, and one to work area. Install waste receptor and storage facilities for workers' shoes and protective clothing to be re-worn in work areas. Build large enough to accommodate specified facilities, equipment needed, and at least one worker allowing sufficient space to change comfortably.
  - .2 Clean Room: construct with curtained doorway to outside of enclosures. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.4 Construction of Decontamination Enclosures:
- .1 Construct framing for enclosures or use existing rooms. Line enclosure with polyethylene sheeting and seal with tape, apply two layers of FR polyethylene on floor.
- .2 Construct curtain doorways between enclosures so when people move through or waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.5 Separation of Work Areas from Occupied Areas
- .1 Barriers between Work Area and occupied area to be constructed as follows:
  - .1 Construct floor to ceiling lumber stud framing, cover with polyethylene sheeting and seal with duct tape. Apply plywood over polyethylene sheeting. Seal plywood joints and between adjacent materials with surface film forming sealer, to create airtight barrier.
  - .2 Cover plywood with polyethylene sheeting and sealed with duct tape.

.6 Maintenance of Enclosures:
- .1 Maintain enclosures in clean condition.
- .2 Ensure barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately.
- .3 Visually inspect enclosures at beginning of each work day.
- .4 Use smoke test method to test effectiveness of barriers as directed by Departmental Representative.

3.3 LEAD – BASED PAINT ABATEMENT

.1 Removal of lead-based paint to be performed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking a wall with sledgehammer or similar tool.

.2 Remove lead-based paint in small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of stripping work, wire brush and wet sponge surface from which lead-based paint has been removed to remove visible material. During this work keep surfaces wet.

.5 After wire brushing and wet sponging to remove visible lead-based paint, wet clean work area including equipment and access room, and equipment used in process. After inspection by Departmental Representative, apply continuous coat of slow drying sealer to surfaces. Do not disturb work for 8 hours with no entry, activity, ventilation or disturbance during this period.

.6 Wet clean work area and equipment and access room. During settling period no entry, activity, or ventilation will be permitted.

3.4 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative will result in work stoppage, at no cost to Departmental Representative.

.2 Departmental Representative will inspect work for:
- .1 Adherence to specific procedures and materials.
- .2 Final cleanliness and completion.
- .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

.3 When lead dust leakage from Work Area occurs Departmental Representative may order Work shutdown.
- .1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 LEAD SAMPLING - WORK AREAS

.1 From beginning of Work until completion of cleaning operations, the Departmental Representative may be on site to collect air samples either inside or outside of the Lead Work Area in accordance with standard methods for workplace air sampling and analysis.

- .1 This air monitoring does not relieve the Contractor of any responsibility for air monitoring inside the Lead Work Area to verify that the respiratory protection in use provides a suitable protection factor.

.2 Use results of air monitoring inside the Lead Work Area to establish type of respirators to be used. Workers may be required to wear sample pumps for up two full-shift periods.

.1 If airborne lead concentrations are above the protection factor of respirators in use, the Contractor shall:

.1 Stop abatement.

.2 Introduce more stringent engineering controls.

.3 Use a higher protection factor in respiratory protection for persons inside the Lead Work Area.

.2 If air monitoring shows that airborne lead concentrations outside the Lead Work Area exceed 0.025 mg/m³, the Contractor shall maintain and clean these areas, in same manner as applicable to the Lead Work Area, at no additional cost to the Departmental Representative.

.3 Final clearance air monitoring will be performed at the sole discretion of the Departmental Representative.

.1 Final air monitoring results must show airborne lead levels less than 0.005 mg/m³.

.2 If air monitoring results show airborne lead levels in excess of 0.005 mg/m³, the Contractor shall re-clean the Lead Work Area at no additional cost to the Departmental Representative.

.3 Repeat as necessary until airborne lead levels are less than 0.005 mg/m³.

.4 The following criteria shall be used to define an acceptable level of cleanliness after lead abatement activities:

.1 Where removal of paints and other surface coatings has been performed to accommodate the project scope of work:

.1 Visibly free of paint(s), primer(s), and surface coating(s), and/or associated dust.

.2 Residual lead dust concentration less than:

.1 430 micrograms/square metre for interior floor surfaces

.2 2,691 micrograms/square metre for interior windowsills

.3 8,611 micrograms/square metre for exterior surfaces

.4 Repeat cleaning as necessary until lead concentrations are below specified levels, at no additional cost to the Departmental Representative.

3.6 FINAL CLEANUP

.1 Following specified cleaning procedures, and when lead wipe sampling is below acceptable concentrations proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead-based particles observed during cleanup, immediately, using HEPA vacuum equipment.

.3 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.

.4 Clean-up Work Areas, Equipment and Access Room, and other contaminated enclosures.

.5 Clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.

.6 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

.7 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Comply with requirements of this Section when performing the following Work:

.1 Removal or disturbance of lead-based paint using power tools with an effective dust collection system equipped with HEPA filter.
.2 Abrasive blasting of lead-based paint.
.3 Removal of lead-based dust using air mist extraction system.

1.2 REFERENCES

.1 Department of Justice Canada.

.1 Canadian Environmental Protection Act (CEPA), 1999.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Material Safety Data Sheets (MSDS).

.3 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.4 Transport Canada (TC).

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

.5 Ontario Ministry of Environment (MoE).

.1 R.R.O. 1990, Reg. 347, General – Waste Management, as amended.

.6 Ontario Ministry of Labour (MoL).

.1 Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA).

.1 O.Reg. 213/91, Construction Projects.

.2 R.R.O. 1990, Regulation 490/09, “Designated Substances”.

.2 Guideline: Lead on Construction Projects, September 2004, as revised.

.7 Canada Consumer Product Safety Act Surface Coating Materials Regulations SOR/2005-109, as amended.

1.3 DEFINITIONS

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

.2 Authorized Visitors: Departmental Representative or designated representatives of regulatory agencies.

.3 Occupied Area: area of building or work site outside Work Area.

.4 Dioctyl Phthalate (DOP) Test: testing method used to evaluate particle penetration and air flow resistance properties of filtration materials - HEPA filter leak test.

.5 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Appropriate capacity for scope of work.

.6 Airlock: ingress or egress system without permitting air movement between contaminated area and uncontaminated area. Consisting of two curtained doorways at least 2 m apart.

.7 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:

.1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.

.2 Reinforce free edges of polyethylene with duct tape and add weight to bottom edge to ensure proper closing.

.3 Overlap each polyethylene sheet at openings 1.5 m on each side.

.8 Action level: employee exposure, without regard to usage of respirators, to an airborne concentration of lead of 50 micrograms per cubic metre of air calculated as an 8-hour time-weighted average (TWA). Maximum precautions for lead abatement are based on airborne lead concentrations greater than 1.25 milligrams per cubic meter of air within Work Area.

.9 Competent person: Individuals capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.

.10 Lead in Dust: wipe sampling on the vertical and/or horizontal surfaces, dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead in dust per square foot.

.11 Negative Air Pressure Machine: extracts air directly from work area and filters extracted air through a HEPA filter, discharge air to exterior of building.

.1 Maintain pressure differential of 5 to 7 Pa relative to adjacent areas outside of the Work Area. Machine to be equipped with alarm to warn of system breakdown, and equipped with instrument to continuously monitor and automatically record pressure differences.

1.4 MEASUREMENT PROCEDURES

.1 Removal of of lead-based paint using shall be measured by the square metre. Measurement shall be made prior to the start of removal operations.

1.5 SUBMITTALS

.1 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead- paint waste in accordance with requirements of authority having jurisdiction.

.2 Provide: Provincial and local requirements for Notice of Project Form.

.3 Provide proof of Contractor's General and Environmental Liability Insurance.

.4 Quality Control:
- .1 Provide Departmental Representative necessary permits for transportation and disposal of lead-based paint waste and proof it has been received and properly disposed.
- .2 Provide proof satisfactory to Departmental Representative that employees had instruction on hazards of lead exposure, respirator use, dress, entry and exit from Work Area, and aspects of work procedures and protective measures.
- .3 Provide proof that supervisory personnel have attended lead abatement course, of not less than two days duration, approved by Departmental Representative. Minimum of one supervisor for every ten workers.

.5 Product data:
- .1 Provide documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
  - .1 Encapsulants.
  - .2 Amended water.
  - .3 Slow drying sealer.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead, in case of conflict among those requirements or with these specifications the more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:

- .1 Safety Requirements: worker and visitor protection.
  - .1 Protective equipment and clothing to be worn by workers while in Lead Work Area includes:
    - .1 Lead-based paint removal using power tool: respirator NIOSH approved and equipped with filter cartridges with assigned protection factor of 50, acceptable to Authority having jurisdiction. Suitable for type of lead and level of lead dust exposure in Lead Work Area. Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.

.2 Abrasive blasting of lead paint: NIOSH approved and equipped with filter cartridges with assigned protection factor of 1000, acceptable to Authority having jurisdiction. Suitable for type of lead and level of lead dust exposure in Lead Work Area. Respirator to be equivalent Type CE abrasive blast supplied air respirator operated in a pressure demand or positive pressure mode with a tight-fitting half-mask. Compressed air used to supply supplied air respirators to meet breathing air purity requirements of CAN/CSA-Z180.1.

.3 Disposable protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

.2 Requirements for workers:

.1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters, clean coveralls and head covers before entering Equipment and Access Rooms or Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.

.2 Remove gross contamination from clothing before leaving the Work Area. Place contaminated work suits in receptacles for disposal with other lead contaminated materials. Leave reusable items except respirator in Equipment and Access Room. When not in use in the Work Area, store work footwear in Equipment and Access Room. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from the Work Area or from Equipment and Access Room.

.3 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers not use this system as means to leave or enter Work Area.

.2 Eating, drinking, chewing, and smoking are not permitted in Work Area.

.3 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual lead abatement.

.4 Ensure workers wash hands and face when leaving Lead Work Area. Facilities for washing are located as indicated by the Departmental Representative

.5 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.

.6 Ensure no person required to enter the Work Area has facial hair that affects seal between respirator and face.

.7 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to the Work Areas.

.2 Instruct Authorized Visitors in use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Work Area.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, and Municipal regulations. Dispose of lead waste in sealed double thickness 0.15 mm thick bags or leak proof drums. Label containers with appropriate warning labels.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Various paints and surface coatings contain detectable concentrations of lead.

.2 Refer to the following for details on lead-based materials:

.1 *Designated Substances and Hazardous Building Materials Survey – Barrier-Free Washroom Re-fit, Burlington Lift Bridge, 1157 Beach Boulevard, Hamilton, ON.* Prepared by Stantec Consulting Ltd. and dated December 17, 2018.

.3 Notify Departmental Representative of lead-based material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

1.9 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify the following in writing; where appropriate.

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.
.2 Provincial Ministry of Labour.
.3 Disposal Authority.

.2 Inform sub trades of presence of lead-based materials identified in Existing Conditions.

.3 Provide Departmental Representative copy of notifications prior to start of Work.

.4 Hours of Work: perform work involving lead abatement located the Building at hours specified by the Departmental Representative. Include in Contract additional costs due to this requirement.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Polyethylene 0.15 mm unless otherwise specified; in sheet size minimize joints.

.2 FR polyethylene: 0.15 mm woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.

.4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for trapping residual lead paint residue.

.5 Lead waste containers: metal type acceptable to dump operator with tightly fitting covers and 0.15 mm sealable polyethylene liners.

.1 Label containers with pre-printed bilingual cautionary Warning Lead clearly visible when ready for removal to disposal site.

PART 3 - EXECUTION

3.1 SUPERVISION

.1 Approved Supervisor must remain within Work Area during disturbance, removal, or handling of lead-based paints.

3.2 PREPARATION

.1 Remove and wrap items to be salvaged or reused, and transport and store in area specified by Departmental Representative.

.2 Work Area:

- .1 Shut off and isolate HVAC system to prevent lead dust and particulate dispersal into other building areas. Conduct smoke tests to ensure duct work is airtight.
- .2 Pre-clean fixed casework, and equipment within Work Areas, using HEPA vacuum and cover with polyethylene sheeting sealed with tape.
- .3 Clean Work Areas using HEPA vacuum. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum.
- .4 Install negative pressure machine system and operate continuously from installation of polyethylene sheeting until completion of final cleanup. Provide automatic continuous monitoring and recording instrument of pressure difference.
- .5 Seal off openings, corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.
- .6 Cover floor surfaces in Work Areas from wall to wall with FR polyethylene drop sheets to protect existing floor during removal.
- .7 Build airlocks at entrances and exits from Work Areas to ensure Work Areas are always closed off by one curtained doorway when workers enter or exit.
- .8 At point of access to Work Areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used:
  - .1 CAUTION LEAD HAZARD AREA (25 mm).
  - .2 NO UNAUTHORIZED ENTRY (19 mm)
  - .3 WEAR ASSIGNED PROTECTIVE EQUIPMENT AND RESPIRATOR (19 mm).
  - .4 BREATHING LEAD CONTAMINATED DUST CAUSES SERIOUS BODILY HARM (7 mm).
- .9 Maintain emergency and fire exits from Work Areas, or establish alternative exits satisfactory to Authority having jurisdiction.
- .10 Where water application is required for wetting lead based materials, provide temporary water supply by use of appropriately sized hoses for application of water as required.
- .11 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.3 Worker Decontamination Enclosure System:

.1 Worker Decontamination Enclosure System includes Equipment and Access Room and Clean Room, as follows:

.1 Equipment and Access Room: construct between exit and Work Areas, with two curtained doorways, one to the rest of the suite, and one to Work Areas. Install waste receptor and storage facilities for workers' shoes and protective clothing to be re-worn in Work Areas. Build large enough to accommodate specified facilities, equipment needed, and at least one worker allowing sufficient space to change comfortably.

.2 Clean Room: construct with curtained doorway to outside of enclosures. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.4 Construction of Decontamination Enclosures:

.1 Construct framing for enclosures or use existing rooms. Line enclosure with polyethylene sheeting and seal with tape, apply two layers of FR polyethylene on floor.

.2 Construct curtain doorways between enclosures so when people move through or waste containers and equipment are moved through doorway, one of two closure comprising doorway always remains closed.

.3 Shower room in decontamination facility to be provided with the following:

.1 Hot and cold water or water of constant temperature not less than 40 degrees Celsius or more than 50 degrees Celsius.

.2 Individual controls inside to regulate water flow and temperature.

.4 Prior to each shift in which a decontamination facility is being used, a competent person should inspect the facility to ensure that there are no defects that would allow lead-based dust to escape. Defects should be repaired before the facility is used. The decontamination facility should be maintained in a clean and sanitary condition.

.5 Separation of Work Areas from Occupied Areas:

.1 Barriers between Work Area and occupied area to be constructed as follows:

.1 Construct floor to ceiling lumber stud framing, cover with polyethylene sheeting and seal with duct tape. Apply plywood over polyethylene sheeting. Seal plywood joints and between adjacent materials with surface film forming sealer, to create airtight barrier.

.2 Cover plywood with polyethylene sheeting and sealed with duct tape.

.6 Maintenance of Enclosures:

.1 Maintain enclosures in tidy condition.

.2 Ensure barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately.

.3 Visually inspect enclosures at beginning of each working day.

.4 Use smoke test method to test effectiveness of barriers as directed by Departmental Representative.

3.3 LEAD – BASED PAINT ABATEMENT

.1 Removal of lead-based paint to be performed using power tools that are attached to dust-collecting vacuums with HEPA filters.

.2 Remove lead-based paint in small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers for transport.

.3 Wet method to be used to reduce dust generation. Examples of wet methods include wetting surfaces, wet scraping, and wet shoveling. Wet method not be used if it creates a hazard or cause damage to equipment or to project. Power tools to be equipped with a shroud, and to be kept flush with surface.

.4 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove immediate from working area to staging area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.

.5 After completion of stripping work, wire brush and wet sponge surface to remove visible material. During this work keep surfaces wet. After wire brushing and wet sponging, wet clean and HEPA vacuum entire Work Area including Equipment and Access Room. Compressed air or dry sweeping not be used to clean up lead-based dust or waste. After inspection and approval by Departmental Representative apply continuous coat of slow drying sealer to surfaces. Do not disturb Work Area for 8 hours, no entry, activity, or ventilation other than operation negative air machine during this period.

.6 After enclosing lead painted surfaces, wet clean Work Area and equipment and access room. During settling period no entry, activity, or ventilation will be permitted.

3.4 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from requirements not been approved in writing by Departmental Representative will result in Work shutdown, at no cost to the Departmental Representative.

.2 Departmental Representative will inspect work for:
- .1 Adherence to specific procedures and materials.
- .2 Final cleanliness and completion.
- .3 No additional costs will be allowed for additional labour or materials required to provide specified performance level.

.3 When lead dust leakage from Work Area occurs Departmental Representative will order Work shutdown.
- .1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 LEAD SAMPLING - WORK AREAS

.1 From beginning of Work until completion of cleaning operations, the Departmental Representative may be on site to collect air samples either inside or outside of the Lead Work Area in accordance with standard methods for workplace air sampling and analysis.

.1 This air monitoring does not relieve the Contractor of any responsibility for air monitoring inside the Lead Work Area to verify that the respiratory protection in use provides a suitable protection factor.

.2 Use results of air monitoring inside the Lead Work Area to establish type of respirators to be used. Workers may be required to wear sample pumps for up two full-shift periods.

.1 If airborne lead concentrations are above the protection factor of respirators in use, the Contractor shall:

.1 Stop abatement.

.2 Introduce more stringent engineering controls.

.3 Use a higher protection factor in respiratory protection for persons inside the Lead Work Area.

.2 If air monitoring shows that airborne lead concentrations outside the Lead Work Area exceed 0.025 mg/m³, the Contractor shall maintain and clean these areas, in same manner as applicable to the Lead Work Area, at no additional cost to the Departmental Representative.

.3 Final clearance air monitoring will be performed at the sole discretion of the Departmental Representative.

.1 Final air monitoring results must show airborne lead levels less than 0.005 mg/m³.

.2 If air monitoring results show airborne lead levels in excess of 0.005 mg/m³, the Contractor shall re-clean the Lead Work Area at no additional cost to the Departmental Representative.

.3 Repeat as necessary until airborne lead levels are less than 0.005 mg/m³.

.4 The following criteria shall be used to define an acceptable level of cleanliness after lead abatement activities:

.1 Where removal of paints and other surface coatings has been performed to accommodate the project scope of work:

.1 Visibly free of paint(s), primer(s), and surface coating(s), and/or associated dust.

.2 Residual lead dust concentration less than:

.1 430 micrograms/square metre for interior floor surfaces

.2 2,691 micrograms/square metre for interior windowsills

.3 8,611 micrograms/square metre for exterior surfaces

.4 Repeat cleaning as necessary until lead concentrations are below specified levels, at no additional cost to the Departmental Representative.

3.6 FINAL CLEANUP

.1 Following specified cleaning procedures, and when lead wipe sampling is below acceptable concentrations proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls towards the centre of work area. Vacuum visible lead-based particles observed during cleanup, immediately, using HEPA vacuum.

.3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.

.4 Clean up Work Areas, Equipment and Access Room, and other contaminated enclosures.

.5 Remove sealed waste containers and equipment used in Work and remove from work areas at appropriate time in cleaning sequence.

.6 Conduct final check to ensure no dust or debris remain on surfaces as result of dismantling operations.

.7 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

END OF SECTION

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

.1 Refer to the following report (further referred to herein as the "Site Specific DSR", bound into this specification, for information pertaining to hazardous building materials that have been identified that and may require disturbance d*uring the Work:*

.1 Report title *Designated Substances and Hazardous Building Materials Survey – Barrier-Free Washroom Refit, Burlington Lift Bridge, 1157 Beach Boulevard, Hamilton, Ontario*, prepared by Stantec Consulting Ltd. and dated December 21, 2018.

1.2 REFERENCE STANDARDS

.1 Canada Green Building Council (CaGBC)

.1 LEED Canada-NC Version 4.0-2018, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package for New Construction and Major Renovations (including Addendum 2007).

.2 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide for Commercial Interiors.

.2 Canadian Environmental Protection Act,1999 (CEPA 1999)

.1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).

.3 Department of Justice Canada (Jus)

.1 Transportation of Dangerous Goods Act, 1992 (TDG Act) 1992, (c. 34).

.2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).

.4 Green Seal Environmental Standards (GS)

.5 GS-11- 2008, 2nd Edition, Paints and Coatings.

.6 GS-36-00, Commercial Adhesives.

.7 Health Canada / Workplace Hazardous Materials Information System (WHMIS)

.1 WHMIS Safety Data Sheets (SDS).

.8 National Research Council Canada (NRC)

.1 National Fire Code of Canada 2015 (NFC).

.9 Government of Ontario

.1 Regulation 347/90 of the Revised Regulations of Ontario, amended to Ontario Regulation 461/05 and 217/08, General – Waste Management, under the Environmental Protection Act.

.2 Ontario Regulation 490/09 Designated Substances, made under the Occupational Health and Safety Act (OHSA).

.3 Environmental Protection Act (EPA), Part VI, the Ozone Depleting Substances – General Regulation (R.R.O. 1990, Regulation 356 amended to Ontario Regulation. 351/93).

.4 Refrigerants Regulation, O. Reg. 189/94 amended to Ontario Regulation 519/97.

.5 Canadian Environmental Protection Act (CEPA), Ozone-Depleting Substances Regulations, 1998 SOR/99-7.

.10 Government of Canada

.1 The Canada Labour Code, Part II, Canada Occupational Health and Safety Regulations

.2 The Federal PCB Regulations (SOR/2008-273).

.3 The Federal Halocarbons Regulation (July 2003).

.11 Canadian Construction Association

.1 Standard Construction Document CCA 82 “Mould Guidelines for the Canadian Construction Industry” (2004 – further referred to herein as “CCA 82”).

1.3 DEFINITIONS

.1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.

.2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into environment.

.3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

.4 Workplace Hazardous Materials Information System (WHMIS): Canada-wide system designed to give employers and workers information about hazardous materials used in workplace. Under WHMIS, information on hazardous materials is provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by combination of federal and provincial laws.

.5 Hazardous Building Material: component of a building or structure that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when altered, disturbed or removed during maintenance, renovation or demolition.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish, and limitations.

.2 Submit two copies of WHMIS Safety Data Sheets (SDS) to the Departmental Representative for each hazardous material required prior to bringing hazardous material on site.

.3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.

.4 Hazardous waste classification: identify waste codes applicable to each hazardous waste material based on applicable federal and provincial acts, regulations, and guidelines. Waste profiles, analyses, and classification submitted to contract offices for review and approval.

.5 Low-Emitting Materials: submit listing of adhesives and sealants, paints and coatings used in building, comply with VOC and chemical component limits or restrictions requirements.

.6 Spill response: establish spill response procedures. Comply with applicable requirements according to classification of waste material. Designate an emergency coordinator and emergency contacts for comprehensive emergency response and incident mitigation.

.7 Record keeping: contractor is responsible for maintaining adequate records of handling, storing, and shipping of hazardous materials.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance manufacturer's written instructions

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.1 When exporting hazardous waste to another country, ensure compliance with Export and Import of Hazardous Waste and Hazardous Recyclable Materials Regulations.

.4 Storage and Handling Requirements:

.1 Co-ordinate storage of hazardous materials with Departmental Representative and Consultant and abide by internal requirements for labelling and storage of materials and wastes.

.2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.

.3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada (NFC) requirements.

.4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.

.1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.

.2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.

.5 Transfer of flammable and combustible liquids is prohibited within buildings.

.6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.

.7 Solvents or cleaning agents: non-flammable or have flash point above 38 degrees C.

.8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.

.9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.

.10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:

.1 Store hazardous materials and wastes in closed and sealed containers.

.2 Label containers of hazardous materials and wastes in accordance with WHMIS.

.3 Store hazardous materials and wastes in containers compatible with that material or waste.

.4 Segregate incompatible materials and wastes.

.5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.

.6 Store hazardous materials and wastes in secure storage area with controlled access.

.7 Maintain clear egress from storage area.

.8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.

.9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.

.10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.

.11 When hazardous waste is generated on site:

.1 Co-ordinate transportation and disposal with Departmental Representative.

.2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.

.3 Use licensed carrier authorized by provincial authorities to accept subject material.

.4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.

.5 Label container[s] with legible, visible safety marks as prescribed by federal and provincial regulations.

.6 Only trained personnel handle, offer for transport, or transport dangerous goods.

.7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.

.8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.

.9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

.12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

.13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

1.6 EXISTING CONDITIONS

.1 Reports and information pertaining to hazardous building materials present within the building that may be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in the Appendix.

.2 Notify Department Representative of suspected hazardous building material discovered during Work and not apparent from drawings, specifications, or reports pertaining to the Work. Do not disturb such material pending instructions from the client representative.

1.7 MATERIALS

.1 Description:

.1 Bring on site only quantities of hazardous material required to perform Work.

.2 Maintain WHMIS Safety Data Sheets (SDS) in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

.3 Sustainability Characteristics:

.1 Adhesives and Sealants: maximum VOC limit to GS-36 SCAQMD Rule 1168

.4 Coatings, Primers, Paints in accordance with manufacturer's recommendations for surface conditions:

.1 Primer: maximum VOC limit 250 g/L to GS-11 to SCAQMD Rule 1113.

.2 Paints: maximum VOC limit 50 g/L to GS-11 to SCAQMD Rule 1113.

.3 Coatings: maximum VOC limit to SCAQMD Rule 1113.

.5 Spill Response Materials: provide spill response materials which can be used for absorbing/shoveling and containing hazardous materials.

.6 Provide personal protective equipment.

PART 2 EXECUTION

2.1 HAZARDOUS MATERIALS ABATEMENT

.1 Asbestos

.1 Prior to the renovations fire rated doors to be impacted by the renovation should be removed and stored in a secure location. Prior to disposal fire rated doors should be inspected and sampled for asbestos if insulation is present. If the insulation within the door is identified to be asbestos-containing, the door should be wrapped in poly and disposed of as asbestos waste following section 028200 01.

.2 The remaining identified asbestos-containing materials that are not to be impacted can be managed in place provided that they are not to be disturbed.

.2 Lead

.1 White coloured paint on the exterior block wall of the new door opening should be removed where the block may be cut with a power tool following sections 02 83 10, 02 83 11 and 02 83 12. This can be a 20-30 cm strip where a power tool may impact the concrete.

.2 Remaining damaged paint applications should be cleaned up and loose paint removed following minimum lead precautions as referenced in section 02 83 10.

.3 Polychlorinated Biphenyls (PCBs)

.1 PCBs may be present in the fluorescent light ballasts of five (5) light fixtures observed. The light fixtures observed had T-12 fluorescent light tubes. As the ballasts were energized, they could not be inspected at the time of the assessment for health and safety reasons.

.2 A certified election is to remove light fixtures to be impacted by the renovations. The fluorescent lamp ballast is to be inspected by the environmental consultant to confirm whether any of the lamp ballast are PCB-Containing. The lamp ballast that are identified to be PCB-containing are to be removed for disposal at a licensed waste facility. Temporary on-site storage of PCB-containing materials should be conducted in accordance with the applicable regulations.

.4 The remaining fluorescent lamp ballasts that are not to be impacted that may contain PCBs can be managed in place. No further action is currently required until such time that renovation or demolition activities are to be conducted, or until 2025, when PCB-containing ballasts will require removal and disposal.

.4 Mould

.1 Per the assessment report, Suspect mould and water staining was not observed at the time of the assessment.

.5 Mercury

.1 Per the assessment report, mercury vapor is likely to be present in 10 fluorescent light tubes, and fluorescent light tubes in four boxes observe.

.2 When mercury-containing items are removed (fluorescent light bulbs), ensure all mercury waste is handled, stored and disposed of in accordance with the applicable regulations.

.3 Prior to the demolition work, the light tubes and mercury containing devices impacted by renovation activities must be stored in a safe, secure location before being disposed of following the requirements of O. Reg. 347/90.

.4 Comply with O. Reg. 490/09 Designated Substances, made under the Occupational Health and Safety Act (OHSA) when conducting remedial work involving mercury.

.5 Precautions should be taken if workers may potentially be exposed to mercury or mercury vapours to ensure that workers exposure levels do not exceed the occupational exposure limit of 0.025 mg/m^3 as per the ON OH&S Reg. This can be achieved by providing respiratory and skin protection applicable to the hazard and task to be completed.

.6 Mercury in paints and adhesives is not expected to cause a hazard during the renovation activities. No further action is needed. Precautions taken for lead abatement will be sufficient to control exposure to other heavy metals including mercury.

.7 Ozone-Depleting Substances (ODSs)

.1 Per the Assessment Report, one (1) wall mounted ac unit suspected to contain ozone-depleting substances was observed in Workshop 1. The Suspect ODS-containing equipment identified is not expected to be impacted by the renovations. It can be managed in place and must be serviced by licensed refrigeration technicians.

.8 Silica

.1 When silica-containing materials are to be disturbed and/or removed (e.g., demolition of concrete slabs, masonry or concrete units, removal of gypsum board/plaster walls, impacts to stucco-like wall or ceiling coatings, etc.), ensure dust control measures are employed such that airborne silica dust concentrations do not exceed the exposure limit as stipulated by ON OH&S Reg. (Cristobalite and Quartz – each 0.025 mg/m^3). This would include, but not be limited to, the following:

.1 Providing workers with respiratory protection

.2 Wetting the surface of the materials, use of water or dust suppressing agents to prevent dust emissions

.3 Providing workers with facilities to properly wash prior to exiting the work area.

.9 Urea Formaldehyde Foam Insulation (UFFI)

.1 Per the Assessment Report, UFFI was not identified in building materials that are anticipated to be impacted by the renovation project.

.10 Radioactive Sources/Substances

.1 Per the Assessment Report, suspect radiological sources and/or substances were not identified to be present during the assessment.

.11 Chemical, Fuel Oil and/or Waste Oil Storage

.1 Per the Assessment Report, various chemicals were observed in the Workshop 2 including 20 cans of paint, 21 canisters of oil and various other chemicals. The chemicals are stored in Workshop two and not expected to be impacted by the renovations. No further actions are required.

2.2 CLEANING

.1 Progress Cleaning:

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

.3 Waste Management: separate waste materials for recycling, and reuse:

.1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.

.2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.

.3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.

.4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

.6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.

.7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

.8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:

.1 Hazardous wastes recycled in manner constituting disposal.

.2 Hazardous waste burned for energy recovery.

.3 Lead-acid battery recycling.

.4 Hazardous wastes with economically recoverable precious metals.

2.3 DISPOSAL

.1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.

.2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.

.3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.

.4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

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.7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

.8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:

.1 Hazardous wastes recycled in manner constituting disposal.
.2 Hazardous waste burned for energy recovery.
.3 Lead-acid battery recycling.
.4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Comply with requirements of this Section when performing the following work:

.1 Removing presumed asbestos-containing fire-rated doors. The material must be removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.

1.2 SECTION INCLUDES

.1 Requirements and procedures for asbestos abatement of non-friable asbestos-containing materials.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-1.205-03, Sealer for Application of Asbestos-Fibre Releasing Materials.

.2 Department of Justice Canada (Jus).

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Safety Data Sheets (SDS).

.4 Transport Canada (TC).

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

.5 Ontario Environmental Protection Act, R.R.O 1990,

.1 General – Waste Management, O. Reg. 347/90, as amended.

.6 Underwriters' Laboratories of Canada (ULC).

.7 National Joint Council (NJC).

.1 Part XI – Hazardous Substances.

.8 PSPC Asbestos Management Directive

.9 Canada Labour Code Part II, section 124 and 125.

.1 Canada Occupational Health and Safety Regulations

.10 Ontario Ministry of Labour (MoL).

.2 Occupational Health and Safety Act, R.S.O 1990, c. O1 (OSHA)

.1 O. Reg. 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations, as amended

.2 Ontario Occupational Health and Safety Act, R.S.O. 1990, Regulation 490/09 “Designated Substances”, as amended

1.4 DEFINITIONS

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

.2 Amended Water: water with nonionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.

.3 Asbestos-Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.

.4 Asbestos Work Area: area where work takes place which will, or may, disturb ACMs.

.5 Authorized Visitors: Departmental Representative or designated representatives, and representatives of regulatory agencies.

.6 Competent worker person: in relation to specific work, means a worker who:
- .1 Is qualified because of knowledge, training and experience to perform the work.
- .2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.
- .3 Has knowledge of all potential or actual danger to health or safety in the work.

.7 Friable material: means material that:
- .1 When dry, can be crumbled, pulverized or powdered by hand pressure, or
- .2 is crumbled, pulverized or powdered.

.8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.9 Occupied Area: any area of the building or work site that is outside Asbestos Work Area.

.10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.

.11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for work.

1.5 SUBMITTALS

.1 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.

.2 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.

.3 Submit proof of Contractor's Asbestos Liability Insurance.

.4 Submit to Departmental Representative necessary permits for transportation and disposal

of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.

.5 Submit proof that all asbestos workers and/or supervisor have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.

.6 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested (Quantitative Fit Testing) with respirator that is personally issued.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, more stringent requirement applies. Comply with regulations in effect at time Work is performed.

.2 Health and Safety:

.1 Safety Requirements: worker protection.

.1 Protective equipment and clothing to be optionally worn by workers while in Asbestos Work Area include:

.1 Air purifying half-mask respirator with P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.

.2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.3 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.

.4 Facilities for washing hands and face shall be provided within or close to the Asbestos Work Area.

.5 Ensure workers wash hands and face when leaving Asbestos Work Area.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.4 Separate for reuse and recycling and place in designated containers waste in accordance with Waste Management Plan, as applicable.

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.7 Fold up metal banding, flatten and place in designated area for recycling.

.8 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 0.15 mm thick (6 mil) bags or leak proof drums. Label containers with appropriate warning labels. All waste bags or drums containing asbestos-containing materials shall be kept inside the containment or in the staging area until pick-up for transportation to licensed landfill.

.9 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Refer to the following for details on asbestos-containing materials:

.1 *Designated Substances and Hazardous Building Materials Survey – Barrier-Free Washroom Refit, Burlington Lift Bridge, 1157 Beach Boulevard, Hamilton, Ontario*, prepared by Stantec Consulting Ltd. and dated December 21, 2018.

.6 Notify Departmental Representative of asbestos-containing material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

1.9 SCHEDULING

.1 Hours of Work: perform work involving asbestos abatement located at the Building during hours specified by Departmental Representative. The work schedule must be approved in writing by the Departmental Representative in advance of work. Contractor shall be available to work continuously from beginning to end of project.

1.10 INSTRUCTIONS

.1 Before beginning Work, provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, following minimum requirements:

.1 Fitting of equipment.
.2 Inspection and maintenance of equipment.
.3 Disinfecting of equipment.
.4 Limitations of equipment.

.3 Instruction and training must be provided by a competent, qualified person.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Drop Sheets:
- .1 Polyethylene: 0.15 mm thick.
- .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material.

.3 Waste Containers: contain waste in two separate containers.
- .1 Inner container: 0.15 mm thick sealable polyethylene waste bag.
- .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
- .3 Labelling requirements: affix pre-printed cautionary asbestos warning in both official languages that is visible when ready for removal to disposal site.
- .4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .5 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

PART 3 - EXECUTION

3.1 PROCEDURES

.1 Before beginning Work, isolate Asbestos Work Area using, minimum, preprinted cautionary asbestos warning signs in both official languages that are visible at access routes to Asbestos Work Area.
- .1 Remove visible dust from surfaces in the work area where dust is likely to be disturbed during course of work.
- .2 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.
- .3 Do not use compressed air to clean up or remove dust from any surface.

.2 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
- .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in Asbestos Work Area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.

.3 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.
- .1 Use garden reservoir type low - velocity fine - mist sprayer.
- .2 Perform Work to reduce dust creation to lowest levels practicable.
- .3 Work will be subject to visual inspection and air monitoring.
- .4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas, at no additional cost to the Departmental Representative

.4 Remove presumed asbestos-containing fire-rated doors with the use of non-powered hand tools. Wrap doors in 6-mill polyethylene and place in asbestos-waste bin. Test insulation if present for asbestos, and if present, dispose of entire door as asbestos containing waste.

.5 Frequently and at regular intervals during Work and immediately on completion of work:
- .1 Dust and waste to be cleaned up and removed using a vacuum equipped with a HEPA filter, or by damp mopping or wet sweeping, and placed in a waste container, and
- .2 Drop sheets to be wetted and placed in a waste container as soon as practicable.

.6 Cleanup:
- .1 Place dust and asbestos containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, and then place in plastic bags.
- .2 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Asbestos Work Area.
- .3 Seal waste bags and remove from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal Authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that the appropriate guidelines and regulations for asbestos disposal are followed.

.4 Perform final thorough clean-up of work areas and adjacent areas affected by Work using HEPA vacuum.

3.2 INSPECTION

.1 Perform inspection of Asbestos Work Area to confirm compliance with specification and governing authority requirements. Deviation(s) from these requirements that have not been approved in writing by Departmental Representative may result in Work stoppage, at no cost to Departmental Representative.

.2 Departmental Representative may inspect Work at any time during the project for:

.2 Adherence to specific procedures and materials.

.3 Final cleanliness and completion.

.4 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

.3 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Departmental Representative may order Work shutdown.

.4 No additional costs will be allowed by the Contractor for additional labour or materials required to provide specified performance level.

END OF SECTION