Designated Substances and Hazardous Building Materials Assessment – North Storage Shed and North Storage Bin

North Storage Shed and North Storage Bin
Port Weller Search and Rescue Station
Port Weller ON

Stantec

Prepared for:
Public Services and Procurement Canada
4900 Yonge Street
Toronto ON M2N 6A6

Prepared by:
Stantec Consulting Ltd.
300W – 675 Cochrane Drive
Markham ON L3R 0B8

Project No.: 122150683

July 13, 2018

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Executive Summary

Stantec Consulting Ltd. (Stantec) was commissioned by Public Works and Government Services Canada (PWGSC) on behalf of Fisheries and Oceans Canada (DFO) to conduct a designated substances and hazardous building materials assessment of the north storage shed and north storage bin at the Port Weller Search and Rescue Station (Subject Area) located in Port Weller, Ontario.

The purpose of the assessment was to identify potential designated substances and hazardous building materials that may require special attention prior to the planned demolition activities. The work was carried out in accordance with the requirements of the Ontario *Occupational Health and Safety Act* (OHSA). The *Canada Labour Code* also stipulates in Part II that every employer shall ensure that the health and safety at work of every person employed by the employer is protected. The Port Weller Search and Rescue Station is a federal site.

The designated substances assessment list includes those substances designated under the OHSA and included asbestos, lead, mercury, and silica as the most likely to be present. In addition to designated substances, the hazardous building materials considered in this assessment included: polychlorinated biphenyls (PCBs); ozone-depleting substances (ODSs); urea-formaldehyde foam insulation (UFFI); mould; and, radioactive sources. A visual assessment was also conducted for chemical, fuel, oil and/or waste oil storage and for treated lumber applications that could contain creosote or arsenic.

Based on the visual assessment and laboratory analysis, designated substances and hazardous building materials were identified to be present. Table 1 below provides a summary of the materials identified and recommendations on their management.

Table 1: Summary of Findings

Building Materials	Comments
Asbestos	Friable building materials suspected to be asbestos-containing were identified by laboratory analysis to be non-asbestos-containing. Non-friable building materials suspected to be asbestos-containing were identified by laboratory analysis to be non-asbestos-containing. Presumed asbestos-containing materials were not observed to be present.
Lead	One sample of a paint application was collected from the north storage shed and submitted for lead content analysis. The white coloured paint on the exterior of the north storage shed was identified to contain lead below 90 ppm. The paint application was observed to be in good condition.
Mercury	Mercury vapour is likely to be present in the eight fluorescent light tubes observed. Mercury may also be present in some paints and adhesives.
Silica	The presence of silica in building materials such as concrete was noted.

Table 1: Summary of Findings

Building Materials	Comments
Polychlorinated Biphenyls (PCBs)	PCBs may be present in the fluorescent light ballasts of the four light fixtures observed. As the ballasts were energized, they could not be inspected at the time of the assessment for health and safety reasons. Polychlorinated Biphenyls may also be present in plastics, applied dried paints, coatings, or sealants, caulking, adhesives, paper, or insulation.
Ozone-Depleting Substance (ODS)	Suspect building related cooling and refrigeration equipment suspected to be ODS-containing was not observed.
Mould	Suspect mould was not observed at the time of the assessment.
Urea Formaldehyde Foam Insulation (UFFI)	Evidence of the application of UFFI was not observed.
Other Designated Substances	Acrylonitrile, benzene, coke oven emissions, ethylene oxides, isocyanates, and vinyl chloride are not typically a concern in building materials, and therefore these substances were not investigated.
Radioactive Sources	Evidence of radioactive sources was not observed.
Chemical, Fuel Oil and/or Waste Oil Storage	No evidence of underground storage tanks, significant chemical storage, or dumping was observed in the building assessed.
Arsenic	Treated lumber applications associated with the buildings assessed were not observed.
Creosote	Treated lumber applications associated with the buildings assessed were not observed.

The statements made in this Executive Summary text are subject to the same limitations included in this report and are to be read in conjunction with the remainder of this report.

Recommendations pertaining to the handling, removal, disposal and management of identified designated substances and hazardous building materials are provided within this report.

DESIGNATED SUBSTANCES AND HAZARDOUS BUILDING MATERIALS ASSESSMENT – NORTH STORAGE SHED AND NORTH STORAGE BIN

July 13, 2018

1.0 Introduction

Stantec Consulting Ltd. (Stantec) was commissioned by Public Works and Government Services Canada (PWGSC) on behalf of Fisheries and Oceans Canada (DFO) to conduct a designated substances and hazardous building materials assessment of the north storage shed and north storage bin at the Port Weller Search and Rescue Station (Subject Area) located in Port Weller, Ontario.

The purpose of the assessment was to identify potential designated substances and hazardous building materials that may require special attention prior to the planned demolition activities. The work was carried out in accordance with the requirements of the Ontario *Occupational Health and Safety Act* (OHSA). The *Canada Labour Code* also stipulates in Part II that every employer shall ensure that the health and safety at work of every person employed by the employer is protected. The Port Weller Search and Rescue Station is a federal site.

The designated substances assessment list includes those substances designated under the OHSA and included asbestos, lead, mercury, and silica as the most likely to be present. In addition to designated substances, the hazardous building materials considered in this assessment included: polychlorinated biphenyls (PCBs); ozone-depleting substances (ODSs); urea-formaldehyde foam insulation (UFFI); mould; and, radioactive sources. A visual assessment was also conducted for chemical, fuel, oil and/or waste oil storage and for treated lumber applications that could contain creosote or arsenic.

The site work was conducted by Michael Shortt on May 29, 2018.

2.0 Scope

The scope of work for this assessment involved the following:

- A review of existing information, including site drawings, previous assessment and/or abatement documentation and discussions with site personnel, where available
- A visual assessment of readily accessible areas for the presence of designated substances and hazardous building materials
- The collection of representative bulk samples from building materials suspected of containing asbestos fibres
- The collection of paint chip samples for the determination of the lead content in paint finishes
- Submission of samples collected for laboratory analysis
- Evaluation and interpretation of field findings and analytical results to develop conclusions and recommendations pertaining to designated substances and hazardous building materials identified to be present

2.1 BACKGROUND

Public Works and Government Services Canada on behalf of DFO commissioned this assessment as a measure of diligence in maintaining compliance with provincial regulations pertaining to the identification of designated substances and hazardous materials prior to demolition activities and the Canadian Occupational Health and Safety Regulations as this is a federal site.

Port Weller Search and Rescue Station is located in Port Weller, Ontario and consists of six (6) buildings. Stantec assessed the north storage shed and north storage bin as part of this assessment. The typical structural components and finishes associated with the north storage shed consist of vinyl and wood siding, vinyl sheet flooring and shingled roof. The north storage bin consists of a metal sided storage bin.

Stantec reviewed the previous report(s) outlined herein for information purposes only. Although the information provided in the documentation was reviewed and considered in developing our sampling plan, Stantec did not rely on the documentation or the sample analytical results within.

The following documentation was reviewed prior to undertaking the assessment:

- *Project-Specific Designated Substances Survey, Search and Rescue Station, Port Weller, Ontario*, dated February 21, 2018, and prepared DST Consulting Engineers.

3.0 Designated Substances and Hazardous Building Materials Assessment

This report reflects the observations made within accessed areas and the results of analyses performed on specific materials sampled, as indicated herein. Analytical results reflect the sampled materials at the specific sampling locations.

Sampling was conducted pertaining to suspected ACMs and suspected lead-containing paints (LCPs) only. The assessment for the presence of other designated substances and hazardous building materials was visual in nature and was conducted pertaining to readily visible surfaces within accessible spaces only.

The results of the assessment for each of the considered designated substances and hazardous materials are provided in the following sub-sections Refer to **Appendix A** for regulatory framework and relevant legislation with respect to designated substances and hazardous building materials. Selected site photographs are provided in **Appendix B**.

3.1 ASBESTOS

3.1.1 Methodology

It is Stantec's understanding that the buildings were constructed prior to1990. This construction time period is consistent with those dates when asbestos-containing building materials were commonly used.

A visual assessment of accessible areas was undertaken in order to check for the presence of materials suspected of containing asbestos. Locations to collect discrete bulk asbestos samples of suspect building materials were identified. Samples of representative materials were then collected at these locations. Samples were collected in accordance with the minimum sampling requirements for homogeneous materials set out in table 1 in O. Reg. 278/05.

A visual assessment of the condition and accessibility was completed for each occurrence of an ACM. The Public Services and Procurement Canada (PSPC) document entitled *Asbestos Management Standard* date June 2017 was used as the basis for the criteria that was applied in evaluating the presence of ACMs, where applicable.

Samples of suspect ACMs from various building materials were collected and submitted to EMSL Canada Inc. (EMSL), located in Mississauga, ON for analysis using Polarized Light Microscopy (PLM) with dispersion staining. The analysis was conducted following the U.S. EPA/600/R-93/116 Method. EMSL is certified under the National Voluntary Laboratory Accreditation Program (NVLAP) to perform asbestos analysis of bulk samples. ACMs in Ontario are defined as a material that contains 0.5 per cent or more asbestos by dry weight.

A positive stop option was used during the analysis of samples. Multiple samples of visually similar material were collected and submitted for laboratory analysis. Once a sample within the set was identified to contain asbestos, further analysis of the subsequent samples was deemed to be unnecessary and not conducted.

3.1.2 Findings

A summary list of the bulk samples collected during this assessment and confirmed to be ACM or non-ACMs by laboratory analysis is provided in the table below.

Table 2: Summary of Results of Analysis of Bulk Samples for Asbestos

Sample Number	Sampling Location	Description	Asbestos Content
BS-01A	North Storage Shed - interior	Interior Door Caulking - Grey	None Detected
BS-01B	North Storage Shed - interior	Interior Door Caulking - Grey	None Detected
BS-01C	North Storage Shed - interior	Interior Door Caulking - Grey	None Detected
BS-02A-FIBER	North Storage Shed - interior	Vinyl Sheet Flooring - Grey	None Detected
BS-02A-VINYL SHEET FLOORING	North Storage Shed - interior	Vinyl Sheet Flooring - Grey	None Detected

Table 2: Summary of Results of Analysis of Bulk Samples for Asbestos

Sample Number	Sampling Location	Description	Asbestos Content
BS-02B-FIBER	North Storage Shed - interior	Vinyl Sheet Flooring - Grey	None Detected
BS-02B-VINYL SHEET FLOORING	North Storage Shed - interior	Vinyl Sheet Flooring - Grey	None Detected
BS-02C-FIBER	North Storage Shed - interior	Vinyl Sheet Flooring - Grey	None Detected
BS-02C-VINYL SHEET FLOORING	North Storage Shed - interior	Vinyl Sheet Flooring - Grey	None Detected
BS-03A	North Storage Shed - Roof	Roofing Materials - Shingles	None Detected
BS-03B	North Storage Shed - Roof	Roofing Materials - Shingles	None Detected
BS-03C	North Storage Shed - Roof	Roofing Materials - Shingles	None Detected
BS04A	North Storage Bin	Exterior Caulking - Grey	None Detected
BS04B	North Storage Bin	Exterior Caulking - Grey	None Detected
BS04C	North Storage Bin	Exterior Caulking - Grey	None Detected

Floor plans showing the locations of bulk samples are provided in **Appendix C**. A copy of the laboratory Certificate of Analysis is provided in **Appendix D**. The evaluation criterion for assessing ACMs is provided in **Appendix F**.

3.1.2.1 Friable Asbestos-Containing Materials

Friable building materials suspected to be asbestos-containing were identified by laboratory analysis to be non-asbestos-containing.

3.1.2.2 Non-Friable Asbestos-Containing Materials

Non-friable building materials suspected to be asbestos-containing were identified by laboratory analysis to be non-asbestos-containing.

3.1.2.3 Presumed Asbestos-Containing Materials

Presumed asbestos-containing building materials were not observed to be present.

3.1.2.4 Potential for Vermiculite Insulation

Based on building construction vermiculite is not suspected to be present.

3.1.3 Recommendations

No further actions are required as asbestos-containing materials were not identified.

Should a material suspected to contain asbestos fibres become uncovered during demolition activities, all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if asbestos fibres are present. Confirmed asbestos materials should be handled accordingly in accordance with O. Reg 278/05.

3.2 LEAD

3.2.1 Methodology

A visual assessment of accessible areas was undertaken in order to check for the presence of materials that may contain lead. These materials included paint applications, wiring and plumbing etc.

Representative paint samples were collected and submitted to EMSL Canada Inc. (EMSL) located in Mississauga, Ontario for lead content analysis by Flame Atomic Absorption Spectrophotometry, following US EPA Method No. 7420.

The sampling of paint applications involved the collection of paint chip samples of paint layers to the substrate. A minimum volume of 5 cc or ½ teaspoon of paint chips was typically collected. Wherever necessary and possible, paint was separated from any backing material such as paper, concrete or wood and placed in a sealed clearly labelled plastic bag.

Samples of paint applications suspected to contain lead were collected from surfaces of major paint applications where visually different paint colours and/or types were identified. Although the surfaces where samples were collected may be covered with more than one coat of paint, the paint samples are described by the surface (visible) colour only. Attempts were made to represent all layers of paint in the samples collected. As analytical results are referenced to the surface paint colour only, the lead content of all painted surfaces similar to that represented by the surface paint colour will be presumed to be the same, regardless of differing sub surface paints, if any.

3.2.2 Findings

A summary list of the samples collected including a description of the samples, sampling locations and laboratory analytical results is provided in the table below.

Table 3: Summary of Results of Analysis of Paint Chip Samples for Lead

Sample Number	Sampling Location	Description	Lead Content (ppm)
PS-01	North Storage Shed, Exterior Wall	White Coloured Paint	<86 ppm

The sampling locations are indicated on the floor plans provided in **Appendix C**. A copy of the laboratory Certificate of Analysis for the paint chip testing is included in **Appendix E**.

One sample of a paint application was collected in the form of paint chip sample and submitted to EMSL for lead content analysis. PWGSC uses 90 ppm as the criteria to manage paint applications as lead-containing paints.

Based on the laboratory results, the white coloured paint on the walls of the north storage shed was identified to have a lead concentration of <0.86 ppm.

3.2.3 Recommendations

Lead containing paint applications were not identified. No recommendations are provided.

3.3 MERCURY

3.3.1 Methodology

An assessment for equipment, which is likely to contain mercury, was completed. Information on the type of equipment (i.e., gauges, switches, batteries, thermometers, etc.), model and serial numbers and quantities was recorded, where available.

3.3.2 Findings

Mercury vapour is likely to be present in the eight fluorescent light tubes observed.

3.3.3 Recommendations

Mercury vapour within light fixtures poses no risk to workers or occupants provided the mercury containers remain intact and undisturbed. Complete removal of mercury-containing equipment is required prior to demolition activities. Prior to demolition work, the light tubes must be removed and disposed of following the requirements of *R.R.O. 1990, Regulation 347 General - Waste Management,* as amended (R.R.O. 1990, Reg. 347) under the EPA.

3.4 SILICA

3.4.1 Methodology

An assessment for the presence of silica was conducted. The presence of silica in building materials such as concrete, masonry, stone, terrazzo, refractory brick, ceramic tile, ceiling tile etc. was noted.

3.4.2 Findings

Silica is expected to be present in concrete observed.

3.4.3 Recommendations

The Guideline: *Silica on Construction Projects* issued by the MOL, dated April 20111 outlines: legal requirements, health effects, controlling the silica hazard, classification on work and measures, and

procedures for working with silica and should be followed during disturbance of silica-containing materials.

The Guideline defines the classification of work. It is the classification of the work that determines the appropriate respirators, measures and procedures that should be followed to protect the worker from silica exposure. In the guideline, silica-containing construction operations are classified into three groups, Type 1, Type 2, and Type 3 operations, and can be thought of as being of low, medium, and high risk. From Type 1 to Type 3 operations, the corresponding respirator, and measures and procedures become increasingly stringent.

Precautions should be taken as required during renovation projects impacting materials expected to contain silica (i.e., coring through concrete slabs, demolition of masonry or concrete units, ceramic tiles, brick, etc.) where dust may be generated. Whenever practical changing how a process is preformed to lower the silica exposure is preferable. Wet methods reduce dust and should be used whenever practical, particularly in cutting, grinding, and drilling operations.

Silica is included in O. Reg. 490/09 and the regulation provides information on the application of the regulation as well as allowable exposure levels, where the maximum TWA for respirable airborne silica (cristobalite) dust is 0.05 mg/m^3 and 0.01 mg/m^3 for quartz/Tripoli. However, the more stringent level of 0.025 mg/m^3 for respirable crystalline silica (quartz, cristobalite) applies as noted in the ACGIH 2018 TLVs for Chemical Substances and Physical Agents. The assessment and control program and medical surveillance requirements are for non-construction projects as defined in O. Reg. 490/09.

3.5 POLYCHLORINATED BIPHENYLS

3.5.1 Methodology

A visual review for the presence of PCBs in electrical equipment was completed. Equipment that is generally suspected of containing PCBs includes lamp ballasts, transformers, hydraulic systems, compressors, switchgear, and capacitors.

Due to height restrictions and the risk of electrical shock in handling operational light fixtures, the ballasts present in the fixtures observed, were not inspected for PCB labels or other PCB identifiers. Conclusions and recommendations regarding the presence of PCBs are based on limited observations and information provided regarding lighting renovations and is presented to provide guidance regarding the likelihood that PCB-containing equipment is or is not present. The exact extent and/or number of fluorescent lamp ballasts containing PCBs, if any, will not be commented on.

3.5.2 Findings

PCBs may be present in the fluorescent light ballasts of the four light fixtures observed. As the ballasts were energized, they could not be inspected at the time of the assessment for health and safety reasons.

Polychlorinated Biphenyls may also be present in plastics, applied dried paints, coatings or sealants, caulking, adhesives, paper or insulation. These are not expected to be of concern during the demolition.

3.5.3 Recommendations

When decommissioned, verify the PCB content of fluorescent lamp ballasts as per the Environment Canada publication *Identification of Lamp Ballasts Containing PCBs*, 1991. Handle, store and dispose of PCB-containing ballasts in accordance with *Federal Regulation SOR/2008-273*, under *Canadian Environmental Protection Act* (CEPA)

Should a material suspected to contain PCBs become uncovered during demolition activities (i.e., dielectric fluids, hydraulic fluids), all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if PCBs are present. Confirmed PCBs should be handled in accordance with *Federal Regulation SOR/2008-273*.

3.6 OZONE DEPLETING SUBSTANCES

3.6.1 Methodology

An assessment for equipment likely to contain ODSs was completed. Information on the type of equipment, manufacturer and type and quantity of refrigerants was recorded, where available.

3.6.2 Findings

Suspect building related cooling and refrigeration equipment suspected to be ODS-containing was not observed.

3.6.3 Recommendations

As evidence of suspect ODS-containing equipment was not observed, no recommendations have been provided.

3.7 MOULD

3.7.1 Methodology

An assessment for the potential presence of suspected visible mould and/or suitable conditions for mould growth (e.g., moist and/or water-stained building materials) was completed. This involved a visual assessment of accessible surfaces for obvious evidence of mould, moisture or water damage.

The conclusions made in this report provide description(s) of the potential source(s) of moisture that may have led to suitable conditions for mould growth, only in those cases where potential source(s) of moisture were identified. The visual assessment did not include an intrusive assessment. These conclusions will not necessarily identify all sources of moisture leading to suitable conditions for mould growth within the impacted area(s). This assessment does not constitute a building envelope/building systems assessment, which would include an intrusive investigation to assess the internal condition, potential moisture sources, and expected remaining service life of the various components and systems comprising the envelope of a building.

3.7.2 Findings

Suspect mould was not observed at the time of the assessment.

3.7.3 Recommendations

As evidence of mould was not observed at the time of the assessment no recommendations have been provided.

3.8 UREA FORMALDEHYDE FOAM INSULATION

3.8.1 Methodology

An assessment for the potential presence of UFFI was completed. This involved the assessment of exterior and interior walls for evidence of repaired openings (i.e., nozzle holes) made to facilitate the installation of the insulation. Wherever possible, an assessment of wall cavities through existing openings was made.

3.8.2 Findings

Evidence of the application of UFFI was not observed to be present.

3.8.3 Recommendations

As evidence of the application of UFFI was not observed, no recommendations have been provided.

3.9 RADIOACTIVE SOURCES

3.9.1 Methodology

An assessment for the presence of radioactive sources within smoke detectors was completed.

3.9.2 Findings

No smoke detectors were observed at the time of the assessment.

3.9.3 Recommendations

As evidence of radioactive sources was not observed, no recommendations have been provided.

3.10 OTHER DESIGNATED SUBSTANCES: ACRYLONITRILE, BENZENE, COKE OVEN EMISSIONS, ETHYLENE OXIDES, ISOCYANATE, VINYL CHLORIDE

3.10.1 Methodology

Designated substances including acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxides, isocyanates, and vinyl chloride are not typically a concern in building materials as they are bound in

manufactured products, and therefore these substances were not investigated. However, some common sources are shown below.

- Acrylonitrile may be present in stable form in paints and adhesives.
- Arsenic or arsenic compounds may be present in paints and adhesives.
- Benzene as a constituent of hydrocarbon-based mixtures and is present in a stable form in roofing materials, paints, and adhesives. Benzene in these forms is not expected to be of a worker exposure concern.
- Uncured Isocyanate may be present in paint finishes, varnishes, polyurethane plastics, synthetic rubbers, foams and adhesives.
- Vinyl chloride (monomer) is generally likely to be present in stable form within the PVC piping and conduits, where applicable.

3.10.2 Findings

Designated substances including acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxides, isocyanates, and vinyl chloride are not expected to be a concern in building materials,

3.10.3 Recommendations

No recommendations are required.

3.11 CHEMICAL, FUEL OIL AND/OR WASTE OIL STORAGE

3.11.1 Methodology

A visual assessment for chemical storage, fuel, oil and/or waste oil storage was conducted.

3.11.2 Findings

No evidence of underground storage tanks, significant chemical storage, or dumping was observed in the building assessed.

3.11.3 Recommendations

As no evidence of underground storage tanks, significant chemical storage, or dumping was observed, no recommendations are required.

3.12 ARSENIC

3.12.1 Methodology

A visual assessment for treated lumber that may contain arsenic was conducted.

3.12.2 Findings

Treated lumber applications associated with the building assessed were not observed.

3.12.3 Recommendations

As no evidence of lumber applications were observed. No recommendations are required.

3.13 CREOSOTE

3.13.1 Methodology

A visual assessment for lumber applications that may containing creosote was conducted.

3.13.2 Findings

Treated lumber applications associated with the buildings assessed were not observed.

3.13.3 Recommendations

As no evidence of lumber applications were observed. No recommendations are required.

4.0 Project-Specific Limitations

The assessment was limited the north storage shed and north storage bin. The remaining buildings were not assessed as they were previously assessed by DST in the report titled *Project-Specific Designated Substances Survey, Search and Rescue Station, Port Weller, Ontario,* and dated February 21, 2018.

5.0 Closure

This report has been prepared for the sole benefit of the Public Works and Government Services Canada and Fisheries and Oceans Canada. The report may not be used by any other person or entity without the express written consent of Stantec Consulting Ltd. and Public Works and Government Services Canada and Fisheries and Oceans Canada.

Any use which a third party makes of this report, or any reliance on decisions based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information and conclusions contained in this report are based upon work undertaken by trained professionals and technical staff in accordance with generally accepted engineering and scientific

practices current at the time the work was performed. Conclusions presented in this report should not be construed as legal advice.

The conclusions presented in this report represent the best technical judgment of Stantec Consulting Ltd. based on the data obtained from the work.

The conclusions are based on the site conditions encountered by Stantec Consulting Ltd. at the time the work was performed at the specific assessment and/or sampling locations and can only be extrapolated to an undefined limited area around these locations. The extent of the limited area depends on building construction and conditions, weather, building usage and other factors. Due to the nature of the investigation and the limited data available, Stantec Consulting Ltd. cannot warrant against undiscovered environmental liabilities.

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

We trust that the above is satisfactory for your purposes at this time. Should you have any questions or concerns, or require additional information, please do not hesitate to contact the Stantec Project Manager at your convenience.

This report was prepared by Michael Shortt and reviewed by Linda Fleet and Martin Ling.

Regards,

STANTEC CONSULTING LTD.

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Linda Fleet
Project Manager
Phone: (905) 415-6368
linda.fleet@stantec.com

Digitally signed by Martin Ling
Date: 2018.07.13 13:35:29 -04'00'

Martin Ling
Senior Reviewer
Phone: (905) 415-6386
martin.ling@stantec.com

Rob Robinson
2018.07.13
13:58:43 -04'00'

Rob Robinson, P.Eng.
Principal
Phone: (519) 780-8196
rob.robinson@stantec.com

MS/LF/ML/jt

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APPENDIX A
DESIGNATED SUBSTANCES AND HAZARDOUS BUILDING MATERIALS BACKGROUND INFORMATION AND REGULATORY FRAMEWORK

A.1 DESIGNATED SUBSTANCES

Asbestos

Asbestos is typically found in plaster, mechanical insulation, gaskets, thermal insulation on pipes, refractory material, roofing felts, floor tiles, ceiling tiles and parging, heat resistant panels, incandescent light fixture reflector plates, and any other material requiring a high degree of durability or thermal resistance. The common use of potential (breakable by hand) asbestos-containing materials (ACMs) in construction ceased voluntarily in the mid-1970s; however, the spray application of asbestos-containing fireproofing was not prohibited until 1986.

Asbestos-containing materials are grouped into two classifications, friable and non-friable materials. Friable ACMs are those that can easily be crumbled or broken apart by mere hand pressure. When these materials break apart asbestos fibres are then released into the atmosphere. Non-friable ACMs or "manufactured products" are materials that by the nature of their manufacturing/construction do not readily allow the release of asbestos fibres. These materials should not be cut or shaped with power tools, since this procedure may allow for the release of the asbestos fibres. Some materials or "manufactured products", such as plaster, drywall and ceiling tiles that are considered to be non-friable in an undisturbed state can become friable when damaged or disturbed. These are often referred to as "potentially" friable materials.

On Federal sites, asbestos requirements in the Canada Labour Code and Canada Occupational Health and Safety Regulations will apply.

Canada Labour Code (Part II) defines the requirements for an asbestos exposure control plan to be developed before undertaking any work activities that involves asbestos-containing materials. The Canada Labour Code *(Part II)* also stipulate the requirements for air monitoring during removal procedures.

Ontario Regulation 490/09 Designated Substances (O. Reg. 490/09), as amended, under the Ontario Occupational Health and Safety Act (OHSA) primarily regulates worker exposure to asbestos during manufacturing of asbestos-containing products, but also includes requirements related to respiratory equipment, measurement of airborne fibres, and medical surveillance of exposed workers.

Ontario Regulation R.R.O 1990, Regulation 833, Control of Exposure to Biological or Chemical Agents, as amended (R.R.O. 1990, Reg. 833) made under the OHSA, sets the same time weighted average limit (TWA) value based on 8-hour work days.

Ontario Regulation 278/05 Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations (O. Reg. 278/05), as amended, made under the OHSA defines an ACM as a material that contains 0.5% per cent or more asbestos by dry weight. Ontario Regulation 278/05 requires that an Asbestos Management Program (AMP) be implemented in buildings that have been identified to contain asbestos.

The general waste management regulation for the province of Ontario *R.R.O. 1990, Regulation 347 General - Waste Management,* as amended (R.R.O. 1990, Reg. 347) sets out the requirements for the proper disposal of asbestos waste in Ontario. The waste must be placed in a double sealed container, properly labelled, free of cuts, tears or punctures and disposed of at a licensed waste station which has been properly notified of the shipment(s) of asbestos waste. Asbestos waste must be hauled in a vehicle operating under a Certificate of Approval (CofA) from the Ontario Ministry of the Environment and Climate Change (MOECC). The vehicle must have a trained operator as well as an asbestos spill kit. The asbestos waste must be immediately buried at the licensed landfill operation operating under a CofA from the MOECC.

The transport of asbestos waste to the disposal site is covered by the federal *Transportation of Dangerous Goods Act.* Asbestos waste is to be transported in a proper vehicle with appropriate placards and transportation numbering.

Lead

Lead may be used in its pure metallic form or combined chemically with other elements to form lead compounds. Metallic lead is used to make products such as electric storage batteries, ammunition, lead solder, radiation shields, pipes, and sheaths for electric cables. Metallic lead is sometimes combined with other metals such as copper, tin and antimony as lead alloys for use in the manufacture of a variety of metal products.

Organic lead compounds contain a lead atom covalently bonded to carbon. Common examples of organic lead compounds include lead “soaps” such as lead oleates, high pressure lubricants, and anti-knock agents in gasoline.

Inorganic lead compounds (or lead salts) result when lead is combined with an element other than carbon. Examples are lead oxide, lead chromate, lead carbonate and lead nitrate. Inorganic lead compounds may occur as solids or in solutions, and are used in insecticides, pigments, paints, frits, glasses, plastics, and rubber compounds.

Lead may affect the health of workers if it is in a form that may be inhaled, ingested or absorbed through the skin. Lead dust consists of small, solid particles of metallic lead or lead compounds that are generated by sanding, grinding, polishing, and sawing operations. Lead fume is produced in significant amounts when solid lead or materials containing lead are heated to temperatures above 500^{o} C, as in welding and flame cutting or burning.

The United States Department of Housing and Urban Development (HUD) set a criteria of lead-based paint as 0.5% lead (by weight) or 5,000 parts per million (ppm) for evaluating whether lead is a hazard in a residential setting.

In Canada, the *Surface Coating Materials Regulations* (SOR/2005-109) under the *Canada Consumer Product Safety Act* provides a concentration of lead that must not be exceeded in surface coatings that

are presently sold in this country. This value has recently been reduced from 600 ppm to 90 ppm. However, it is important to note that there is not a direct correlation between the concentration of lead in a material to the potential occupational exposure if the material is disturbed.

O. Reg. 490/09 (which does not apply to construction projects) and R.R.O. 1990 Reg. 833, an occupational exposure limit (OEL) for airborne lead dust or fumes has been set at the TWA value of 0.05 milligram per cubic metre of air (mg/m^3) for workers. The TWA represents the time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse health effects.

The EACO document entitled *Lead Guideline for Construction, Renovation* Maintenance or Repair, issued October 2014 sets out guidelines for operations involving the handling, application, removal, disturbance of clean-up of lead-containing materials. The guideline is intended for the environmental abatement industry, construction industry and painting industry in general and is based on industry standard best-practices for lead abatement and dust control measures.

The Ontario Ministry of Labour (MOL) document entitled *Guideline: Lead on Construction Projects,* issued by the MOL in April 2011, states that the removal of lead paint is not required unless work on these materials are likely to produce airborne lead dust or fumes, for example during welding, torch cutting, sanding and sand blasting. If these operations are likely to occur during building renovations or demolition, it is recommended that the removal of lead paint be carried out in accordance with procedures outlined in the proposed regulation.

Although the TWA and some other requirements under O. Reg. 490/09 and R.R.O. 1990 Reg. 833 do not apply to construction projects, procedures that provide the equivalent level of protection should be implemented on such projects where exposure to lead is possible.

Mercury

Mercury is commonly found in buildings, as it is contained in mercury vapour lighting, thermostats, thermometers, and electrical mercury switches. If mercury is exposed to the air, odourless vapours are formed. The regulated occupational exposure limit for airborne mercury is 0.025 mg/ m^3 (8-hour TWA) as prescribed in (O. Reg. 490/09) and R.R.O. 1990 Reg. 833.

In Canada, the *Surface Coating Materials Regulations* (SOR/2005-109) under the Federal Hazardous Products Act provides a concentration of mercury that must not be exceeded in surface coatings that are presently sold in this country. This value was set at 10 ppm in 2005. However, it is important to note that there is not a direct correlation between the concentration of mercury in a material to the potential occupational exposure if the material is disturbed.

Mercury is hazardous if it is inhaled or absorbed through the skin, therefore exposure controls (including both respiratory protection and skin protection) are important to consider.

Mercury disposal should be through a scrap dealer (elemental mercury), recycling firm for mercury vapour and returned to the manufacturer for light tubes and fixtures.

Mercury is included in O. Reg. 490/09 and applies to every employer and worker at a workplace where mercury is present, produced, processed, used, handled, or stored and at which the worker is likely to inhale, ingest, or absorb mercury (the maximum TWA for airborne mercury is 0.025 mg/ m^3). Requirements related to exposure to mercury are detailed, including those relating to worker safety and the use of personal protective equipment.

Ontario's Waste Management (R.R.O. 1990, Reg. 347) under the *Environmental Protection Act* (EPA) provides directives for the disposal of hazardous materials such as mercury.

Silica

Silica, also referred to as free crystalline silica, is found in concrete, cement, mortar, ceramic wall and floor tiles, stucco finishes and acoustic ceiling tiles. Prolonged exposure to, and inhalation of free crystalline silica, may result in respiratory disease known as silicosis, which is characterized by progressive fibrosis of the inner lung tissue and marked shortness of breath or impaired lung function. The maximum TWA for airborne Silica dust is 0.05 mg/ m^3 (O. Reg. 490/09 and R.R.O. 1990, Reg. 833).

Silica is included in O. Reg. 490/09 and the regulation provides information on the application of the regulation as well as allowable exposure levels, where the maximum TWA for airborne Silica dust is 0.05 mg/ m^3. The assessment and control program and medical surveillance requirements are for non-construction projects as defined in O. Reg. 490/09. Refer to the document entitled *Guideline: Silica on Construction Projects,* issued by the MOL in April 2011 for safe silica work practices and personal protective equipment (PPE).

Acrylonitrile

Acrylonitrile is a clear liquid that may be colourless or yellow and that readily reacts with other chemicals to produce long, chain-like molecules (polymers). Acrylonitrile-based polymers are used to produce nitrile rubbers, plastics, acrylic fibres, coatings and adhesives. Workers are typically exposed to acrylonitrile at manufacturing facilities that produce the aforementioned products through inhaling its vapour, direct skin contact, or through ingestion. Although acrylonitrile may be present in some of the building materials, including adhesives and coatings, the chemical will likely be bonded in the polymer form. Therefore, it is not expected that an adverse exposure to acrylonitrile will occur unless the building materials are heated to extreme temperatures. Acrylonitrile vapours may become released from the acrylonitrile-based polymers during a process where high temperatures are applied.

The TWA for a worker with respect to Acrylonitrile is 2 ppm as prescribed in O. Reg. 490/09 and R.R.O. 1990 Reg. 833. The Short term Exposure Limit (STEL) for Acrylonitrile is 10 ppm for any 15-minute exposure period.

Arsenic

The presence of arsenic in the paint coating on interior and exterior finishes is possible. As the painted surfaces will be handled as per the proposed lead regulation, it is not expected that arsenic concentrations in the air will exceed the TWA for a worker to arsenic (10 µg/m^3) as prescribed by O. Reg. 490/09 and R.R.O. 1990, Reg. 833. The STEL for arsenic is 50 µg/m^3 for any 15-minute exposure period.

Benzene

Historically, benzene has been produced as a by-product of coal gasification and metallurgical coke production in steel making. The light oil product from such processes contains benzene, toluene, ethyl benzene and xylene, and these components are separated by distillation. Today, most benzene is produced from the refining of petroleum.

Benzene has applications as a solvent in synthetic rubber manufacturing and processing, and in paints, varnishes, stains, adhesives, roofing materials and sealants. The use of benzene in tire and other rubber goods manufacturing and as a solvent and component of paints and adhesives has declined considerably as a result of concerns about workplace exposure. Nevertheless, it is often present in trace quantities in petroleum and aromatic solvents, some of which have replaced benzene in many uses. Benzene is also a minor component of gasoline mixtures sold in Canada.

The TWA for a worker to benzene is 0.5 ppm as prescribed by O. Reg. 490/09 and R.R.O. 1990, Reg. 833. It is possible that benzene was present in the paints, adhesives and roofing materials used during the original construction of many buildings. However, over time, the benzene component typically volatilizes out of the paints, solvents and roofing bitumens and is released into the ambient air. Therefore, it is likely that only trace levels of benzene presently exist in these building materials. It is not expected that benzene emissions from any existing building materials on site will exceed the allowable TWA. The STEL for benzene is 2.5 ppm for any 15-minute exposure period.

Coke Oven Emissions

Coke oven emissions are found in the exhaust from the burning process of coke, and are typically not a concern in buildings. The TWA for a worker with respect to coke oven emissions is 150 µg/m^3 as prescribed by O. Reg. 490/09 and R.R.O. 1990, Reg. 833.

Ethylene Oxides

Ethylene oxide is a common by product of fumigation or sterilization procedures.

The TWA for a worker with respect to ethylene oxides is 1 ppm as prescribed in O. Reg. 490/09 and R.R.O. 1990, Reg. 833. The STEL for ethylene oxides is 10 ppm for any 15-minute exposure period.

Isocyanates

Isocyanates are a class of chemicals used in the manufacture of certain types of plastics, foams and roof insulation. The isocyanate (-CNO) group reacts very readily with certain other types of molecules, a property responsible for the usefulness of isocyanates in industry. Due to the high reactivity of the isocyanate group, exposure to isocyanates can result in primary irritation, sensitization and hypersensitivity reactions. The respiratory system, the eyes and the skin are the main areas affected by exposure. Isocyanates in their initial form are found as a vapour, a mist, or a dust which become airborne and then taken into the body. Once the isocyanates are chemically bonded to other chemicals during manufacturing processes, the isocyanates are not readily available to become airborne unless heated. Therefore, isocyanate exposure is not expected to be a concern as long as the burning of plastics, foams, and insulation is not carried out.

The TWA for a worker with respect to isocyanates, organic compounds is 5 parts per billion (ppb) as prescribed in O. Reg. 490/09 and R.R.O. 1990, Reg. 833. The STEL for isocyanates, organic compounds is 20 ppb for any 15-minute exposure period.

Vinyl Chloride

Vinyl chloride is found in many applications in building such as plumbing pipes, protective coatings on insulated pipes and interior finishes (i.e., vinyl baseboard trim). Vinyl chlorides in the above materials are bound in a solid matrix and are unlikely to become airborne such that it would exceed the maximum allowable TWA of 1 ppm, as prescribed in O. Reg. 490/09 and R.R.O. 1990, Reg. 833.

A.2 HAZARDOUS BUILDING MATERIALS

Polychlorinated Biphenyls (PCBs)

The use of PCBs in electrical equipment such as transformers and capacitors, including capacitors found in fluorescent lamp ballasts, was common up to 1980. R.R.O 1990 Regulation 362 Waste Management – PCB's (R.R.O. 1990, Reg. 362) under the EPA, prohibits the use of PCBs in electrical equipment installed after July 1, 1980.

The TWA for a worker with respect to PCBs is 0.05 mg/ m^3as prescribed in R.R.O. 1990, Reg. 833.

As of September 5, 2008, under Subsection 93(1) of the *Canadian Environmental Protection Act,* (CEPA), Federal PCB regulations have been published by the Canada Gazette Part II (SOR/2008-273) that impose specific deadlines for the elimination of all PCBs in concentrations at or above 50 milligrams/kilogram (mg/kg). The regulation requires the elimination of all PCBs and PCB-containing materials currently in-use and in storage and limits the period of time PCB materials can be stored before being eliminated. Other aspects of the regulation govern the labelling and reporting of stored PCB materials and equipment as well as improved practices for the management of PCBs that remain in use (i.e., those with PCB concentrations less than 50 mg/kg) until their eventual elimination.

Ozone-Depleting Substances

Ozone-depleting substances (ODSs) are chemical agents known as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) used in various refrigeration equipment including air-conditioning, heat pump, refrigeration or freezer units. They have also been used in solvents, as aerosol additives in the production of foam insulation and in fire extinguishing equipment. The use of refrigerants (including those that are ODSs or contain ODSs) is regulated by Ontario Regulation 463/10, *Ozone Depleting Substances and Other Halocarbons* (O. Reg. 463/10), under the EPA. The regulation imposes restrictions on the purchasing of refrigerants and on the servicing, dismantling, disposing of or decommissioning of equipment containing refrigerants or halon fire extinguishing agents.

On federal land, aboriginal land and federal works, buildings and undertakings, *Federal Halocarbon Regulation 2003* (SOR/2003-289) applies. All other buildings and uses of refrigerants and other agents are under the *Ozone-Depleting Substances Regulations 1998* (SOR/99-7), under CEPA. The regulations prohibit the release of halocarbons contained in refrigeration systems, air conditioning systems, fire extinguishers (except to fight a fire that is not a fire caused for training purposes) or containers or equipment used in the re-use, recycling, reclamation or storage of a halocarbon.

The regulations also imposes restrictions on the servicing and dismantling, disposing of or decommissioning of any system containing halocarbons and requires the recovery of halocarbons into an appropriate container by a certified individual. The regulation also details an owner's record-keeping obligations.

Mould

Mould can be found everywhere in the outside environment, on plants, in soil and on dead and decaying matter (i.e., dead leaves). Mould requires two main conditions in order to grow - a source of food (a substrate typically comprised of cellulose) and water. Sources of food for mould are plentiful in outdoor and indoor environments; however it is the presence of water in an indoor environment that will determine mould growth. The source of water can be a result of a water pipe leak or even excess condensation. Thus, the key to controlling mould indoors is to control the presence of water.

At present, there are no specific laws or regulations governing acceptable levels of mould in buildings. The lack of specific regulatory standards is due in part to an inability to establish exposure-response relationships. Variation in individual susceptibility, limitations in sampling and analytical techniques, and the vast number of fungal agents and their products make it difficult to establish safe levels of exposure for all individuals. With a lack of defined exposure criteria, current Health Canada and other agency guidelines on the assessment and control of mould contamination in public buildings are largely based on prudent avoidance (i.e., remove any indoor growth or amplification site of mould, regardless of the concentration of moulds or their products in the indoor environment).

Although there are currently no regulations in Canada pertaining specifically to mould in buildings, based on an Ontario MOL alert, employers are required by Section 25(2)(h) of the Occupational Health and Safety Act to take every precaution reasonable in the circumstances for the protection of workers.

The OHSA places a responsibility on constructors (Section 23), employers (Section 25), and supervisors (Section 27) to ensure the health and safety of workers. This includes protecting workers from mould in workplace buildings. Various sections of the Industrial, Construction, Mining or Health Care regulations may also apply to maintenance and remediation activities.

The Ontario MOL has published an Alert (MOL, 2000) indicating that sustained and/or extensive growth of visible mould on interior surfaces of a building is unacceptable and stating that mould growth on the interior surfaces of buildings is a risk factor for health problems.

Several guidelines and other resources describe procedures for the investigation and remediation of mould. The following documents indicate that mould observed in occupied building should be remediated in accordance with these procedures:

- *Environmental Abatement Council of Ontario's (EACO) Mould Abatement Guidelines,* 2010 – Edition 2;
- *Mould Guidelines for The Canadian Construction Industry,* Canadian Construction Association – 82, 2004;
- *Guidelines on Assessment and Remediation of Fungi in Indoor Environment,* New York City Department of Health and Mental Hygiene, November 2008;
- *Bioaerosols: Assessment and Control,* American Conference of Governmental Industrial Hygienists (ACGIH), 1999;
- *Fungal Contamination in Public Buildings: Health Effects and Investigation Methods,* Federal-Provincial Committee on Environmental and Occupational Health, 2004;
- *Field Guide for the Determination of Biological Contaminants in Environmental Samples,* American Industrial Hygiene Association (AIHA), 1996; and,
- *Clean-Up Procedures for Mould in Houses,* Canada Mortgage and Housing Corporation (CMHC), 2004.

Urea Formaldehyde Foam Insulation

Urea-formaldehyde foam insulation (UFFI) was developed in Europe in the 1950s as an improved means of insulating difficult-to-reach cavities in building walls. It is typically made at a construction site from a mixture of urea-formaldehyde resin, a foaming agent and compressed air. When the mixture is injected into the wall, urea and formaldehyde unite and "cure" into an insulating foam plastic.

During the 1970s, when concerns about energy efficiency led to efforts to improve home insulation in Canada, UFFI became an important insulation product for existing houses. Most installations occurred between 1977 and its ban in Canada in 1980.

In the insulating process, a slight excess of formaldehyde was often added to ensure complete "curing" with the urea to produce the urea-formaldehyde foam. Formaldehyde is a pungent, colourless gas commonly used in water solution as a preservative and disinfectant. It is also a basis for major plastics, including durable adhesives. It occurs naturally in the human body and in the outdoor environment. Formaldehyde is used to bond plywood, particleboard, carpets and fabrics. Formaldehyde is also a by-product of combustion; it is found in tobacco smoke, vehicle exhaust and the fumes from furnaces, fireplaces and wood stoves.

While small amounts of formaldehyde are harmless, it is an irritating and toxic gas in significant concentrations. Symptoms of overexposure to formaldehyde include irritation to eyes, nose and throat; persistent cough and respiratory distress; skin irritation; nausea; headache; and dizziness.

Health Canada has determined that 0.1 parts per million (ppm) is a safe level of formaldehyde in the home. Sensitivity to this level may vary based on individual age and health.

Tests show that UFFI is not a source of over-exposure to formaldehyde after the initial curing and release of excess gas. As it was last installed in 1980, it would certainly not be causing excess indoor formaldehyde today. Buildings with UFFI show no higher formaldehyde levels than those without it. However, if UFFI comes in contact with water or moisture, it could begin to break down. Wet or deteriorating UFFI should be removed by a specialist and the source of the moisture problem should be repaired.

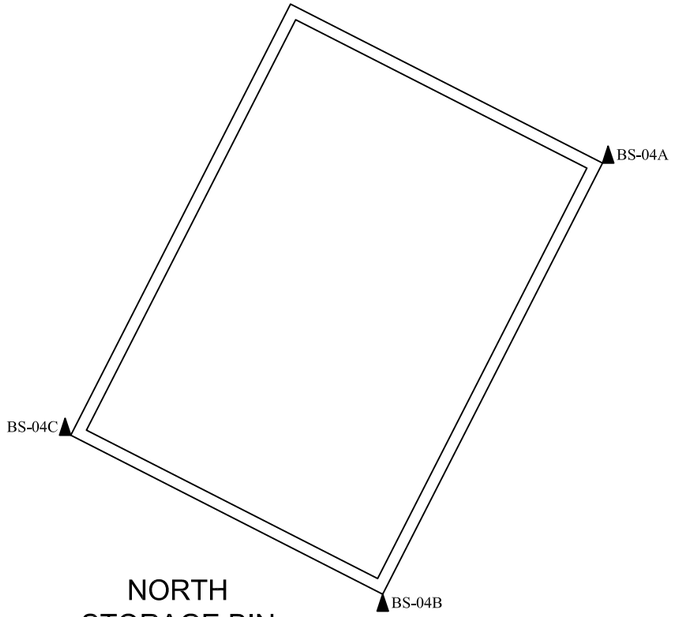
There are currently no regulations in Canada pertaining specifically to UFFI in buildings. However, the Occupational Health and Safety Act places a responsibility on constructors (Section 23), employers (Section 25), and supervisors (Section 27) to ensure the health and safety of workers.

APPENDIX B
SITE PHOTOGRAPHS

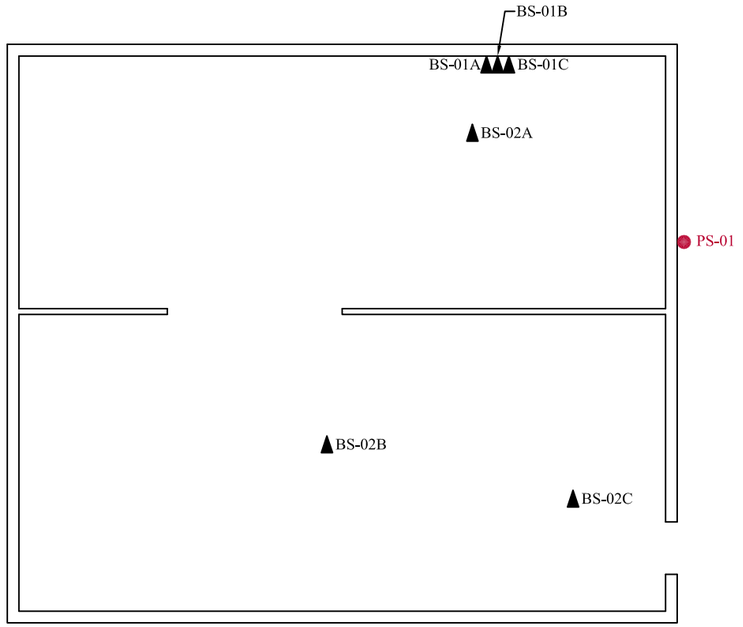
LOCATION	DESCRIPTION	PHOTOGRAPHS
North Storage Shed	• General view of North Storage Shed • Non-asbestos containing roofing materials-shingles • Sample BS-03A	
North Storage Shed	• Non-asbestos-containing Interior door caulking – grey • Samples BS-01A-C	
North Storage Shed	• General view of North Storage Shed • Non-asbestos-containing vinyl sheet flooring -grey • Samples BS-02A-C	

LOCATION	DESCRIPTION	PHOTOGRAPHS
North Storage Bin	• General view of North Storage Bin	
North Storage Bin	• Non-asbestos-containing exterior caulking - grey • Samples BS-04A-C	

APPENDIX C
FLOOR PLANS



NORTH
STORAGE BIN



NORTH STORAGE SHED

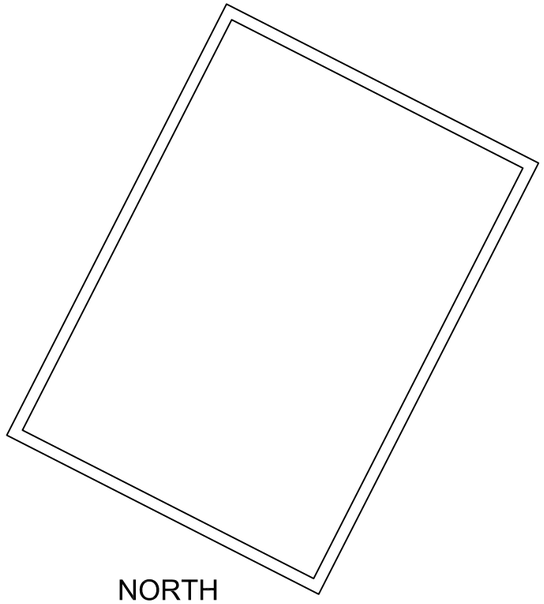
LEGEND

- BULK SAMPLE
- PAINT CHIP SAMPLE

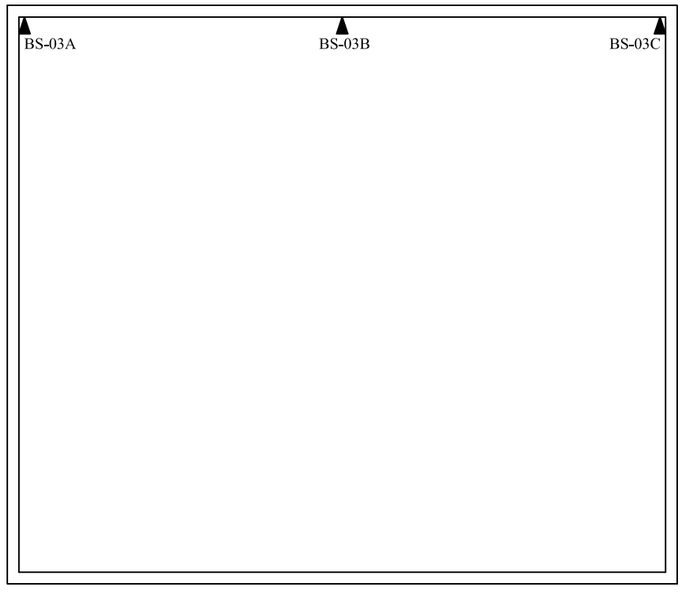
NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Reference:	**Project No.:** 122150683.000	**Client:** PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	FLOOR PLAN	**Dwg. No.:** 1
	Scale: N.T.S.			
	Date: 18/06/08	**Site Address** PORT WELLER SEARCH AND RESCUE STATION PORT WELLER, ONTARIO		
	Dwn. By: CD PK SL2018060091			
	App'd By: LF			

Stantec Consulting Ltd. © 2018



NORTH
STORAGE BIN - ROOF



NORTH STORAGE SHED - ROOF

LEGEND

▲ BULK SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Reference:	**Project No.:** 122150683.000 **Scale:** N.T.S. **Date:** 18/06/08 **Dwn. By:** CD PK SL2018060092 **App'd By:** LF	**Client:** PUBLIC WORKS AND GOVERNMENT SERVICES CANADA **Site Address** PORT WELLER SEARCH AND RESCUE STATION PORT WELLER, ONTARIO	ROOF PLAN	**Dwg. No.:** 2	Stantec

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APPENDIX D
LABORATORY ANALYTICAL REPORT – ASBESTOS: POLARIZED LIGHT MICROSCOPY

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 551806203
Customer ID: 55JACQ30J
Customer PO: 122150683
Project ID:

Attn: Michael Shortt
Stantec Consulting Ltd.
300-675 Cochrane Drive, West Tower
Markham, ON L3R 0B8

Phone: (905) 474-7700
Fax: (905) 479-9326
Collected: 5/29/2018
Received: 5/29/2018
Analyzed: 6/01/2018

Proj: 122150683 Port Weller

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

Client Sample ID: BS-01A ***Lab Sample ID:*** **551806203-0001**
Sample Description: North Storage Shed - Interior Door Caulking - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Gray	0.0%	100%	None Detected	

Client Sample ID: BS-01B ***Lab Sample ID:*** **551806203-0002**
Sample Description: North Storage Shed - Interior Door Caulking - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Gray	0.0%	100%	None Detected	

Client Sample ID: BS-01C ***Lab Sample ID:*** **551806203-0003**
Sample Description: North Storage Shed - Interior Door Caulking - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Gray	0.0%	100%	None Detected	

Client Sample ID: BS-02A-Vinyl Sheet Flooring ***Lab Sample ID:*** **551806203-0004**
Sample Description: North Storage Shed - Vinyl Sheet Flooring - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Green	0.0%	100%	None Detected	

Client Sample ID: BS-02A-Fiber ***Lab Sample ID:*** **551806203-0004A**
Sample Description: North Storage Shed - Vinyl Sheet Flooring - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Yellow	0.0%	100%	None Detected	

Client Sample ID: BS-02B-Vinyl Sheet Flooring ***Lab Sample ID:*** **551806203-0005**
Sample Description: North Storage Shed - Vinyl Sheet Flooring - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Green	0.0%	100%	None Detected	

Client Sample ID: BS-02B-Fiber ***Lab Sample ID:*** **551806203-0005A**
Sample Description: North Storage Shed - Vinyl Sheet Flooring - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Yellow	0.0%	100%	None Detected	

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 551806203
Customer ID: 55JACQ30J
Customer PO: 122150683
Project ID:

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

Client Sample ID: BS-02C-Vinyl Sheet Flooring ***Lab Sample ID:*** **551806203-0006**

Sample Description: North Storage Shed - Vinyl Sheet Flooring - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Green	0.0%	100%	None Detected	

Client Sample ID: BS-02C-Fiber ***Lab Sample ID:*** **551806203-0006A**

Sample Description: North Storage Shed - Vinyl Sheet Flooring - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Yellow	0.0%	100%	None Detected	

Client Sample ID: BS-03A ***Lab Sample ID:*** **551806203-0007**

Sample Description: North Storage Shed - Roofing Materials - Shingles

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Black	0.0%	100%	None Detected	

Client Sample ID: BS-03B ***Lab Sample ID:*** **551806203-0008**

Sample Description: North Storage Shed - Roofing Materials - Shingles

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Black	0.0%	100%	None Detected	

Client Sample ID: BS-03C ***Lab Sample ID:*** **551806203-0009**

Sample Description: North Storage Shed - Roofing Materials - Shingles

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Black	0.0%	100%	None Detected	

Client Sample ID: BS-04A ***Lab Sample ID:*** **551806203-0010**

Sample Description: North Storage Bin - Exterior Caulking - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Gray	0.0%	100%	None Detected	

Client Sample ID: BS-04B ***Lab Sample ID:*** **551806203-0011**

Sample Description: North Storage Bin - Exterior Caulking - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Gray	0.0%	100%	None Detected	

Client Sample ID: BS-04C ***Lab Sample ID:*** **551806203-0012**

Sample Description: North Storage Bin - Exterior Caulking - Grey

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	6/01/2018	Gray	0.0%	100%	None Detected	

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

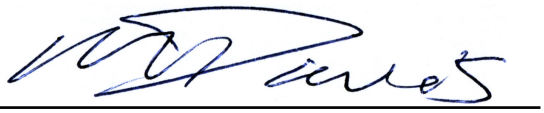
EMSL Canada Order 551806203
Customer ID: 55JACQ30J
Customer PO: 122150683
Project ID:

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

Analyst(s):

Anne Balayboa	PLM Grav. Reduction (5)
Natalie D'Amico	PLM Grav. Reduction (10)

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 of the U.S. Government.

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

Initial report from: 06/01/201817:39:38

APPENDIX E
LABORATORY ANALYTICAL REPORT – LEAD: PAINT CHIP ANALYSIS

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	551806216
CustomerID:	55JACQ30J
CustomerPO:	122150683
ProjectID:	

Attn: **Mike Shortt**
Stantec Consulting Ltd.
300-675 Cochrane Drive, West Tower
Markham, ON L3R 0B8

Phone:	(905) 474-7700
Fax:	(905) 479-9326
Received:	05/29/18 4:35 PM
Collected:	4/16/2018

Project: **122150683 Port Weller**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Weight*	*Lead Concentration*
PS-01	*551806216-0001*	4/16/2018	5/31/2018	0.2314 g	<86 ppm
	Site: North Storage Shed - White Coloured 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 Environmental Testing Cert #2845.08

Initial report from 06/01/2018 11:19:33

APPENDIX F
EVALUATION CRITERIA FOR ASSESSING ASBESTOS-CONTAINING MATERIALS

CRITERIA FOR ASSESSING ASBESTOS-CONTAINING MATERIALS

A description of the criteria used in evaluating the condition, accessibility and exposure risk of asbestos-containing materials is provided below. The criteria is based on the Public Services and Procurement Canada (PSPC) document entitled *Asbestos Management Standard* (June 5, 2017) and industry standards of practice.

F.1 ASSESSMENT OF CONDITION

F.1.1 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's assessment 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.

F.1.2 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.

F.1.3 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.

F.1.4 Asbestos-Containing Material Debris

F.1.5 Debris from Friable Asbestos-Containing Material

The presence of fallen friable asbestos-containing material is noted separately from the presumed friable asbestos-containing material source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as debris.

The presence of fallen asbestos-containing material from damaged non-friable asbestos-containing material is reported separately from the non-friable asbestos-containing material source. Fallen non-friable asbestos-containing material that has become friable is reported as debris. Workers are advised to

be watchful for the presence of debris prior to accessing, or working in proximity to, mechanical insulation or above ceiling areas of buildings with asbestos-containing material, regardless of the reported presence or absence of debris.