Part 1 General

1.1 SUMMARY

.1 Refer to the following information (further referred to herein as the "Assessment Reports"), attached in the Appendix of the Specifications, for information pertaining to asbestos-containing materials (ACMs) that have been identified and may require disturbance during the Work:

.1 EMC Labs, Inc. Laboratory Report 0194218 (analytical result for one sample of 2'x2' ceiling tile panel).

.2 City of Winnipeg "Asbestos Inventory Control" for Pan Am Pool (inspection date January 24, 2018, and associated drawings).

.1 The Assessment Reports indicate that ACMs including, but not limited to, the following are present:

.1 ACMs expected to be impacted by the Work:

.1 Cement panel ceiling tiles within the main tank area.

.2 Vinyl sheet flooring in various offices.

.3 Plaster applied to walls and ceilings.

.4 Drywall joint compound (north and south basement stairwells)

.2 ACMs NOT expected to be impacted by the Work, but potentially present in areas of the Work:

.1 Insulation on mechanical pipes (straights and fittings) and ducts.

.2 Cement ("transite") pipe.

.3 Door jambs (insulated with asbestos-containing insulation).

.4 Mastic on pipes and ducts.

.5 Exterior stucco.

.6 Vermiculite in double wall of the chimney flue (reported as present by the City of Winnipeg – no documentation provided).

.2 Abatement shall be conducted to handle, alter, remove and/or dispose of ACMs as identified in the Assessment Report in accordance with applicable regulations, guidelines, standards and/or best practices for such work, where such identified ACMs will be impacted (handled, altered, damaged, removed) by the Work, including, but not limited to, the following:

.1 Government of Manitoba

.1 Manitoba Workplace Safety and Health Act and Regulation, including amendments to date of work.

.2 Manitoba Hazardous Waste Regulation MR 55/2003.

.2 Safe Work Manitoba

.3 Guide for Asbestos Management, 2017.

.3 City of Winnipeg Requirements.

.3 Contractor is responsible for reviewing plans, specifications and reports such that they understand the locations and amounts of ACMs that will be impacted by the Work of this Contract, and such that appropriate plans and budgets can be included in their overall bids. Inclusion of a particular ACM in this specification is not necessarily confirmation that it will require disturbance, alteration, handling, removal or disposal. The actual methods

to be used by the Contractor to complete the general Work of this Project may impact how and to what extent various ACMs will require disturbance, alteration, handling, removal or disposal.

.4 Unless otherwise determined through risk assessment conducted by the Contractor's competent person, comply with requirements of this section when performing Work that would be considered "Type 1" asbestos abatement work as defined in the Safe Work Manitoba 2017 "Guide for Asbestos Management". For this project, this is expected to include, but may not be limited to, the following:

.1 Using hand methods, hand tools and/or power tools equipped with high-efficiency particulate air (HEPA) filtered dust collection systems to move, remove, break, drill, cut or otherwise disturb asbestos-containing cement ceiling tiles.

.1 If asbestos-containing cement ceiling tiles are no longer maintaining their structural integrity (i.e. if the materials are becoming friable), additional precautions will be required, to be determined through a risk assessment conducted by the Contractor's competent person, and to maintain compliance with the provisions of the Safe Work Manitoba 2017 "Guide for Asbestos Management".

.2 Using hand methods, hand tools and/or power tools equipped with HEPA filtered dust collection systems (including task-specific work procedures – such as the use of water, HEPA vacuum and personal protective equipment) to disturb small, localized areas (less than 1 square metre total in any room or project area simultaneously) of gypsum (drywall) materials with asbestos-containing joint compound.

.5 If the project scope changes and additional removal of ACMs or more significant disturbance to gypsum (drywall) materials with asbestos-containing joint compound is required in any particular area, additional precautions (further to those outlined herein) may be necessary.

.1 Any proposed changes to the scope for asbestos abatement are to be provided to the Contract Administrator for review/approval. Proposed changes are to be provided in writing by the Contractor's competent person. Proposed changes should follow the provisions of the Safe Work Manitoba 2017 "Guide for Asbestos Management".

1.2 SECTION INCLUDES

.1 Requirements, applicable procedures and personal protective equipment to be utilized during abatement of ACMs of the types described herein.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal

.3 Section 02 82 00.02 - Asbestos Abatement Type 2 Precautions

1.4 REFERENCES

.1 Department of Justice Canada (Jus)

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

.2 Transport Canada (TC)

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

.3 Government of Manitoba

.1 Manitoba Workplace Safety and Health Act and Regulation, including amendments to date of work (MB 217/2006).

.2 Manitoba Hazardous Waste Regulation MR 55/2003.

.4 Safe Work Manitoba
.1 Guide for Asbestos Management, 2017.

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 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.

.3 Asbestos-Containing Materials (ACMs): materials that contain asbestos in amounts as listed below, and are identified under Existing Conditions including fallen materials and settled dust:
.1 A friable material containing 0.1% or greater asbestos;
.2 A non-friable material containing 1.0% or greater asbestos; and
.3 Vermiculite insulation that contains any asbestos.

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

.5 Authorized Visitors: Contract Administrator and representatives of regulatory agencies.

.6 Competent worker: 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 the 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.

1.6 SUBMITTALS

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

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

.3 Submit proof of Contractor's Asbestos Liability Insurance in accordance with D10.

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

.5 Submit to Contract Administrator necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.

.6 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.

.7 Submit proof satisfactory to Contract Administrator that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial 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 Perform construction occupational health and safety in accordance with applicable provincial occupational health and safety regulations.

.2 Safety Requirements: worker protection.

.1 Protective equipment and clothing to be 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 is 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. Facilities for washing are to be supplied by the Contractor.

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

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

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

.3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.

.4 Separate and place in designated containers recyclable metal and plastic waste.

.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 metal recycling.

.8 Disposal of asbestos waste generated by Work activities must comply with Federal, Provincial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

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

1.9 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this project are bound into this specification in Appendices 1 and 2

.2 Notify Contract Administrator of suspected ACM discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Contract Administrator.

1.10 SCHEDULING

.1 Hours of Work: Work times as indicated in Section 01 14 00 - Work Restrictions.

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 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.

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

.4 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 Asbestos abatement work is to be completed in general accordance with the requirements of the Safe Work Manitoba 2017 “Guide for Asbestos Management”. Where discrepancies exist between that document and these specifications, the more stringent will apply.

.2 Do construction in accordance with the provisions of the applicable provincial occupational health and safety regulations.

.3 Notification to the City of Winnipeg and Manitoba Workplace Safety and Health to be completed prior to work resulting in the potential release of ACMs.

.4 If electrical isolations are conducted or become required during the work, then Lock Out Tag Out will be conducted in accordance with applicable regulations and The City’s protocols. All affected persons will be notified, including The City’s central control, as well as any facility staff, users or contractors present.

.5 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.

.6 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 (or attic insulation if work is within ceiling spaces) and over flooring/surfaces in Asbestos Work Area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.

.7 Wet materials containing asbestos to be abraded, cut, drilled in localized areas, scraped 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 Contamination of surrounding areas indicated by visual inspection by the Contract Administrator will require complete enclosure and clean-up of affected areas.

.8 Remove ACM ceiling tiles in-tact from support tracking (t-bar grid), where possible. Place into appropriate waste bag.

.9 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 (including t-bar grid from which ACM ceiling tiles are removed), and placed in a waste container; and
- .2 Drop sheets to be wetted and placed in a waste container as soon as practicable.

.10 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 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 AIR MONITORING

.1 From beginning of Work until completion of cleaning operations, air monitoring will be required. The City shall retain an independent, competent (as described in the Safe Work Manitoba 2017 “Guide for Asbestos Management”) third party (further referred to herein as the “Hazmat Consultant”) to take air samples inside and outside of Asbestos Work Area if deemed necessary to establish the effectiveness of work procedures set forth in the Safe Work Manitoba 2017 “Guide for Asbestos Management”.
- .1 Air sample analysis will be conducted by Phase Contrast Microscopy (PCM) using the NIOSH 7400 method: Asbestos and Other Fibers by PCM for airborne asbestos exposure analysis as per regulatory guidelines.
- .2 Hazmat Consultant will provide report of site inspections and air monitoring results within 8 hours of sample collection.
- .3 Contractor will be notified to Stop Work and correct procedures if/when PCM measurements indicate airborne fibre concentrations in excess of 0.05 f/cc (when respiratory protection factors are considered).

.2 If air monitoring shows that areas outside Asbestos Work Area are contaminated, Contractor will be instructed to maintain and clean these areas in same manner as that applicable to Asbestos Work Area
- .1 Additional cleaning or work of this nature is to be conducted at no additional cost to the Contract.

.3 Hazmat Consultant will conduct a final visual assessment of the Asbestos Work Area and will provide notification to The City to proceed with demobilization only once acceptable conditions are viewed.

END OF SECTION