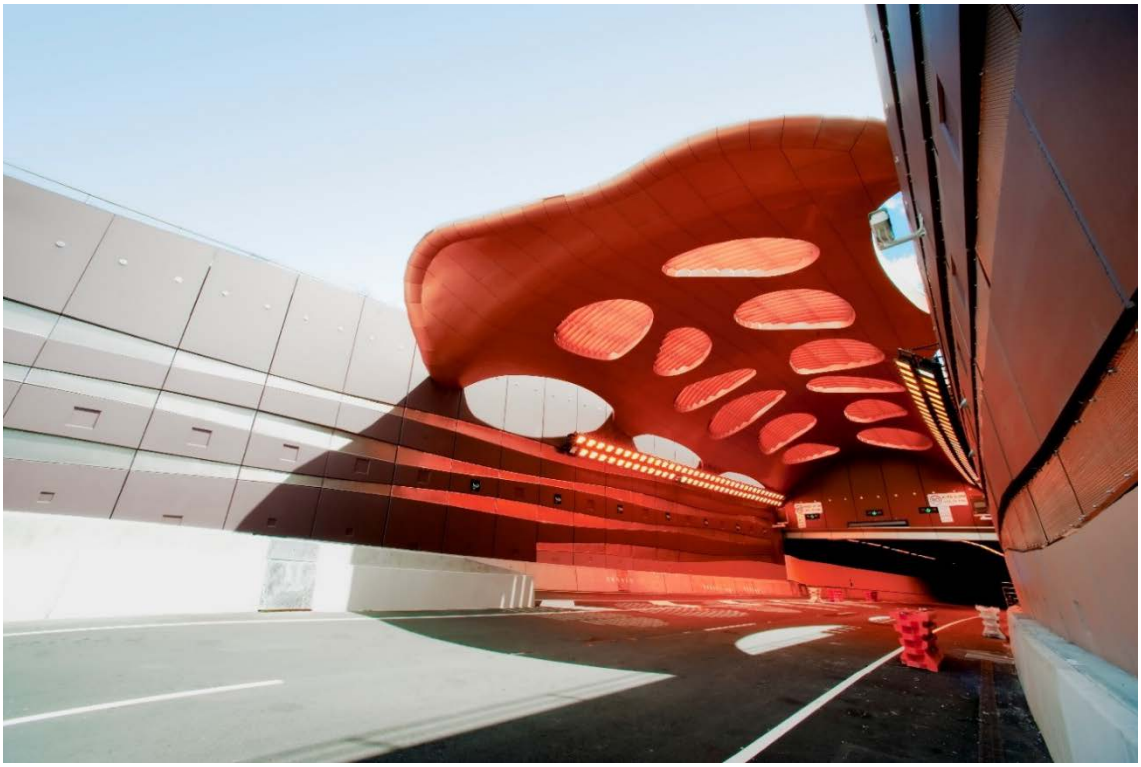
THE REGIONAL MUNICIPALITY OF NIAGARA

PROJECT-SPECIFIC DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

5853 PEER STREET, NIAGARA FALLS, ON - INTERIOR RENOVATION PROJECT

JULY 26, 2019



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5853 PEER STREET, NIAGARA FALLS, ON - INTERIOR RENOVATION PROJECT

THE REGIONAL MUNICIPALITY OF NIAGARA

VERSION 1

PROJECT NO.: 191-09146-00
DATE: JULY 2019

WSP

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July 26, 2019

THE REGIONAL MUNICIPALITY OF NIAGARA
The Regional Municipality of Niagara
Buildings Construction, Energy & Facilities Management,
Enterprise Resource Management Services
1815 Sir Isaac Brock Way
Thorold, ON, L2V

Attention: Mr. Gord Low, C.E.T.

Subject: Project-Specific Designated Substances and Hazardous Materials Survey, 5853 Peer Street, Niagara Falls, ON – Interior Renovation Project

WSP Canada Inc. (WSP) was retained by The Regional Municipality of Niagara to carry out a Project-Specific Designated Substances & Hazardous Materials Survey (DSS) of selected areas throughout the Niagara Falls SAEO Office located at 5853 Peer Street, Niagara Falls, Ontario.

The purpose of this survey is to determine the presence/absence of Designated Substances within the proposed work areas throughout the building, and to provide information to contractors at the time of bid to ensure complete and correct removal or handling of materials prior to the scheduled interior renovation project within the building.

The following report discusses the methodologies and findings of this survey.

We trust that the attached report is satisfactory for your purposes at this time. Please contact the undersigned should you have any questions or concerns.

Yours sincerely,

Erin Kennealy, CIH
Manager, Hazardous Materials.

EK/JB

WSP ref.: 191-09146-00

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	DSS Report			
Date	07/26/2019			
Prepared by	Josip Bosnjak			
Signature				
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Authorised by				
Signature				
Project number	191-09146-00			
Report number	01			
File reference	PS-DSS Report – 5853 Peer Street, Niagara Falls, ON – Interior Renovation Project			

SIGNATURES

PREPARED BY

Josip Bosnjak, B.Sc.
Project Manager, Hazardous Materials

REVIEWED BY

Erin Kennealy, CIH
Manager, Hazardous Materials

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PRODUCTION TEAM

CLIENT

Project Manager	Mr. Gord Low, C.E.T.

WSP

Manager	Erin Kennealy, CIH
Project Manager	Josip Bosnjak, B.Sc.

EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by The Regional Municipality of Niagara to carry out a Project-Specific Designated Substances & Hazardous Materials Survey (DSS) of selected areas throughout the Niagara Falls SAEO Office located at 5853 Peer Street, Niagara Falls, Ontario.

The subject site consists of a two (2) storey office building, with one (1) level below grade. A flat roofing system was observed to be supported by a steel structure. The floors within the surveyed areas were generally finished with vinyl floor tiles, carpet and terrazzo. Walls within the surveyed areas of the building are generally drywall with joint compound. The ceilings were observed to be finished with suspended ceiling tiles. The scope of this survey was limited to the selected areas that may be potentially disturbed as part of the scheduled renovations to the interior of the building, which includes the construction of a washroom and an elevator access door on the 1st floor, the replacement of suspended ceiling tiles on the 1st floor, as well as the demolition of select interior walls.

The purpose of this survey is to determine the presence/absence of Designated Substances within the proposed work areas throughout the building, and to provide information to contractors at the time of bid to ensure complete and correct removal or handling of materials prior to the scheduled interior renovation project within the building.

A summary of the results of WSP's site inspection and bulk sampling is presented below:

Table 1 – Designated Substances & Hazardous Materials Survey Findings at 5853 Peer Street, Niagara Falls, ON – Selected Areas

MATERIAL	SURVEY FINDINGS
Asbestos	Based on the laboratory analytical results, none of the six (6) homogeneous building material samples collected and analyzed are considered to be asbestos-containing (defined as material that contains 0.5% or more asbestos). Notes: — Asbestos-containing materials may be present in inaccessible areas throughout the building (i.e. wall/ceiling cavities, electrical/mechanical equipment, etc.).
Lead	Based on the laboratory analytical results, none the two (2) paint samples collected and analyzed has detectable concentrations of lead. However, lead is expected to be present in the following building components: — as a component in ceramic building products such as tiles and bricks; — as a component of the solder on sweated joints between copper pipe and fittings; — as a component of the solder on wire connections of electric components; and — as a component of the solder used to seal the bell fitting of cast iron rain water leader pipes.
Mercury	Although no samples were analyzed for mercury, it is presumed to be present as a gas in fluorescent and CFL light tubes observed in the proposed work areas.
Silica	Building materials and components known to contain silica such as glass, concrete, masonry, stone and mortar etc., were observed in the proposed work areas.
PCBs	Two (2) fluorescent light ballasts were inspected for the presence of PCBs. The one (1) ballast had "non-PCB" printed on the label, which indicates that the ballast does not

MATERIAL	SURVEY FINDINGS
	contain PCBs, while the other ballast did not have a label. Given the approximate age of the building, light ballasts that don't contain a label should be considered PCB-containing.
Radioactive Materials	Smoke detectors were observed throughout the proposed work areas at the time of the assessment. It should be noted that smoke detectors may contain radioactive materials (Amerecium-241).
Ozone Depleting Substances (ODS)	No equipment containing Ozone Depleting Substances (i.e. R-12 & R-22) was identified within the proposed work areas.
Mould	Water-stained ceiling tiles were observed on the 1st floor of the building. No other water-damaged or mould-affected materials were observed within the proposed work areas.
Radon	Radon is a radioactive gas (emits ionizing radiation) found naturally in the environment. It is produced by the breakdown of uranium found in soil, rock or water. Radon is invisible, odourless and tasteless. It enters buildings by seeping in through foundation cracks, penetrations, window casements etc., and can accumulate in enclosed spaces. Radon levels can only be determined through sampling, which was not conducted as part of this survey. Therefore, the presence of Radon is presumed until proven otherwise by sampling.

RECOMMENDATIONS

All designated substances must be handled in accordance with the appropriate guidelines and regulations. Designated Substance and Hazardous Material information will require updating if corrective measures have been instituted and materials have been removed from the building.

Special precautions should be taken when disturbing any concrete or painted surfaces given the presence of silica and lead. All designated substances must be handled in accordance with the appropriate guidelines and regulations. The Ministry of Labour (MOL) has published guidelines for handling and controlling lead and silica in construction and it is recommended that these guidelines be followed when removing and cutting into the concrete. Coring, sawing or breaking up the materials containing silica, lead and potentially arsenic should be completed only with appropriate dust suppression methods, proper respiratory protection and general worker safety precautions as outlined in the MOL Guidance documents and in the Occupational Health and Safety Act.

The presence of mercury within assembled units (e.g. fluorescent light bulbs) should not be considered a hazard provided that the assembled units remain sealed and intact. Avoid direct skin contact with mercury and avoid inhalation of mercury vapour. Dispose of mercury following applicable legislative requirements.

Mould contaminated materials should be removed/handled in accordance with the Canadian Construction Association document CCA 82/2004. Contractors should be warned of the potential presence of mould and every precaution should be taken to prevent airborne exposure to workers where mould is present and where workers are likely to inhale or ingest mould.

In accordance with the Canadian Nuclear Safety Commission (CNSC), if smoke alarms contain radium or if more than 10 units have to be disposed of, then the smoke detectors must be disposed of at a low-level radioactive waste management facility. Smoke detectors containing Am-241 isotope source of less than 5.0 µCi can be disposed of at a regular landfill site.

If mould is discovered during demolition and/or renovation, mould contaminated materials should be removed/handled in accordance with the Canadian Construction Association document CCA 82/2004. Contractors should be warned of the potential presence of mould and every precaution should be taken to prevent airborne exposure to workers where mould is present and where workers are likely to inhale or ingest mould.

If during renovation or demolition, additional materials suspected of containing asbestos are encountered, they must be handled in accordance with the appropriate guidelines and regulations. It should be noted that asbestos may be present in the enclosed spaces not accessible at the time of the site visit.

Complete commentary on each of the designated substances in the project area will be discussed in the report to follow. This executive summary is not intended to substitute for the complete report, nor does it discuss certain specific issues documented within the report.

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1 INTRODUCTION

1.1 BACKGROUND

WSP Canada Inc. (WSP) was retained by The Regional Municipality of Niagara to carry out a Project-Specific Designated Substances & Hazardous Materials Survey (DSS) of selected areas throughout the Niagara Falls SAEO Office located at 5853 Peer Street, Niagara Falls, Ontario.

The subject site consists of a two (2) storey office building, with one (1) level below grade. A flat roofing system was observed to be supported by a steel structure. The floors within the surveyed areas were generally finished with vinyl floor tiles, carpet and terrazzo. Walls within the surveyed areas of the building are generally drywall with joint compound. The ceilings were observed to be finished with suspended ceiling tiles. The scope of this survey was limited to the selected areas that may be potentially disturbed as part of the scheduled renovations to the interior of the building, which includes the construction of a washroom and an elevator access door on the 1st floor, the replacement of suspended ceiling tiles on the 1st floor, as well as the demolition of select interior walls.

The purpose of this survey is to determine the presence/absence of Designated Substances within the proposed work areas throughout the building, and to provide information to contractors at the time of bid to ensure complete and correct removal or handling of materials prior to the scheduled interior renovation project within the building.

1.2 SURVEY OBJECTIVES

This survey is required to satisfy a building owner's requirements under Section 30 of the Ontario Occupational Health & Safety Act (OHSA) which requires building owners to determine if there are any Designated Substances present, prior to commencement of a project, which may involve construction, renovation or demolition related activities. This information allows workers to take appropriate steps to prevent accidental exposure to these harmful substances. This report should be provided to all maintenance workers, prospective contractors (and in turn to their sub-trades) who are likely to handle, come into contact with, or disturb building materials. Contractors who may work in close proximity to the identified materials and who may also disturb the materials should also be notified.

The primary objectives of the survey were to:

- Develop an up-to-date inventory, and gain a better understanding of the Designated Substances and/or hazardous materials that are present in the proposed work areas;
- Document their locations, applications, concentrations, quantities, and conditions in the surveyed areas in order to provide workers, and prospective contractors, with adequate information to prevent accidental exposures; and
- Provide recommendations for the safe removal, handling and disposal of the identified Designated Substances and hazardous materials as necessary.

The asbestos information in this survey report complies with the requirements of the Occupational Health & Safety Act, Ontario Regulation 278/05: Designated Substance - Asbestos on Construction Projects and in Building and Repair Operations with respect to asbestos-containing materials for the structure.

Regulation 490/09 states that all necessary measures and procedures are to be taken to ensure the time-weighted average exposure of a worker to any form of airborne asbestos does not exceed 0.1 fibres per cubic centimeter of air, averaged over an 8-hour work period. In order to abide by this regulation, contractors

specializing in asbestos removal are required to remove all asbestos-containing building materials from the buildings prior to any demolition that will disturb these materials.

1.3 SCOPE OF WORK

The scope of this work program was to sample and analyze materials considered to be suspect or possible designated substances or asbestos-containing materials. This Designated Substances and Hazardous Materials Survey entailed:

- A room by room visual inspection of the proposed work areas within the building for Designated Substances and hazardous materials;
- Collection of bulk samples of materials suspected to contain asbestos according to the requirements stipulated in O. Reg. 278/05 (see Table 2);
- Assessment of the condition of the asbestos-containing materials;
- Collection of a representative number of bulk paint samples;
- Inventory of (visibly) evident sources of mercury (e.g. light tubes and thermostats);
- Assessment of the likelihood of exposure to designated substances with recommendations for appropriate corrective action where required;
- Visual identification of suspected and/or obvious signs of mould; and
- Visual identification of other Designated Substances and hazardous materials including equipment containing ODS, and/or radioactive materials. Where possible name plate/label information and quantities were recorded.

The survey did not involve destructive sampling (i.e. inspection within drywall (false) walls or ceilings, mechanical equipment such as boilers, furnaces, HVAC systems, within electrical equipment or within fire doors). These areas are considered not accessible to the surveyor and as such materials suspected to contain asbestos and other Designated Substances and hazardous materials may be present within these inaccessible areas.

The survey included the identification of potential friable and non-friable asbestos-containing materials within the proposed work areas within the building. Asbestos means any of the following fibrous silicates: actinolite, amosite, anthophyllite, chrysotile, crocidolite or tremolite. According to the above-mentioned Ontario Regulation 278/05, the term 'friable material' is applied to a material that when dry, can be crumbled, pulverized or powdered with moderate hand pressure. Asbestos materials that are friable have a greater potential to release airborne asbestos fibres when disturbed. Common friable asbestos-containing buildings materials used in the past include sprayed fireproofing, stucco texture coat, and thermal pipe and jacket insulation.

Common non-friable asbestos containing materials include vinyl floor tiles, gasket materials, asbestos cement (Transite™) pipe, Transite™ board and asbestos textiles. If these materials do however release fine dust due to deterioration or during removal, the free dust is considered friable.

2 METHODOLOGY

2.1 GENERAL SURVEY METHODOLOGY

WSP's survey sought to identify those substances defined as Designated Substances under the *Ontario Occupational Health and Safety Act* including: asbestos (friable and non-friable), lead, mercury, silica, benzene, acrylonitrile, arsenic, coke oven emissions, ethylene oxide, isocyanates, and vinyl chloride. In addition, other hazardous materials, such as PCBs, ozone-depleting substances (ODS), Radioactive Materials and other stored chemicals and wastes were included in the survey scope.

WSP's surveyor performed a systematic survey of the proposed work areas throughout the interior of the North Building for the purposes of identifying Designated Substances and hazardous materials and documenting observations made about their locations, estimated quantities and respective conditions. These observations form the basis for developing the recommendations provided within this report.

The survey of the proposed work areas for designated substances consisted of a walk through and physical examination of suspected materials in accessible areas within the proposed work areas. A physical examination was completed to assess the condition of materials and to examine for underlying layers. In situations where asbestos-containing materials or other Designated Substances extended into a non-accessible area, such as asbestos cement pipes (Transite™), it would be assumed that the asbestos-containing materials were also present in these areas and were reported as such.

2.2 ASBESTOS SURVEY METHODOLOGY

The surveyor inspected the proposed work areas for the presence of friable and non-friable asbestos-containing materials (ACM). Examples of ACM commonly found in buildings may include:

- Sprayed insulation
- Acoustic/texture plaster
- Drywall joint compound
- Mechanical insulation
- Asbestos cement
- Pipe Insulation
- Acoustic ceiling tiles
- Vinyl floor tiles and vinyl sheet flooring
- Plaster

Bulk samples were collected from suspect materials (i.e. materials known as having the potential to be asbestos-containing) and analyzed to identify or confirm the presence/absence of asbestos. Asbestos samples are collected by taking a small volume of material (approximately two square centimeters in size) from either intact material or preferably from a damaged section. The collected samples were placed in zipper storage plastic bags, sealed and forwarded to an analytical laboratory.

The bulk samples collected were then submitted to an accredited, independent laboratory for analysis (accompanied by a chain of custody form) of asbestos content via US EPA Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials in accordance with the requirements of O. Reg.

278/05. The laboratory was instructed to use "stop-positive" analysis when asbestos is identified via Polarized Light Microscopy (PLM) analysis.

The number of bulk samples required, in order to establish whether a material is asbestos-containing according *O. Reg. 278/05,* is summarized in Table 2.

Table 2 - Minimum Number of Bulk Samples to be collected under O. Reg. 278/05 According to Material Area, Application and Friability

TYPE OF MATERIAL	SIZE OF HOMOGENEOUS MATERIAL	MINIMUM NUMBER OF BULK SAMPLES
Surfacing material, including without limitation material that is applied to surfaces by spraying, by troweling or otherwise, such as acoustical plaster on ceilings, fireproofing materials on structural members and plaster	Less than 90 m2	3
	90 m^2 or more, but less than 450 m^2	5
	450 m^2 or more	7
Thermal insulation, except as described below	Any size	3
Thermal insulation patch	Less than 2m or 0.5 m^2	1
Other material	Any size	3

As per the requirements set out in Table 1 of O. Reg. 278/05, a total of nineteen (19) samples were collected and submitted for asbestos analysis as part of this survey. Fibreglass insulation was not submitted for analysis as it can be identified visually and was never manufactured with asbestos.

In accordance with the analysis techniques required by O. Reg. 278/05:

— for layered materials, subsamples are taken from each individual or discrete layer and each subsample is then treated as a discrete sample; and

— if a material is found to contain greater than 0.5% asbestos, additional bulk material samples taken from the same homogeneous material are not required to be analyzed.

As per these requirements, twenty-six (26) samples were analyzed by the laboratory for this assessment.

2.3 LEAD SURVEY METHODOLOGY

Bulk paint samples (paint chips) were collected from each distinct colour of paint observed within the proposed work areas. Samples were collected with the aid of a thin-bladed knife, which was cleaned prior to each sampling event. WSP's surveyor selected sample locations where it appeared that the paint application was most representative of all areas on which it was applied. Each paint chip sample was placed in a clear bag with a tight closure, uniquely labelled and then placed in a second, similar bag. A chain of custody form was completed and accompanied the bulk samples to an accredited, independent laboratory for analysis of lead content. Lead analysis was performed following MOE Method E3470, ICP-OES.

2.4 SILICA

The surveyor inspected the proposed work areas for the presence of materials known to contain silica. Silica is present in materials such as such as glass, concrete, masonry, stone and mortar which are prevalent materials in building construction. No samples were collected or analyzed.

2.5 MERCURY

The surveyor inspected the proposed work areas for equipment which is likely to contain mercury. Pertinent information of the suspected equipment including: manufacturer, dates, model and serial numbers, and quantities were recorded when available. No samples were collected or analyzed.

2.6 POLYCHLORINATED BIPHENYLS (PCB)

The surveyor inspected the proposed work areas for equipment which may contain PCBs. Equipment that is generally suspected of containing PCBs includes lamp ballasts, transformers, hydraulic fluid, compressors, switchgears, capacitors and other electric equipment. Pertinent information of the suspected equipment including: manufacturer, dates, model and serial numbers, and quantities were recorded when available. No samples were collected or analyzed.

2.7 MOULD

The surveyor inspected the proposed work areas for the presence of mould. This included a non-intrusive visual assessment of exterior and interior building material surfaces and components for evidence of obvious visible mould, and/or areas conducive to mould growth (i.e. demonstrating significant moisture saturation and water damage). No samples were collected or analyzed.

2.8 RADON

Radon is a radioactive gas (emits ionizing radiation) found naturally in the environment. It is produced by the breakdown of uranium found in soil, rock or water. Radon is invisible, odourless and tasteless. It enters buildings by seeping in through foundation cracks, penetrations, window casements etc., and can accumulate in enclosed spaces.

Radon levels can only be determined through sampling, which was not conducted as part of this survey. Therefore, the presence of Radon is presumed until proven otherwise by sampling.

3 SITE OVERVIEW

3.1 SITE DESCRIPTION

The subject site consists of a two (2) storey office building, with one (1) level below grade. A flat roofing system was observed to be supported by a steel structure. The floors within the surveyed areas were generally finished with vinyl floor tiles, carpet and terrazzo. Walls within the surveyed areas of the building are generally drywall with joint compound. The ceilings were observed to be finished with suspended ceiling tiles. The scope of this survey was limited to the selected areas that may be potentially disturbed as part of the scheduled renovations to the interior of the building, which includes the construction of a washroom and an elevator access door on the 1st floor, the replacement of suspended ceiling tiles on the 1st floor, as well as the demolition of select interior walls.

3.2 RECORDS REVIEW

WSP reviewed the original Designated Substances and Hazardous Materials Survey Report (August 2015) completed for the property by SPL Consultants Ltd. Based on review of the report, the following materials were identified as asbestos-containing:

Non-Friable

- Drywall joint compound (off-white) observed in various locations throughout the building (1.7% Chrysotile);
- Vinyl floor tiles (12” x 12” beige) and the associated mastic (black) observed underneath carpet (0.5% Chrysotile/3.5% Chrysotile);
- Glazing (tan) observed on doors in various locations throughout the building (1.8% Chrysotile).

Friable

- Sweatwrap/corrugated paper (Aircell) pipe insulation observed in various locations throughout the building (3.3% Chrysotile).

3.3 HEATING/MECHANICAL SYSTEM

The structure was heated via wall mounted radiators. Mechanical pipe straights observed during the site reconnaissance were either not insulated or insulated with fibreglass insulation. Asbestos-containing sweatwrap and corrugated paper pipe insulation was previously noted in the building, but was not observed within the proposed work areas at the time of the site investigation. However, this material may still be present in the building in concealed areas or areas outside of the scope of this survey.

3.4 SITE INSPECTION

The building was inspected by WSP representative Mr. Josip Bosnjak on July 11th, 2019.

4 REGULATORY CONTEXT

4.1 DESIGNATED SUBSTANCES

Section 30 of the *Occupational Health and Safety Act* (the Act) stipulates that prior to the commencement of a project a list shall be prepared of all Designated Substances that are present at the project site (i.e. a Designated Substances survey). In accordance with the Act, the locations of Designated Substances must be identified in writing to all prospective constructors, contractors and sub-contractors who may work, disturb or come into contact with this type of material, at the same time as, or prior to, project bidding.

The term "Designated Substance" refers to the eleven chemical or physical agents specifically identified within the Act. Each of these substances is governed by a consolidated regulation, Designated Substances - Ontario Regulation 490/09 (O. Reg. 490/09) that defines the minimum health and safety requirements for assuring safe worker-substance interaction as well as the obligations of employers and workers in workplaces containing these substances. O. Reg. 490/09 further stipulates the maximum concentrations of each of the respective substance to which a worker may be exposed, according to short-term exposure values and time-weighted average exposure values.

4.2 ADDITIONAL REGULATORY REQUIREMENTS FOR ASBESTOS

Among the Designated Substances, asbestos is unique in that it is governed by two regulations under the Act - one for the general mining and processing operations of asbestos and one for asbestos on construction projects and in buildings and repair operations.

Ontario Regulation 278/05 (O. Reg. 278/05), made under the Act, entitled "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations" came into effect on November 1, 2005, with some sections contained therein becoming effective on November 1, 2007. This regulation revoked and replaced the previous asbestos regulation, *O. Reg. 838/90*.

4.3 ADDITIONAL REGULATORY REQUIREMENTS FOR LEAD

The Ontario Ministry of Labour (MOL) has not prescribed specific criteria for classification of lead-containing paints or other surface coatings and construction materials. The Surface Coating Materials Regulation (SOR/2005-109) made under the federal Hazardous Products Act (HPA) prescribes an acceptable level of 0.009% (90 ppm) lead by dry weight or less, as determined by bulk chemical analysis in accordance with good laboratory practises. Under the Surface Coating Materials Regulation (SOR/2005-109) Section 4.2, the following paints and surface coatings are excluded from the above noted acceptable lead level:

1. as an anti-corrosive or an anti-weathering coating applied on the interior or exterior surface of any building or equipment that is used for an agricultural or industrial purpose;
2. as an anti-corrosive or an anti-weathering coating applied on any structure other than a building, that is used for an agricultural, industrial or public purpose;
3. as a touch-up coating for metal surfaces;
4. on traffic signs;
5. for graphic art on billboards or similar displays;

6 for identification marks in industrial buildings; or
7 as materials for the purposes of arts, crafts or hobbies, other than material for use by children.

However, based on a recent publication (EACO Lead Guideline For Construction, Renovation, Maintenance or Repair dated October 2014) from the Environmental Abatement Council of Ontario (EACO), an industry group representing consultants and contractors in the Ontario abatement industry, various occupational and workplace safety authorities and agencies consider that any detectable amount of lead in paint and similar materials has the potential to produce an airborne hazard to workers and building occupants when these materials are disturbed.

As such, for the purpose of this survey, WSP has classified any material containing detectable/measurable amounts of lead as "lead-containing" materials and recommends that all disturbances to these materials be conducted in accordance with the EACO or MOL document Guidelines, Lead on Construction Projects.

4.4 ADDITIONAL REGULATORY REQUIREMENTS FOR WASTE MANAGEMENT

The disposal of Designated Substances is regulated under the Ontario *Environmental Protection Act*, specifically *R.R.O. 1990, Regulation 347, General – Waste Management* (most recently amended by *O. Reg. 334/13*). The regulation details the minimum requirements for the appropriate transport and disposal of wastes.

4.5 OTHER APPLICABLE REGULATIONS AND GUIDELINES

The following regulations and guidance documents may also apply to this survey:

- Guideline for Lead on Construction Projects (MOL, September 2004, as amended)
- Guideline for Silica on Construction Projects (MOL, September 2004, as amended)
- The United States Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint in Housing
- Canadian PCB Regulations (SOR/2008-273)
- O. Reg. 362 Waste Management – PCBs
- Mercury-Containing Products Pollution Prevention Fact Sheet #21 (Ministry of Environment (MOE), September 2001, as amended)
- O. Reg. 347/90 General Waste Management
- Canadian Construction Association document CCA 82/2004
- Canadian Chlorofluorocarbon Regulations (SOR/90-127), Ozone-depleting, Substances Regulation (SOR/94-408) and Ozone Depleting Substances Products Regulations (SOR/90-584)
- O. Reg. 463/10 ODS and Other Halocarbons
- Lead Guideline for Construction, Renovation, Maintenance or Repair (Environmental Abatement Council of Ontario – October 2014)
- EACO Lead Guideline for Construction, Renovation, Maintenance and Repair, October 2014.
- EACO Mould Abatement Guidelines, 2010

5 OBSERVATIONS AND RESULTS

Information in this section of the report should be provided to all prospective contractors, tenants, and/or workers who are likely to handle, come into contact with, or disturb asbestos or other designated substances. Detailed specifications that outline specific abatement procedures are recommended when bidding for any potential renovation/demolition work.

This information may require updating upon the removal of Designated Substances upon completion of the renovations or demolition. A close out report stating that the materials are no longer present is also required once the materials are removed. If ACM is to remain in place, O. Reg. 278/05 requires the preparation and establishment of an Asbestos Management Plan for the building.

Contractors and maintenance personnel should be warned of the possibility of undisclosed materials when breaking into enclosed areas. Friable and Non-Friable building materials discovered in enclosed areas should be treated as asbestos until proven otherwise and other substances, self-evident as designated substances, should be handled in a likewise fashion.

5.1 ASBESTOS

5.1.1 ASBESTOS-CONTAINING MATERIALS

In accordance with the requirements of O. Reg. 278/05, homogenous materials (i.e. materials uniform in color and texture) must be considered to be asbestos-containing, if any sample which is collected from that homogeneous material, is identified to have an asbestos concentration of 0.5% or greater.

A total of nineteen (19) building material samples were collected from six (6) homogeneous building materials and submitted for laboratory analysis of asbestos content. The laboratory analytical results indicated that none of these materials are considered asbestos-containing.

5.1.2 SUSPECTED ASBESTOS-CONTAINING MATERIALS

Certain building materials which have historically contained asbestos were not included in the survey since they were inaccessible, are used in a random fashion or have a low risk of asbestos fibre release.

These materials include:

- Buried services such as underground piping; these pipes were commonly manufactured from a non-friable form of asbestos cement but are inaccessible for sampling without excavation work. It is not expected subsurface materials will be disturbed as part of this scope of work.
- Floor levelling compounds; these materials were used in a random fashion, may or may not contain asbestos, and require demolition of floor finishes to access for sample collection. Floor levelling compounds were not observed but may be present.
- Fire rated doors with asbestos-containing insulation within may be present but are inaccessible without damaging the integrity of the door. The interior of these door should be inspected prior to disposal and/or significant disturbance (i.e. cutting or breaking).
- Vermiculite within exterior wall cavities may be present. Caution should be taken when exposing exterior wall cavities. If vermiculite is discovered, material should be assumed to contain asbestos and the area should be isolated until a licenced contractor can be obtained to remediate.

— Packing materials in valves, fittings, etc., may be present but are inaccessible without demolition activities (e.g. within concealed areas behind bulkheads).

In addition, inspection of mechanical equipment such as HVAC systems or within electrical equipment was not conducted due to safety limitations. These areas are considered not accessible to the surveyor and as such materials suspected to contain asbestos may be present within these inaccessible areas, including:

— electrical wiring insulation,
— electrical conductors,
— high temperature gaskets,
— incandescent light fixture backing,
— thermal insulator around electrical elements around baseboard heaters,

Once services are decommissioned, these areas should be inspected and/or sampled for presence or absence of asbestos.

If renovation or demolition activities are likely to disturb the materials, it is required that all identified asbestos-containing materials be removed in accordance with O. Reg. 278/05. If any potential asbestos-containing materials are encountered unexpectedly, WSP should be contacted to sample, monitor and/or document the removal of asbestos-containing materials, and to ensure that appropriate procedures are being followed.

5.1.3 SUMMARY OF BULK SAMPLES IDENTIFIED AS "NON-ASBESTOS"

The table below summarizes the results of bulk material samples collected from suspect materials during this survey, which had either no detectable concentrations of asbestos, or had asbestos concentrations less than the regulated threshold limit of 0.5% (by weight), and therefore can be considered as "non-asbestos" in accordance with *O. Reg. 278/05*.

Table 3 - Summary of Bulk Samples Identified as "Non-Asbestos"

MATERIAL DESCRIPTION / LOCATION	SAMPLE ID[1]
Vinyl floor tiles (12" x 12" off-white with black lines) and the associated mastic (grey) observed within the proposed work area on the 1st floor.	AS 1-1 to AS 1-3
Vinyl floor tiles (12" x 12" beige with white & dark beige flakes) and the associated mastic (black) observed within the proposed work area on the 1st floor.	AS 2-1 to AS 2-3
Vinyl baseboard mastic (tan) observed within the proposed work area on the 1st floor.	AS 3-1 to AS 3-3
Drywall joint compound observed throughout the proposed work areas on the 1st floor and basement level.	AS 4-1 to AS 4-7
Suspended ceiling tiles (2' x 4' pin holes & round fissures) observed within the proposed work area on the 1st floor.	AS 5-1 to AS 5-3
Spray fireproofing (white) observed on steel structural components within the proposed work area on the 1st floor.	AS 6-1 to AS 6-3

1 Laboratory confirmation of non-asbestos-containing material is provided in the laboratory results found within Laboratory Certificates of Analysis.
2 For sample locations refer to Appendix E: Drawings.

5.2 LEAD

A total of two (2) paint sample was collected and analyzed at the time of the investigation. The table below summarizes the results of laboratory analyses for the bulk paint and surface coating samples collected during the survey.

Table 4 - Summary of Lead Concentrations in Bulk Paint Samples

MATERIAL DESCRIPTION	ASSESSMENT	ACTION[1]
Beige paint observed on the wall within the elevator lobby on the 1st floor of the building.	*Sample ID:* Pb-01 *Concentration: <0.0082%* *Condition:* Good	Lead was not detected at or above the reporting limit. Therefore, no further action is required.
Blue paint observed on the wall within the main entrance vestibule.	*Sample ID:* Pb-02 *Concentration: <0.0083%* *Condition: Good*	Lead was not detected at or above the reporting limit. Therefore, no further action is required.
1 For sample ID and concentration levels refer to Appendix A: Analytical Results – Asbestos & Lead. 2 For sample locations refer to Appendix E: Drawings.		

However, Lead is expected to be present in the following building components:

- as a component in ceramic building products such as tiles and bricks;
- as a component of the solder on sweated joints between copper pipe and fittings;
- as a component of the solder on wire connections of electric components; and
- as a component of the solder used to seal the bell fitting of cast iron rain water leader pipes.

Work that will disrupt and/or pulverize (including drilling, cutting, grinding or abrading) confirmed or suspected lead-containing materials must follow the recommendations provided in the EACO Lead Abatement Guidelines (dated 2014) or Ministry of Labour Guideline for Lead on Construction Projects, dated September 2004 (Revised April 2011). In addition, the aforementioned painted surfaces (containing lead) should be handled with appropriate health and safety precautions so as to comply with requirements of the Designated Substances regulation, O. Reg. 490/09, and disposal of these materials must also comply with the requirements of O. Reg. 347 – General – Waste Management.

5.3 OTHER DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS

The following table summarizes other Designated Substances and hazardous materials which were also included in the survey. Identification of these materials and substances were based on visual observations only, and where appropriate, recommendations and necessary actions have been provided.

All designated substances must be handled in accordance with the appropriate guidelines and regulations. Designated Substance and Hazardous Material information will require updating as corrective measures are instituted and materials have been removed from various sections of the building.

MATERIAL	DESCRIPTION	FINDINGS	ACTION
Mercury	Mercury is used in thermometers, batteries and some electrical switches. It is also used in dental fillings and in latex paint to protect against fungal attack and mildew. Mercury vapour is also present as a vapour in fluorescent lights, metal halide lights and mercury vapour lights.	Although no samples were analyzed for mercury, it is presumed to be present as a gas in fluorescent light tubes and as a bactericide or stabilizer in paints.	The presence of mercury within assembled units (e.g. fluorescent light bulbs) should not be considered a hazard provided that the assembled units remain sealed and intact. Avoid direct skin contact with mercury and avoid inhalation of mercury vapour. Dispose of mercury following applicable legislative requirements.
Polychlorinated Biphenyls (PCBs)	The federal Regulation SOR/2008-273 (September 5, 2008) states that any solid material containing 50 parts per million (ppm) or more of PCBs must be handled as a PCB-containing material in accordance with all applicable regulations.	Two (2) fluorescent light ballasts were inspected for the presence of PCBs. The one (1) ballast had "non-PCB" printed on the label, which indicates that the ballast does not contain PCBs, while the other ballast did not have a label. Given the approximate age of the building, light ballasts that don't contain a label should be considered PCB-containing.	If decommissioned, ballasts which do not have a "No PCBs" indicator on the label, manufacturer's codes should be compared with Environment Canada's Identification of Lamp Ballasts Containing PCBs EPS 2/CC/2 (revised). Handle, store and dispose of PCB-containing materials in accordance with *Federal PCB Regulation SOR/92-507* and *R.R.O.* 1990 – Reg. 347 – *General – Waste Management* regulations.

MATERIAL	DESCRIPTION	FINDINGS	ACTION
Ozone Depleting Substances (ODSs)	It is the intention of the federal government to phase out the use of ODSs by the year 2030 in order to protect the upper atmosphere. The MOE has issued Regulation 356 regarding the use, disposal and recycling of ODSs. Recapturing of ODSs during servicing must be done by certified personnel.	No equipment containing Ozone Depleting Substances was identified within the proposed work areas.	If discovered and require removal, the units should be recycled following Ontario Regulation 189/94, *Refrigerants* (O. Reg. 189/94), as amended. All equipment containing ODSs must be serviced by an individual holding a valid Ozone Depletion Prevention (ODP) Certificate, issued by the MOE and the refrigerant drained from the unit and collected for recycling or disposal in accordance with all applicable legislation.
Silica	Silica, or silicon dioxide (SiO_2), is the basic component of sand, quartz and granite rock. Crystalline Silica (the designated substance) is encountered in industry in three forms: quartz, tridymite, and cristobalite.	Crystalline Silica should be assumed to be present in brick, concrete, asphalt, cement and mortar.	*O. Reg. 490/09* regarding silica as a designated substance applies to areas where airborne silica is present and where workers are likely to inhale, ingest or absorb silica. Every precaution and procedure should be taken during demolition or renovation activities to control the time-weighted exposure of a worker to airborne silica and exposure should not exceed 0.05 milligrams Cristobalite per cubic meters of air, or 0.1 milligrams Quartz or Tripoli per cubic meters of air. Coring, sawing, or breaking up the materials containing silica should be completed only with appropriate dust suppression methods, proper respiratory protection and general worker safety precautions as outlined in the MOL Guidance document and in the Occupational Health and Safety Act.

MATERIAL	DESCRIPTION	FINDINGS	ACTION
Radioactive Materials	Smoke/heat detectors may contain a radioactive power source.	Smoke detectors were observed throughout the building at the time of the assessment. It should be noted that smoke detectors may contain radioactive materials (Amerecium-241).	In accordance with the Canadian Nuclear Safety Commission (CNSC), if smoke alarms contain radium or if more than 10 units have to be disposed of, then the smoke detectors must be disposed of at a low-level radioactive waste management facility. Smoke detectors containing Am-241 isotope source of less than 5.0 µCi can be disposed of at a regular landfill site.
Mould	Mould is a group of various species of simple, microscopic organisms found in every ecological niche, indoors and outdoors. Moulds are necessary for recycling of organic materials in nature. To grow, mould needs: — A mould spore — An organic food source (i.e. paper, drywall, wood, dirt, paint, etc.) — Moisture — Time (this will vary depending on the site-specific conditions, including the cleanliness of the water source)	Water-stained ceiling tiles were observed on the 1st floor of the building. No other water-damaged or mould-affected materials were observed.	Water-damaged / mould contaminated materials should be removed/handled in accordance with the Canadian Construction Association document CCA 82/2004. Contractors should be warned of the presence of mould and every precaution should be taken to prevent airborne exposure to workers where mould is present and where workers are likely to inhale or ingest mould. Water-stained ceiling tiles should be removed and replaced as part of regular maintenance.
Arsenic	Arsenic is used with other metals (chiefly copper, lead and zinc) to make alloys. Arsenic compounds are also used in pigments, animal poisons, insecticides, paints, wallpaper, ceramics, and poison gases for chemical warfare, glass making, in calico and indigo printing, pyrotechnics, integrated circuits and transistors. Arsenic is also a major waste material from the gold mining industry.	Arsenic is not expected to be present in the surveyed areas.	N/A

MATERIAL	DESCRIPTION	FINDINGS	ACTION
Vinyl Chloride	Vinyl chloride is the parent compound of polyvinyl chloride (PVC) which is a widely used plastic. Vinyl chloride is also used in various resins (e.g. plastic food wrap), and in the glass, rubber, and paper industries. Vinyl chloride is also formed by the degradation of the chlorinated solvents trichloroethylene (TCE), 1,1,1-trichloroethane (111TCA) and tetrachloroethylene (also known as perchloroethylene or dry-cleaning solvent), especially in soil or groundwater that has been contaminated with these solvents.	No solvents, tanks or process operations that use vinyl chloride were observed or appear to have been present in the building. Vinyl chloride could be present within plastic components of the plumbing system, vinyl flooring and countertops, etc.	N/A
Acrylonitrile	Acrylonitrile is mostly used as a feedstock or chemical aid in the production of nitrile-butadiene rubber and in acrylonitrile-butadiene-styrene and styrene-acrylonitrile polymers. Acrylonitrile is also used to make other chemicals such as plastics, synthetic rubber, and acrylic fibre (e.g. clothing, blankets, carpeting) and nitrile rubber for oil-resistant hoses.	Acrylonitrile is not expected to be present in the proposed work areas.	N/A
Benzene	Benzene is widely used in the chemical industry as a starting material and solvent. Benzene occurs naturally in crude oil and is present in all gasoline products, automobile emissions and cigarette smoke. Benzene is highly volatile, and will release into the atmosphere over a short time.	Benzene is not expected to be present in the surveyed areas.	N/A
Coke Oven Emissions	Coke oven emissions are complex mixtures of coal and coke particles, various vapors, gases and tars emitted during carbonization of coal to produce coke. The primary use of coke (pure carbon) is in the manufacture of iron and steel. Coke is also used to synthesize calcium carbide and to manufacture graphite and electrodes.	Coke oven emissions are not expected to be present in the surveyed areas.	N/A

MATERIAL	DESCRIPTION	FINDINGS	ACTION
Ethylene Oxide	Ethylene Oxide is an extremely flammable gas used in the manufacture of several industrial chemicals including textiles, detergents, polyurethane foam, antifreeze (especially ethylene glycol), solvents, medicinal products, adhesives, and other related products. It is also used as a fumigant and as a sterilizing agent for food (spices), cosmetics, and surgical tool and plastic devices in hospitals as an alternative to steam.	Ethylene Oxide is not expected to be present in the surveyed areas.	N/A
Isocyanates	Isocyanates are the raw materials from which all polyurethane products are made. Isocyanates are widely used in the manufacture of flexible and rigid foams, fibres, coatings such as paints and varnishes, elastomers, and also in materials used in auto body repair and building insulation.	Isocyanates are not expected to be present in the surveyed areas.	N/A
Radon	Radon is a radioactive gas naturally emitted from the earth through the breakdown of uranium in soil. It enters buildings by seeping in through cracks, pipes, windows and the foundation etc.	No testing for radon was conducted as part of this assessment.	Air testing is the only method to determine if Radon is present within the building.

6 LIMITATIONS

As this survey was generally non-destructive in nature, asbestos could be present in areas not accessible to the surveyors for identification. Contractors and maintenance personnel should be warned of the possibility of unidentified materials when breaking into enclosed areas. Suspect friable and non-friable building materials discovered in these areas should be treated as asbestos until proven otherwise.

This report is prepared for the sole use of the Regional Municipality of Niagara, who are responsible for its distribution to any third parties. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. The conclusions and recommendations contained in this assessment report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with currently accepted industry practices for asbestos surveys and regulatory requirements for sampling and identifying asbestos and are subject to the following inherent limitations:

1. The data and findings presented in this report are valid as of the date(s) of the investigation only. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration of the Site, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report.
2. The findings, observations, conclusions, and recommendations expressed by WSP Canada Inc. in this report do not represent an opinion concerning compliance of any past or present owner or operator of the Site with any federal, provincial or local laws or regulations.
3. WSP Canada Inc.'s assessment presents professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental and occupational health & safety laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental and occupational health and safety laws, rules, regulations or policies of federal, provincial, or local governmental agencies. WSP Canada Inc. liability extends only to its client and not to other parties who may obtain this assessment report. Issues raised by the report should be reviewed by appropriate legal counsel.

APPENDIX

A

LABORATORY ANALYTICAL RESULTS – ASBESTOS & LEAD

EMSL Canada Inc.
2756 Slough Street, Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com torontolab@emsl.com

EMSL Canada Or	551908469
CustomerID:	55SPLC25
CustomerPO:	191-09146-00
ProjectID:	

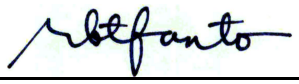
Attn: **Josip Bosnjak**
WSP Canada Inc.
252 Galaxy Blvd
Toronto, M9W 5R8

Phone: (416) 798-0065
Fax:
Received: 07/12/19 4:18 PM
Collected: 7/11/2019

Project: **191-09146-00 Niagara Falls SAEO Office PS-DSS**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
Pb-01	7/11/2019	7/15/2019	0.2448 g	0.0082 % wt	<0.0082 % wt
551908469-0001	Site: 1st Floor - Adj. Elevator Desc: Beige Wall Paint				
Pb-02	7/11/2019	7/15/2019	0.2419 g	0.0083 % wt	<0.0083 % wt
551908469-0002	Site: 1st Floor - Adj. Elevator Desc: Blue Wall Paint				



Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Cert #2845.08; AIHA-LAP, LLC - ELLAP #196142

Initial report from 07/19/2019 09:31:26

EMSL Canada Inc.

2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551908470
Customer ID: 55SPLC25
Customer PO: 191-09146-00
Project ID:

Attn: Josip Bosnjak
WSP Canada Inc.
252 Galaxy Blvd
Toronto, M9W 5R8

Phone: (416) 798-0065
Fax:
Collected: 7/11/2019
Received: 7/12/2019
Analyzed: 7/19/2019

Proj: 191-09146-00 Niagara Falls SAEO Office PS-DSS

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: AS 1-1 ***Lab Sample ID:*** **551908470-0001**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Off-White with Black Lines

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Gray	0.0%	100%	None Detected	Mastic insufficient

Client Sample ID: AS 1-2 ***Lab Sample ID:*** **551908470-0002**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Off-White with Black Lines

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Gray	0.0%	100%	None Detected	Mastic insufficient

Client Sample ID: AS 1-3-Floor Tile ***Lab Sample ID:*** **551908470-0003**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Off-White with Black Lines

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: AS 1-3-Mastic ***Lab Sample ID:*** **551908470-0003A**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Off-White with Black Lines

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: AS 2-1-Floor Tile ***Lab Sample ID:*** **551908470-0004**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Beige with White & Dark Beige Flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Beige	0.0%	100%	None Detected	

Client Sample ID: AS 2-1-Mastic ***Lab Sample ID:*** **551908470-0004A**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Beige with White & Dark Beige Flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Black	0.0%	100%	None Detected	

Client Sample ID: AS 2-2-Floor Tile ***Lab Sample ID:*** **551908470-0005**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Beige with White & Dark Beige Flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Beige	0.0%	100%	None Detected	

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2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551908470
Customer ID: 55SPLC25
Customer PO: 191-09146-00
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: AS 2-2-Mastic ***Lab Sample ID:*** **551908470-0005A**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Beige with White & Dark Beige Flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	Black	0.0%	100.0%	None Detected	

Client Sample ID: AS 2-3-Floor Tile ***Lab Sample ID:*** **551908470-0006**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Beige with White & Dark Beige Flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Beige	0.0%	100%	None Detected	

Client Sample ID: AS 2-3-Mastic ***Lab Sample ID:*** **551908470-0006A**

Sample Description: 1st Floor - Open Area/VFT - 12" x 12" Beige with White & Dark Beige Flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Black	0.0%	100%	None Detected	

Client Sample ID: AS 3-1 ***Lab Sample ID:*** **551908470-0007**

Sample Description: 1st Floor - Open Area/Vinyl Baseboard Mastic (Tan)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Tan	0.0%	100%	None Detected	

Client Sample ID: AS 3-2 ***Lab Sample ID:*** **551908470-0008**

Sample Description: 1st Floor - Open Area/Vinyl Baseboard Mastic (Tan)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Tan	0.0%	100%	None Detected	

Client Sample ID: AS 3-3 ***Lab Sample ID:*** **551908470-0009**

Sample Description: 1st Floor - Open Area/Vinyl Baseboard Mastic (Tan)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	Tan	0.0%	100%	None Detected	

Client Sample ID: AS 4-1 ***Lab Sample ID:*** **551908470-0010**

Sample Description: 1st Floor - Open Area/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: AS 4-2 ***Lab Sample ID:*** **551908470-0011**

Sample Description: 1st Floor - Open Area/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	White	0.0%	100.0%	None Detected	

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Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551908470
Customer ID: 55SPLC25
Customer PO: 191-09146-00
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: AS 4-3 ***Lab Sample ID:*** **551908470-0012**

Sample Description: 1st Floor - Open Area/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: AS 4-4 ***Lab Sample ID:*** **551908470-0013**

Sample Description: 1st Floor - Reception Area/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: AS 4-5 ***Lab Sample ID:*** **551908470-0014**

Sample Description: 1st Floor - Adj. Elevator/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: AS 4-6 ***Lab Sample ID:*** **551908470-0015**

Sample Description: Basement - Elevator Lobby/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: AS 4-7 ***Lab Sample ID:*** **551908470-0016**

Sample Description: Basement - Elevator Lobby/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/19/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: AS 5-1 ***Lab Sample ID:*** **551908470-0017**

Sample Description: 1st Floor - Open Area/CT - 2' x 4' Pin Holes & Round Fissures

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	White	4.0%	96.0%	None Detected	

Client Sample ID: AS 5-2 ***Lab Sample ID:*** **551908470-0018**

Sample Description: 1st Floor - Open Area/CT - 2' x 4' Pin Holes & Round Fissures

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	White	5.3%	94.7%	None Detected	

Client Sample ID: AS 5-3 ***Lab Sample ID:*** **551908470-0019**

Sample Description: 1st Floor - Open Area/CT - 2' x 4' Pin Holes & Round Fissures

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	White	4.9%	95.1%	None Detected	

EMSL Canada Inc.

2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
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Customer ID: 55SPLC25
Customer PO: 191-09146-00
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: AS 6-1 ***Lab Sample ID:*** **551908470-0020**

Sample Description: 1st Floor - Open Area/Spray Fireproofing on Beam

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	White	6.6%	93.4%	None Detected	

Client Sample ID: AS 6-2 ***Lab Sample ID:*** **551908470-0021**

Sample Description: 1st Floor - Open Area/Spray Fireproofing on Beam

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	White	12.5%	87.5%	None Detected	

Client Sample ID: AS 6-3 ***Lab Sample ID:*** **551908470-0022**

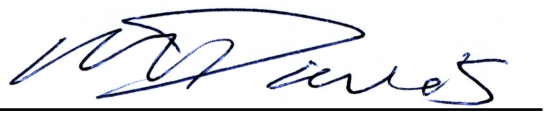
Sample Description: 1st Floor - Open Area/Spray Fireproofing on Beam

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	7/19/2019	White	6.1%	93.9%	None Detected	

Analyst(s):

Ioana Taina	PLM (3) PLM Grav. Reduction (18)
Michelle Lung	PLM (5)

Reviewed and approved by:



Matthew Davis or other approved signatory
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency or the U.S. Government

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from: 07/19/201915:00:23

APPENDIX

B

SITE PHOTOGRAPHS

PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
1	Exterior view of the Niagara Falls SAEO Office located at 5853 Peer Street in Niagara Falls, Ontario.	
2	Smoke detector observed in the proposed work area on the 1st floor of the building may contain radioactive materials (Amerecium-7).	

PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
3	Smoke detector observed in the proposed work area on the basement level of the building may contain radioactive materials (Amerecium-7).	
4	Water-stained ceiling tile observed in the proposed work area on the 1st floor of the building.	

PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
5	Light ballasts observed in the proposed work area without a label should be treated as PCB-containing,	

APPENDIX

C

EVALUATION CRITERIA

A description of the criteria used in evaluating the condition, accessibility and exposure risk of asbestos-containing materials (ACM) is provided below.

Assessment of Condition

Spray-Applied Fireproofing, Insulation and Textured Finishes

In evaluating the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes, the following criteria apply:

Good
Surface of material shows no significant signs of damage, deterioration or delamination. Up to one percent visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the Assessor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

Poor
Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

In observation areas, where damage exists in isolated locations, both GOOD and POOR condition may be reported. The extent or percentage of each condition will be recorded on the Assessor reassessment form.

FAIR condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of building with ACM, regardless of the reported condition.

Other ACM

In evaluating the condition of mechanical insulation (on boilers, breaching, ductwork, piping, tanks, equipment etc.) the following criteria are used:

Good
Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

Fair
Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

Poor

Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired. The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.

Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

Evaluation of Accessibility

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

Access (A)
Areas of the building within reach of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

Access (B)
Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines.

Access (C) Exposed
Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

Access (C) Concealed
Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations are limited to the extent visible from the access points.

Access (D)
Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc. where demolition of the ceiling, wall or equipment, etc., is required to reach the ACM. Evaluation of the condition and extent of ACM is limited or impossible, depending on the Assessor's ability to visually examine the materials in Access D.

Definition of Action Levels

Based on the results of the inspection and bulk sample analysis of samples collected and submitted for testing, recommendations were provided for compliance with regulation. These include assigned "Action Levels" to assist in the prioritization of corrective measures. The measures that are to be taken for each "Action Level" are described in full in the following table:

Action Level	Required Action
"Action 1"	**Immediate Clean-Up of Debris that is Likely to Be Disturbed** Restrict access that is likely to cause a disturbance of the ACM DEBRIS and clean up ACM DEBRIS immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor will immediately notify the owner of this condition.

"Action 2"	**Type 2 Precautions for Entry into Areas with ACM DEBRIS** At locations where ACM DEBRIS can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos precautions. The precautions will be required until the ACM DEBRIS has been cleaned up, and the source of the DEBRIS has been stabilized or removed.
"Action 3"	**ACM Removal Required for Compliance** Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.
"Action 4"	**Type 2 Precautions for Access into Areas Where ACM is Present and Likely to be Disturbed by Access** Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. ACTION 4 must be used until the ACM is removed (Use ACTION 1 or 2 if DEBRIS is present).
"Action 5"	**Proactive ACM Removal** Remove ACM in lieu of repair, or at locations where the presence of asbestos in GOOD condition is not desirable.
"Action 6"	**ACM Repair** Repair ACM found in FAIR condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work, treat ACM as material in GOOD condition and implement ACTION 7. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement ACTION 5.
"Action 7"	**Asbestos Management Program with Routine Surveillance** Implement an Asbestos Management Program, including routine surveillance of ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

APPENDIX

D

GLOSSARY OF TERMS

Accessibility: The terms easily accessible, less accessible, and inaccessible are used to describe the ease with which asbestos can be accessed by tenants, the public, employees and contractors in the building. **Easily accessible** indicates that ACM is visible from the floor and can be touched by building occupants, and therefore has a potential for significant damage. **Less accessible** indicates that ACM is not visible from the floor, or if it is visible, it is high enough not to be touched by building occupants, and has a potential for damage. **Inaccessible** indicates that ACM is located behind masonry, drywall, or other types of solid enclosures and is only accessible after destruction of the enclosure, and has a low potential for damage.

ACM: Asbestos-Containing Material. A material that contains greater than 0.5% asbestos by dry weight as per Ontario Regulation 278/05 and is used to refer to the vastly different types of such material.

Amosite: The technical name for 'brown' asbestos.

AMP: Asbestos Management Plan

Asbestos: A mineral fiber that can pollute air or water and cause cancer or asbestosis when inhaled.

Asbestos Abatement: Procedures to control fiber release from asbestos-containing materials in a building or to remove them entirely, including removal, encapsulation, repair, enclosure, encasement, and operations and maintenance programs.

Asbestos Cement: A hard product that contains up to 15% asbestos fibres which can be any of the three main types. This is a relatively safe material provided it remains intact as the cement binds the asbestos fibres; breakage will lead to fibre release. When used for roofing the risks to operatives are far greater from falls than asbestos exposure.

Asbestos Control: Minimizing the generation of airborne asbestos fibres until a permanent solution is developed.

Asbestos Debris: Pieces of an ACM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

Asbestos Fibres: Fibres with their length being greater than five microns (length to width ratio of 3:1), generated from an asbestos-containing material.

BAS: Building Asbestos Supervisor.

Bulk Sample: A sample of material such as boarding, insulation or debris taken by an accredited surveyor to be tested for asbestos fibre content by an accredited laboratory.

Chrysotile: The technical name for 'white' asbestos.

Condition: The condition of ACM is described using the designations: good, fair and poor. **Good** refers to ACM with no visible damage or deterioration, or showing only very limited damage or deterioration. **Fair** refers to ACM with some damage or deterioration (less than 10% of the material). **Poor** refer to ACM that is significantly damaged or deteriorated (at least 10% of the material).

CRD: Construction, Renovation and/or Demolition related activities.

Crocidolite: The technical name for 'blue' asbestos.

Designated Substances Regulations: A series of Regulations made by the Ministry of Labour under the Occupational Health and Safety Act. The regulations provide management protocols and guidelines to the following eleven substances: acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride.

Demolition: Complete dismantling or the complete or partial destruction of a building, structure, ship or plant such that it cannot be used in that form again.

Friable ACM: Any material that contains more than 0.5% asbestos by weight and can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand.

HEPA Filter: High Efficiency Particulate Air Filter.

Homogeneous Area: Defined by the US EPA as containing material that is uniform in texture and appearance, was installed at one time and is unlikely to consist of more than one type or formulation of material.

Major Action: All response actions requiring Type 3 ACM Removal Procedures, or Type 2 Removal Procedures involving the removal of friable ACM and provisions of an enclosure.

Management Survey: A survey carried out without disturbing any part of the fabric, components or finishes. Samples may be taken.

MOL: Ministry of Labour.

O&M: Operations and Maintenance Program.

O. Reg.: Ontario Regulations.

Non-Friable ACM: Any material that contains more than 0.5% asbestos by weight but cannot be pulverized under hand pressure.

PACM: Presumed Asbestos-Containing Materials. All thermal system insulation, surfacing material and asphalt/vinyl flooring in a building constructed prior to 1981 that has not been appropriately tested are presumed asbestos containing materials.

PPE: Personal Protective Equipment such as overalls, masks, gloves etc.

Pre-Demolition Survey: A survey similar to the Refurbishment Survey but also taking core samples from partitions, lifting floorboards and investigating back to the structure where possible.

Refurbishment Survey: A survey similar to the Management Survey but also involves entering into accessible ducts, suspended ceilings and other accessible voids. Samples are almost always taken.

RPE: Respiratory Protective Equipment. The different types of face masks worn appropriate to the risk. Where the risk assessment shows that the Control Limit will be exceeded RPE must be worn.

Surveyor: Any person who contracts to provide professional health and safety services relating to asbestos-containing construction material. The activities of a surveyor include building inspection, abatement project design, contract administration, sample collection, preparation of asbestos management plans, clearance monitoring, and supervision of site surveillance technicians.

Type 1: Asbestos Abatement Operation with ACM as an operation described by O. Reg. 278/05 in subsection 12 (2), generally an operation that does not cause asbestos fibres to become airborne.

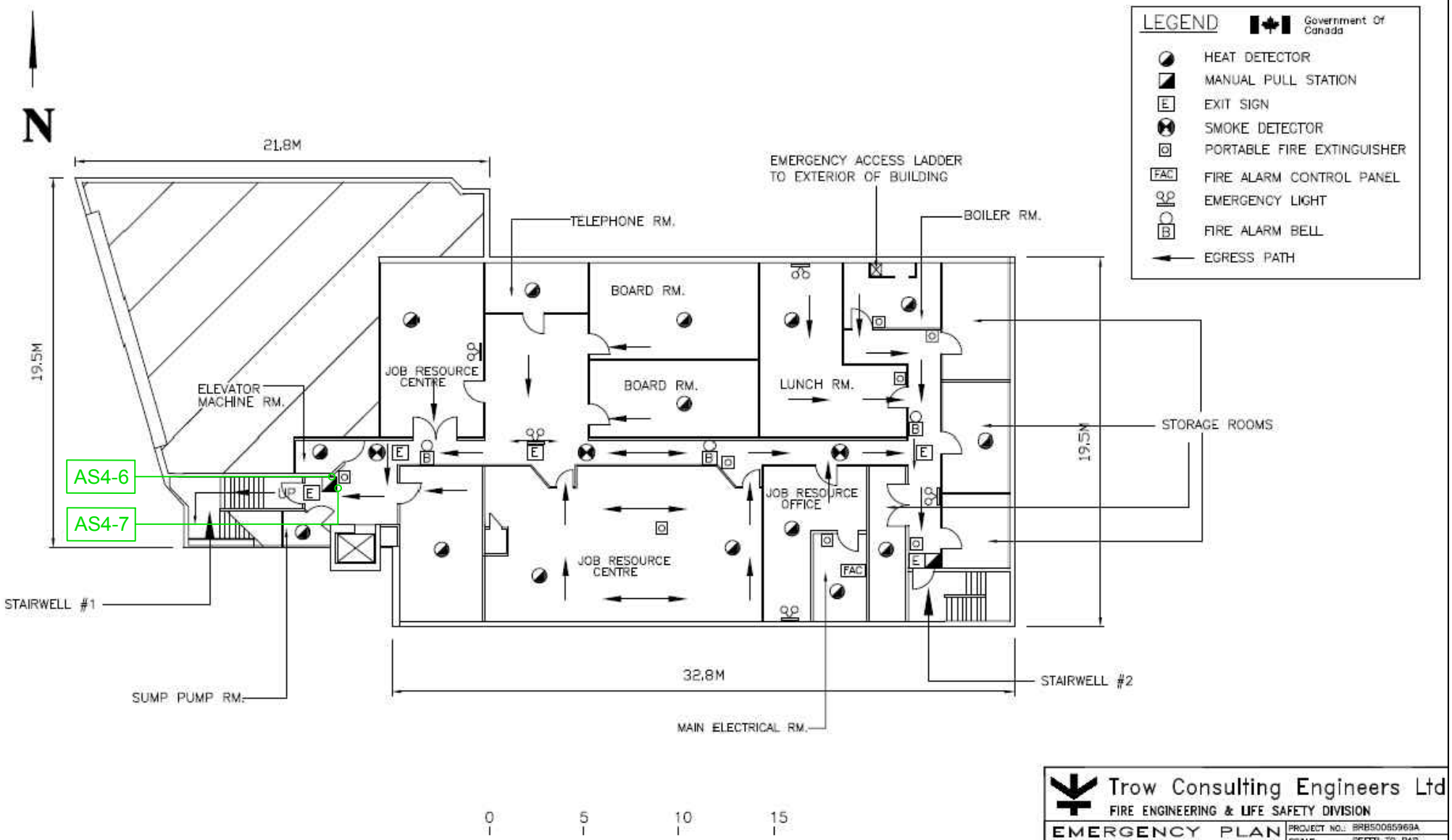
Type 2: Asbestos Abatement Operation with ACM as an operation described by O. Reg. 278/05 in subsection 12 (3), generally a major operation with limited scope of work.

Type 3: Asbestos Abatement Operation with ACM as an operation described by O. Reg. 278/05 in subsection 12 (4), generally a major operation.

APPENDIX

E

DRAWINGS



Notes:
1. This drawing must be read in conjunction with associated report.
2. Drawing was provided to WSP by the client.
3. Asbestos-containing materials may be present in inaccessible areas throughout the building (i.e. inside wall/ceiling cavities)

Trow Consulting Engineers Ltd
FIRE ENGINEERING & LIFE SAFETY DIVISION

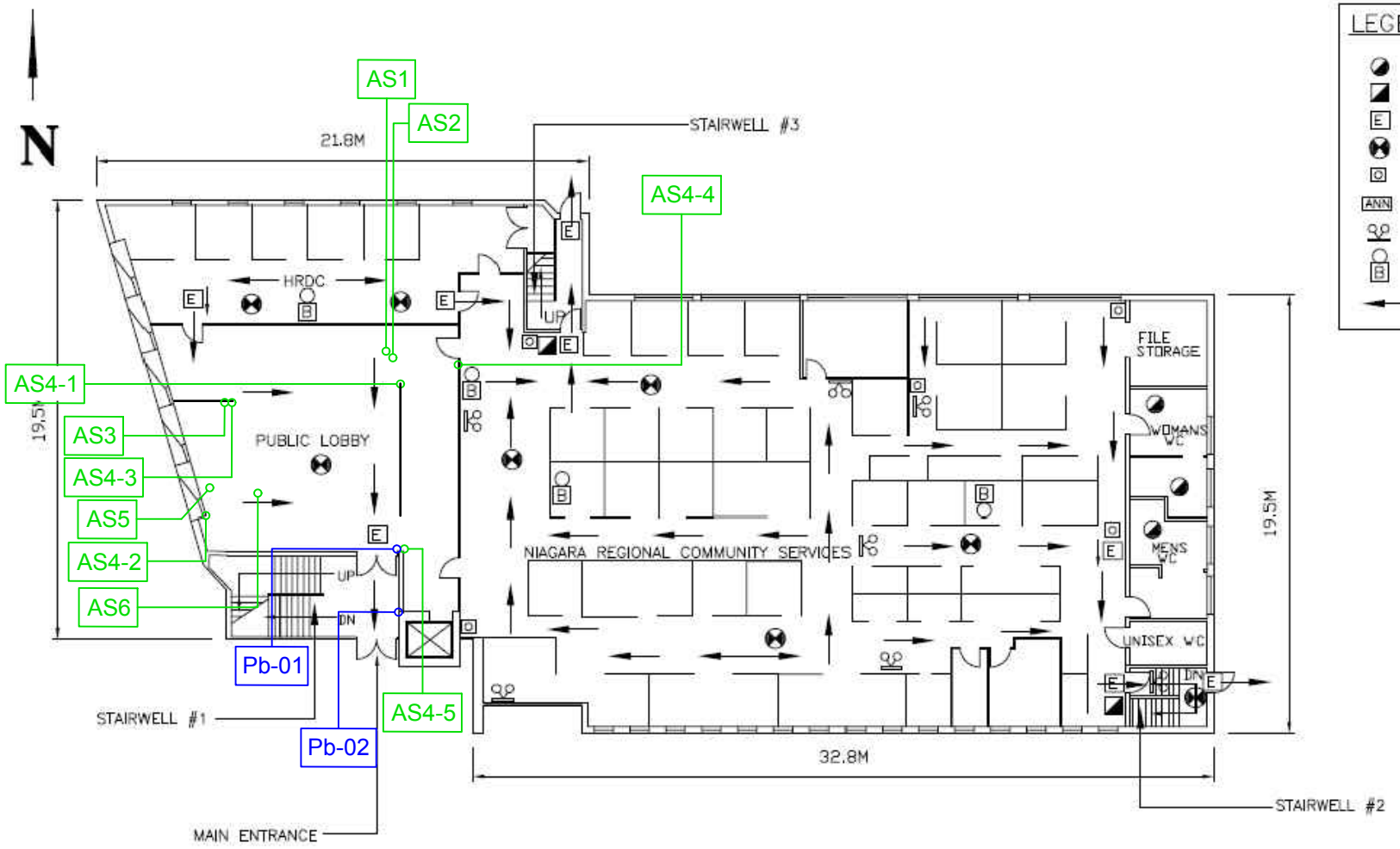
EMERGENCY PLAN
BASEMENT FLOOR PLAN
5853 PEER STREET
NIAGARA FALLS ONTARIO

PROJECT NO.:	BRB50065969A
SCALE:	REFER TO BAR
DRAWN BY:	DI
CHECKED BY:	LT
DATE:	JUNE 2003
DRAWING NO.:	F-2 OF 4

Legend:
- Negative Asbestos Result
- Negative Lead Result

Client:	**The Regional Municipality of Niagara**			Project No.: **191-09146-00**	Drawing No.: **1**
Drawn:	**JB**	Approved:	**EK**	Title:	**Basement Level - Sampling Locations**
Date:	**July 2019**	Scale:	**NTS**	Project:	**Project-Specific Designated Substances & Hazardous Materials Survey - 5853 Peer Street, Niagara Falls, ON - Niagara Falls SAEO Office**
Original Size:	**Letter**	Rev:	**N/A**		

51 ConstellationCourt
Toronto, Ontario M9W 1K4, Canada
T: 416-798-0065



Notes:
1. This drawing must be read in conjunction with associated report.
2. Drawing was provided to WSP by the client.
3. Asbestos-containing materials may be present in inaccessible areas throughout the building (i.e. inside wall/ceiling cavities)

Trow Consulting Engineers Ltd.
FIRE ENGINEERING & LIFE SAFETY DIVISION

EMERGENCY PLAN
GROUND FLOOR PLAN
5853 PEER STREET
NIAGARA FALLS ONTARIO

PROJECT NO.:	BRBS00659694
SCALE:	REFER TO BAR
DRAWN BY:	DI
CHECKED BY:	LT
DATE:	JUNE 2003
DRAWING NO.:	F-3 OF 4

Legend:
- Negative Asbestos Result
- Negative Lead Result

Client:	The Regional Municipality of Niagara			Project No.: 191-09146-00	Drawing No.: 2
Drawn:	JB	Approved:	EK	Title:	1st Floor - Sampling Locations
Date:	July 2019	Scale:	NTS	Project:	Project-Specific Designated Substances & Hazardous Materials Survey - 5853 Peer Street, Niagara Falls, ON - Niagara Falls SAEO Office
Original Size:	Letter	Rev:	N/A		

51 ConstellationCourt
Toronto, Ontario M9W 1K4, Canada
T: 416-798-0065