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REPORT ON

Limited Pre-Demolition Designated Substances and Hazardous Materials Survey for the Property Located at 151 Metcalfe Street, Ottawa, Ontario

Submitted to:
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REPORT

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Distribution:
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Golder Associates

Executive Summary

Golder Associates Ltd. ("Golder") was retained by Morguard Investments Limited ("Morguard") to complete a limited pre-demolition designated substances survey and hazardous materials survey ("DSS/HMS") at the building located at 151 Metcalfe Street, Ottawa, Ontario (the "Building"). The DSS/HMS was conducted on December 14 and December 15, 2015.

The focus of the DSS/HMS was the eleven designated substances, as defined in Ontario Regulation 490/09: Designated Substances ("O. Reg. 490/09") made under the Ontario *Occupational Health and Safety Act,* R.S.O. 1990 Chapter O.1, as amended, ("*OH&S Act"*). Substances surveyed included acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride. Asbestos was assessed in accordance with Ontario Regulation 278/05: Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations, as amended ("O. Reg. 278/05"). At the request of Morguard, Golder also conducted surveys for hazardous materials including mould, ozone-depleting substances ("ODS"), polychlorinated biphenyls ("PCB") and urea foam formaldehyde ("UFFI").

This report was prepared for Morguard to provide an understanding of designated substances and hazardous materials that may be encountered in the Building during demolition and/or renovation and the related regulatory compliance that must be followed during such activities. See Section 4.0 for discussion regulations, guidelines and standards related to designated substance and hazardous materials removal.

This report and subsequent findings are limited only to the areas assessed, as described within the Scope of Work (See Section 3.0). This report does not exclude the requirement for project specifications and scaled drawings outlining abatement areas, quantities and specific procedures typically required in a demolition tender contract.

The Executive Summary highlights key points from the report only. For complete information and findings, as well as the limitations, the reader should examine the complete report.

Asbestos

Based on the results of the limited DSS/HMS, the following asbestos-containing materials ("ACMs") are known to be present at the Building:

- Plaster;
- Air-Cell pipe insulation;
- Caulking;
- Vinyl sheet flooring;
- Parging cement;
- Cementitious parging/compound;
- Mastic;
- Vinyl floor tile; and,
- Bell and spigot joints (presumed).

Refer to Appendix A: Spreadsheet of Findings, Table A1 for details regarding asbestos sample descriptions, locations, and quantities. Laboratory analytical reports of the DSS/HMS asbestos analysis are included within Appendix B.

Lead

Based on the results of the limited DSS/HMS, all lead paints tested are considered to be lead-containing paints ("LCPs") and include:

- Cream paint on plaster walls in the stairwell;
- Black paint over red paint on metal railings in the basement stairwell;
- Dark cream paint on structural steel beams in the parking garage;
- White paint on plaster walls in the hallway in the basement;
- Grey paint over red paint on the concrete floor in the basement;
- Grey-white paint on brick walls in the parking garage;
- Dark red paint on the metal exterior parking garage bulkhead;
- Dark brown paint on exterior wood window frames;
- Olive green paint on the plaster walls in the hallway in the basement;
- Yellow paint on structural steel beams in the parking garage; and,
- Medium brown paint over red paint on metal in the stairwell.

Lead is suspected to be present within the batteries of 19 emergency light fixtures and 19 emergency exit signs observed throughout the areas assessed within the Building. Lead may also be present in the sealant on bell and spigot joints, solder on water pipes, cable wrapping and ceramic glazes.

Refer to Appendix A: Spreadsheet of Findings, Table A2 for details regarding lead sample descriptions, and locations. Laboratory analytical reports of the DSS/HMS lead analysis are included within Appendix B.

Mercury

Based on visual assessment of the areas assessed in the Building, there are an estimated 268 mercury-containing light fixtures. Golder observed 40 fluorescent light tubes and 57 circular light fixtures (containing a total of 228 small quarter inch (1/4") fluorescent light tubes) present within the areas assessed within the Building and all are suspected to contain mercury vapour. No mercury-containing thermostats or other mercury-containing equipment were observed.

Silica

Suspected silica-containing materials were not physically sampled during the DSS/HMS as it would cause extensive damage to the Building, however; silica is presumed to be present in the concrete, brick, plaster, mortar, and any other aggregates used to construct the Building. Materials presumed to contain silica were observed to be in good condition at the time of the DSS/HMS.

Other Designated Substances

No other designated substances, as defined in O. Reg. 490/09 under the *OH&S Act,* were observed during the assessment.

Mould

No obvious signs of suspected mould contamination were identified during the assessment.

Ozone-depleting Substances

No suspect ODS-containing equipment were observed during the assessment.

Polychlorinated Biphenyls

The estimated 20 fluorescent light ballasts and 114 circular light fixture ballasts present within areas assessed may contain PCBs and thus must be evaluated for the presence of PCBs prior to disposal.

Urea Foam Formaldehyde Insulation

No suspected UFFI was observed during at assessment.

Major Implications of Findings

The most significant result of the DSS/HMS is that the plaster ceilings and walls found throughout the Building are asbestos-containing. These materials must be removed prior to demolition activities. It is anticipated that removal of these materials would be done under large scale Type 3 (high risk) asbestos operations, as defined by O. Reg. 278/05. Other ACMs identified within the Building are likely to be removed concurrently with the asbestos-containing plaster in large scale type enclosures. Exceptions may be some areas of pipe insulation, as it is present in various locations where plaster is not present such as the parking garage or mechanical rooms. Depending on the remediation contractor strategy, these would be removed under either Type 2 (glove bag) or Type 3 asbestos operations. Asbestos-containing caulking was also identified on exterior windows, which may present some abatement challenges for removal. Refer to Section 7.0 for a full discussion of the implications of other findings and recommendations to reduce project risks.

Class D Remediation Estimate

Golder estimates a total of $950,000 -$1,050,000 (excluding HST) for the removal of designated substances and hazardous materials within the Building by a remediation contractor. Environmental consulting services related to this work are estimated at $100,000 – $140,000. Refer to Section 8.0 for a breakdown of these estimated costs and further comment. This is considered a Class D estimate with 20-30% contingency and was generated based on extrapolation of information gained from this limited DSS/HMS.

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APPENDICES

1.0 INTRODUCTION

Golder Associates Ltd. ("Golder") was retained by Morguard Investments Limited ("Morguard") to complete a limited pre-demolition designated substances survey and hazardous materials survey ("DSS/HMS") at the building located at 151 Metcalfe Street, Ottawa, Ontario (the "Building"). The DSS/HMS was conducted on December 14 and December 15, 2015.

The focus of the DSS/HMS was the eleven designated substances, as defined in Ontario Regulation 490/09: Designated Substances ("O. Reg. 490/09") made under the Ontario *Occupational Health and Safety Act,* R.S.O. 1990 Chapter O.1, as amended, ("*OH&S Act"*). Substances surveyed included acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride. Asbestos was assessed in accordance with Ontario Regulation 278/05: Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations, as amended ("O. Reg. 278/05"). At the request of Morguard, Golder also conducted surveys for hazardous materials including mould, ozone-depleting substances ("ODS"), polychlorinated biphenyls ("PCB") and urea foam formaldehyde ("UFFI").

This report was prepared for Morguard to provide an understanding of designated substances and hazardous materials that may be encountered in the Building during demolition and/or renovation and the related regulatory compliance that must be followed during such activities. See Section 4.0 for discussion regulations, guidelines and standards related to designated substance and hazardous materials removal.

This report and subsequent findings are limited only to the areas assessed, as described within the Scope of Work (See Section 3.0). This report does not exclude the requirement for project specifications and scaled drawings outlining abatement areas, quantities and specific procedures typically required in a demolition tender contract.

2.0 BUILDING DESCRIPTION

The building is a four (4) storey residential structure located at 151 Metcalfe Street, Ottawa, Ontario (the "Building"). The Building includes a total of 49 units (with 12 apartments located on each above ground floor and one (1) apartment in the basement). Based on Golder's limited assessment, the Building is largely composed of brick exterior walls, poured concrete and concrete block, various vinyl floor tile, vinyl sheet flooring, plywood, hardwood and/or carpet overlay. The interior walls are generally constructed of skim/white plaster and rough/grey plaster with horse hair over brick, wire lath and/or drywall. Cementitious in-fill and plaster materials were also observed on wire lath on the basement deck, in wall cavities and above ceiling spaces. Corkboard, fiberglass, Air-Cell and parging insulation materials were observed in various locations throughout the Building.

The roof is constructed of tar and gravel and/or asphalt shingles. Unpainted wood beams, plywood and lose cork insulation were observed during visual assessment of the sub roof from an access hatch located on the roof. The roof materials located below the gravel, shingles and plywood sub roof were not assessed as sampling may have damaged the structural integrity of the roof membrane.

As described in the Scope of Work, the DSS/HMS was limited to accessible common areas and two (2) unoccupied apartment units within the Building. Specifically, areas assessed during the DSS/HMS included the parking garage, basement furnace room, workshop areas, laundry room, storage rooms, hallways, front lobby, ground level exterior and apartment units 204 and 303.

3.0 SCOPE OF WORK

Golder was granted access to two (2) of the 49 apartment units within the Building. Other areas assessed were limited to the parking garage, basement furnace room, workshop areas, laundry room, unlocked storage rooms, hallways, front lobby, stairwell and the exterior at ground level. Areas throughout the Building that were observed but not accessible included various locked storage rooms, the hydro vault, the elevator machine room, the elevator shaft, a crawl space as accessed from the roof and a ceiling hatch observed at height in the lobby.

Golder's Scope of Work was limited to the following at the above described areas:

- Visually identifying and inventorying suspected designated substances and hazardous materials, including but not limited to:
  - Non-friable and friable asbestos-containing materials ("ACMs");
  - Lead-containing materials ("LCMs") including lead-containing paints ("LCPs");
  - Mercury-containing materials and equipment;
  - Silica-containing materials;
  - Mould;
  - Ozone depleting substances ("ODS");
  - Polychlorinated Bisphenyls ("PCB"); and,
  - Urea Form Formaldehyde Insulation ("UFFI").
- Collecting representative bulk samples of suspected ACMs and LCPs within accessible areas of the Building and submitting these samples to an independent accredited laboratory for analysis;
- Collecting two (2) bulk/surface samples for analysis of suspected mould, if observed;
- Providing approximate and suspected locations, condition and quantification of ACM, mercury-containing items, PCB, mould, ODS and UFFI, if observed;
- Providing approximate locations and condition of paints where LCP samples were collected;
- Preparing this designated substances survey and hazardous materials survey ("DSS/HMS"); and,
- Providing a Class D abatement construction estimate prior to demolition of the Building. The Class D estimate is generally defined to contain a plus or minus 20-30% accuracy. The estimate includes costs for additional recommended sampling and investigation throughout the entire Building, contractor remediation estimates, abatement specification preparation and contract administration.

It is noted that the roof materials located below the gravel, shingles and plywood sub roof were not assessed as sampling may have damaged the structural integrity of the roof membrane. Additionally, black tar was observed on corkboard insulation in an above ceiling, perimeter wall cavity within apartment unit 204 and this material was not sampled as it was not accessible due to height. Red gaskets were observed on various mechanical equipment located in the furnace room. This material was not sampled as it may have compromised the integrity of the equipment. These materials may contain asbestos and should be further evaluated if opportunity for sampling arises and prior to disturbance as part of renovation and / or demolition activities.

Although efforts were made to expose and sample all potential and suspected ACMs within the locations above, there is a possibility that additional ACMs may be present in concealed areas that may not have been observed during this survey.

4.0 REGULATIONS, GUIDELINES AND STANDARDS

4.1 Designated Substances – *OH&S Act*, R.S.O. 1990, c. O.1

The *OH&S Act* outlines designated substances that may be present within buildings. The designated substances referred to under Section 30 of the *OH&S Act* are regulated under two regulations, which specify occupational exposure limits and any required assessment and control programs. Section 30 of the *OH&S Act* requires that, prior to beginning a construction project (including building renovation or demolition); a document summarizing the presence of these designated substances must be available to contractors and subcontractors requesting tenders. This report is limited by the areas assessed and does not exclude the requirement for project specifications and scaled drawings outlining abatement areas, quantities and specific procedures typically required in a demolition tender contract.

4.1.1 Asbestos

O. Reg. 278/05, made under the *OH&S Act,* outlines specific procedures for the identification of ACM in buildings and on construction sites and protocols for their removal. Under this regulation, if ACM are suspected to be present or ought reasonably to be suspected, locations of the materials must be documented and re-inspected at reasonable intervals to determine their condition. Prior to a re-development, renovation or demolition project, a document summarizing the presence of all ACM must be available to contractors and subcontractors requested to tender. ACM in good condition can remain in the building in accordance with the details outlined for ongoing asbestos management in buildings. All ACM must be removed or managed appropriately prior to any disturbance caused by the re-development, renovation or demolition process in accordance with provincial regulations.

R.R.O. 1990, Regulation 347 *General – Waste Management* as amended (“*Reg. 347*”), made under the Ontario *Environmental Protection Act*, R.S.O. 1990, Chapter E.19, as amended (“EPA”) sets out requirements for general waste management including ACM. The regulation defines "asbestos waste" as “solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials or from the manufacture of asbestos-containing products and contains asbestos in more than a trivial amount or proportion”. This regulation requires the disposal of asbestos waste in a double sealed container, properly labelled and free of cuts, tears or punctures. The waste must be disposed of in a licensed waste facility which has been properly notified of the presence of asbestos waste.

4.1.1 Lead

Lead is regulated under *O. Reg. 490/09*, as amended. This regulation prescribes occupational exposure limits (“OELs”) and other requirements surrounding engineering controls, work practices, hygiene practices and facilities for workers who may become exposed to lead.

In September 2004 (and revised in April 2011), the Occupational Health and Safety Branch of the Ontario Ministry of Labour (“MOL”) published their Guideline entitled *Lead on Construction Projects*, published September 2004, revised April 2011 (“MOL Lead Guideline”). The stated purpose of which was to raise the awareness of employers and workers in the construction industry of the hazards posed by lead in construction and the measures and procedures that should be taken to control those hazards. Currently, this document represents due diligence practice for lead exposure control on construction projects, as enforced by the MOL under the clause 25(2) (h) of the *OH&S Act*. As such, it is referenced herein, where appropriate, to provide guidance on appropriate handling and exposure control procedures when dealing with lead.

Golder understands the MOL currently does not include criteria for classification of LCP, and that, as such, the MOL considers the presence of any detectable concentration of lead in a paint or coating as LCM. Therefore, in these circumstances, Golder considers all paints with any detectable concentration of lead to be an LCM.

Disposal of lead must be conducted in accordance with the requirements of *Reg. 347*.

4.1.2 Mercury

Mercury is regulated under *O. Reg. 490/09*. This regulation sets out occupational exposure standards and prescriptive requirements surrounding engineering controls, work practices and hygiene practices and facilities for workers who may become exposed to mercury.

Disposal of materials containing mercury shall be done in accordance with *Reg. 347*.

4.1.3 Silica

Silica is regulated under *O. Reg. 490/09*. This Regulation sets out occupational exposure standards and prescriptive requirements surrounding engineering controls, work practices and hygiene practices and facilities for workers who may become exposed to crystalline silica, namely cristobalite, quartz and tripoli. As set out in *O. Reg. 490/09*, an employer shall take all reasonable precautions to prevent worker exposure to silica.

Procedures for workers involved in construction/demolition activities occurring on a site where silica is disturbed are outlined in the MOL Guideline entitled *Silica on Construction Projects*, published September 2004, revised April 2011 ("MOL Silica Guideline").

The MOL Silica Guideline is referenced herein, where appropriate, to provide guidance on recommended handling and exposure control procedures when dealing with silica on construction projects. The MOL Silica Guideline is enforceable as a reasonable precaution under clause 25(2) (h) of the *OH&S Act*.

4.1.4 Other Designated Substances

In addition to the four (4) designated substances that have a high probability of being present at the Building, which are discussed in detail in the previous sections, the following seven (7) designated substances as defined in the regulations under the *OH&S Act* were included in this survey: acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride. Based on Golder's professional experience, none of these substances were expected to be present and, as such, no specific observations or sampling of materials potentially containing these substances were undertaken.

4.2 Hazardous Materials

4.2.1 Mould

In Ontario there are no specific regulations addressing mould contamination. However, according to Health Canada[1] and the Environmental Abatement Council of Ontario (EACO, 2010) guidelines on assessment and remediation of mould in indoor environments, building materials supporting mould growth should be remediated as rapidly as possible in order to ensure a healthy environment. Remediation of mould growth is based on an approximation of the extent of visible mould growth including the estimated extent of any hidden mould growth.

[1] *Fungal Contamination in Public Buildings: A Guide to Recognition and Management*, Health Canada, Federal-Provincial Committee on Environmental and Occupational Health, June 1995.

The EACO guideline describes three levels of work practice; Small – Level 1, Medium – Level 2 and Large – Level 3. The thresholds between Small and Medium (1 m^2 or 10 ft^2) and between Medium and large project areas (10 m^2 or 100 ft^2) are guidelines only and are subject to professional judgment. Repair of the defects that led to water accumulation should be conducted in conjunction with or prior to the remediation.

4.2.2 Ozone-depleting Substances

An ODS refers to any substance containing chlorofluorocarbon ("CFC"), hydrochlorofluorocarbon ("HCFC"), halon or any other material capable of destroying ozone in the atmosphere. ODSs have been used in rigid polyurethane foam and insulation, laminates, aerosols, air conditioners, fire extinguishers, cleaning solvents and the sterilization of medical equipment. Federal regulations introduced in 1995 required the elimination of production and import of CFCs by January 1, 1996 (subject to certain essential uses) and a freeze on the production and import of HCFCs by January 1, 1996, unless by permit. These regulations also require the phase-out of CFCs at the time of major overhauls of a cooling system after January 1, 2005. Some Provinces have also enacted legislation that places use prohibitions on certain listed ozone depleting substances.

As the regulations govern only the production and import of certain ODSs, they are allowed to be used in Canada, as long as there is a supply in place. Eventually the supply will run out, and the present equipment will either need to be refitted or replaced. It is understood from several air conditioning companies, that there is a sufficient supply of CFCs and HCFC-22 in Canada for at least the next several years. The federal Hazardous Products Act (HPA) does not require the licensing, approval or registration of a property in which ODSs have been identified. However, provincial regulations require the licensing of contractors who handle ODSs through equipment servicing.

4.2.3 Polychlorinated Biphenyls

R.R.O. 1990, Regulation 362 *Waste Management – PCB'S* as amended ("*Reg. 362"*), made under the Ontario *EPA,* R.S.O. 1990, Chapter E.19, as amended sets out requirements for PCB waste management.

Additionally, section 3(1) of Reg. 833 requires the employer to take all measures reasonably necessary in the circumstances to protect workers from exposure to a hazardous biological or chemical agents due to the storage, handling, processing or use of such agents in the workplace. Appropriate dermal protection is crucial to worker protection when handling ballasts and transformer fluids.

4.2.4 Urea Foam Formaldehyde Insulation

UFFI is low-density foam, which is formed by the polymerization of urea and formaldehyde liquids. Although not a designated substance, UFFI may release formaldehyde gasses as the material, ages and degrades or becomes wet.

For provincially regulated demolitions, occupational exposures to chemical agents are regulated under the *OHSA*. R.R.O. 1990, Regulation 833, "*Control of Exposure to Biological or Chemical Agents"* (Reg. 833), as amended, made under the *OHSA*, prescribes permissible occupational exposure limits (OELs) - ceiling limits (C) in Table 1 of Reg. 833. OEL-C is the maximum airborne concentration of a chemical agent to which a worker may be exposed that must not be exceeded at any time.

Additionally, section 3(1) of Reg. 833 requires the employer to take all measures reasonably necessary in the circumstances to protect workers from exposure to a hazardous biological or chemical agents due to the storage, handling, processing or use of such agents in the workplace.

5.0 METHODOLOGY

The assessment was completed on December 14 and December 15, 2015 by Kathryn Graham, Mike Armitage and Kyle Heagle, from Golder's Ottawa Office. Work was conducted in accordance with standards outlined in the *OH&S Act* and Golder's Site-specific Health and Safety Plan and without incident.

5.1 Designated Substances

5.1.1 Asbestos

5.1.1.1 Asbestos Sampling and Analysis

A visual walkthrough assessment of the Building was completed in order to note the locations of potential ACMs. Readily available information was gathered regarding the Building including age, type of structure, presence of renovated areas or additions and the building mechanical systems. Materials suspected of containing asbestos were sampled in accordance with the sampling requirements prescribed in *O. Reg. 278/05*. Homogeneous sample groups, consisting of materials that are uniform in colour and texture were identified and sampled from one of the following three (3) categories:

- **Architectural:** The presence of ACMs was assessed in building materials and finishes such as drywall joint compound and caulking;
- **Mechanical:** Building mechanical systems such as the insulation on gaskets, pipe work and fittings, such as steam, condensate, and domestic hot and cold water. The presence of drainage systems utilizing asbestos cement piping was also noted, where applicable, and the condition of the pipe work assessed; and,
- **Structural:** Fireproofing, fire-stop, mortars and other materials installed to protect the structure were reviewed.

The number of samples of each "homogeneous material" was collected in accordance with Bulk Material Samples of O. Reg. 278/05 summarized in Table 1 below:

Table 1: Bulk Material Samples - Asbestos

Type of Material	Size of Area of Homogeneous Material	Minimum Number of Samples
Surfacing material, including without limitation material that is applied to surfaces by spraying, by troweling or otherwise. Examples include acoustical plaster on ceilings and fireproofing materials on structural members	Less than 90 m^2 (969 ft^2)	3
	90 or more m^2, but less than 450 m^2 (4,844 ft^2)	5
	450 or more m^2 (more than 4,844 ft^2)	7
Thermal insulation, except as described below	Any size	3
Thermal insulation patch	Less than 2 linear meters (6.6 ft.) or 0.5 m^2 (approximately 5.4 ft^2)	1
Other material	Any size	3

Representative samples of suspected ACMs were submitted to an independent accredited laboratory (EMSL Canada Inc., 22 Antares Drive 102, Ottawa, Ontario, NVLAP accreditation #201040-0) for asbestos content analysis. Polarized Light Microscopy was completed in accordance with U.S. Environmental Protection Agency ("EPA") methodologies and dispersion staining techniques (EPA 600/R-93/116). Sample collection and analysis was conducted as per *O. Reg. 278/05*. Samples from homogeneous areas were grouped together and analyzed. Materials reported to contain less than 0.5% asbestos (dry weight), including those referred to as less than the limit of detection ("LOD") or trace, are not considered to be asbestos-containing under current regulations. The LOD is 0.5%.

5.1.1.2 Areas of Assessment

The Building was assessed on an area-by-area basis. Areas were broken down into "systems" to document the materials present. Systems are used to group various building materials, referred to as "components", into easily recognizable categories which indicate where they are located. All components are associated with a system (e.g., wall, floor, piping, mechanical).

Should new building materials not included in this report be encountered during any demolition or renovation activities, this material must be sampled and analyzed for presence/absence of asbestos prior to any demolition or renovation work in these areas. It is recommended that work be stopped until these materials can sampled and managed in accordance with O. Reg. 278/05. In the case suspected ACMs cannot be tested, they must be treated as ACMs until proven otherwise.

5.1.2 Lead

Sampling and visual assessment of suspected LCMs, specifically paint, was completed as part of the survey. Samples of suspected LCPs were extracted using a clean knife and scraping off a small piece of the material. Care was taken to penetrate all paint layers at each sample location.

Collected samples were placed in sealed and labelled bags and sent to an independent accredited laboratory (EMSL Inc., in Toronto, Ontario, A2LA accreditation # 2845.08) for lead analysis following EPA method SW 846 3050B*/7000B. Each sample is digested, diluted and analyzed by flame atomic absorption.

Other suspect LCMs were noted if observed. Lead can typically be found in paints and in soldering on pipe joints, emergency batteries and ceramic glazes.

5.1.3 Mercury

An assessment for potential mercury-containing equipment installed at the Building was completed as part of the survey. Mercury-containing thermostats and fluorescent light tubes were noted, where observed. Elemental mercury may be present in switches and electrical switch gear at the Building. Trace amounts of mercury are present as a vapour within metal halide light bulbs and fluorescent light tubes. These light bulbs and tubes may pose an occupational hazard to unprotected workers if broken.

5.1.4 Silica

A visual assessment of each room or area at the Building was completed to determine the potential for silica-containing materials to be present at the Building.

5.1.5 Other Designated Substances

Other designated substances as defined in *O. Reg. 490/09* under the *OH&S Act* include acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride. Based on professional experience, none of these substances were expected to be present and, as such, no specific observations or sampling of materials potentially containing these substances were undertaken as part of this assessment.

5.2 Hazardous Materials

5.2.1 Mould

A visual assessment of the Building was conducted by looking for evidence of visible water staining or mould growth on building materials such as drywall, wood, ceiling tiles, carpet, baseboards and any other building materials of concern. The visual assessment was conducted in general accordance with the procedures outlined in *American Industrial Hygiene Association Field Guide for the Determination of Biological Contaminants in Environmental Samples 2nd Edition* and the EACO Mould Guidelines.

5.2.1.1 Surface and Bulk Sampling for Mould

In the event that suspected fungal-impacted building materials are observed at the Building, representative surface (tape lift) samples of suspected mould growth are collected from the affected surface using disposable gloves, clear mending tape and a clean microscope slide. The surface sampling is completed by attaching an approximate five centimeter long tape strip to the suspected mould growth surface. The tape is then transferred to a microscope slide where it was labelled and placed inside a clean sealable Ziploc plastic bag. Sample locations are selected during the visual assessment of suspected water damaged and/or fungal-impacted areas. Based on visual observations throughout the Building, no bulk samples of building material were collected.

5.2.2 Ozone-depleting Substances

An assessment for potential ODS-containing equipment installed at the Building was completed as part of the survey. ODS-containing equipment such as cooling systems, were noted, where observed.

5.2.3 Polychlorinated Biphenyls

The Building was visually assessed for the presence of PCBs in stored/waste fluorescent light ballasts, and on-site transformers, if observed. Due to health and safety concerns associated with energized fluorescent lighting systems, connected and energized fluorescent lights were not breached or accessed during the investigation. Where necessary and prior to disposal, label information from the ballasts such as the manufacturer, model numbers, serial numbers, and date codes can be collected and compared to the criteria found in the Environment Canada Report EPS 2/CC/2 (revised) August 1991 – Identification of Lamp Ballasts Containing PCBs. No PCB sampling was conducted during the Building visit.

5.2.4 Urea Foam Formaldehyde Insulation

An assessment for potential UFFI at the Building was completed as part of the survey. No UFFI sampling was conducted during the Building visit.

6.0 RESULTS

6.1 Designated Substances

6.1.1 Asbestos-Containing Materials

A total of 103 samples were collected from the Building and submitted for asbestos content analysis representing 29 different homogeneous materials suspected of containing asbestos. Homogeneous materials sampled included: roof tar, caulking, stipple coat, skim/white plaster over rough/grey plaster with horse hair, drywall joint compound, vinyl floor tile, mastic, vinyl sheet flooring, Air-Cell pipe insulation, cementitious in-fill, parging cement, cementitious parging/compound, fiber insulation and fire stop. Based on the analytical results of the samples collected, 13 homogenous materials were found to have an asbestos concentration of 0.5% or more by dry weight, and are therefore considered an ACM under *O. Reg. 278/05*.

Refer to Appendix A: Spreadsheet of Findings, Table A1 for details regarding asbestos sample descriptions, locations, and quantities. Laboratory analytical reports of the asbestos analysis are included within Appendix B.

No vermiculite was observed within a limited number of small holes created in cinder block walls within the basement.

6.1.2 Lead-Containing Materials

Lead was identified in all (11 of 11) paint samples collected from the Building. All samples are considered to be LCPs. The LCPs were observed to be in good to poor condition at the time of the assessment.

Lead is suspected to be present within the batteries of 19 emergency light fixtures and 19 emergency exit signs observed at the Building. Lead may also be present in the sealant on bell and spigot joints, solder on water pipes, cable wrapping and ceramic glazes.

Refer to Appendix A: Spreadsheet of Findings, Table A2 for details regarding lead sample descriptions, locations, and quantities. Laboratory analytical reports of the 2015 DSR lead analysis are included within Appendix B.

6.1.3 Mercury

There are an estimated 268 mercury-containing light fixtures observed within the Building. Golder observed 40 fluorescent light tubes and 57 circular light fixtures (containing a total of 228 small quarter inch (1/4") fluorescent light tubes) present within the areas assessed within the Building and all are suspected to contain mercury vapour. No mercury-containing thermostats or other mercury-containing equipment were observed.

6.1.4 Silica

Silica was not physically sampled during the assessment as it would cause extensive damage to the Building. Silica is presumed to be present in the concrete, brick, mortar, plaster and other aggregates used to construct the Building. Silica-containing materials were observed to be in good condition at the time of the assessment.

6.1.5 Other Designated Substances

No other designated substances, as defined in *O. Reg. 490/09* under the *OH&S Act,* were observed at the Building.

6.2 Hazardous Materials

6.2.1 Mould

No evidence of suspected water damaged and/or fungal-impacted building materials were observed during visual assessment of the Building. No surface samples were collected for microscopic mould analysis.

6.2.2 Ozone-depleting Substances

Refrigerant was identified in two (2) fridges located in the kitchen of apartment 204 and the 303 at the Building. The refrigerant type used within both units (R-134A) is not an ozone depleting substance. No other suspected ODS-containing equipment was observed during the DSS/HMS. It is possible that other inaccessible units within the Building may contain ODS.

6.2.3 Polychlorinated Biphenyls

The estimated 20 fluorescent light ballasts and 114 circular light fixture ballasts present within areas assessed may contain PCBs and thus must be evaluated for the presence of PCBs prior to disposal.

6.2.4 Urea Foam Formaldehyde Insulation

No suspected UFFI was observed during the assessment.

7.0 IMPLICATIONS OF FINDINGS AND RECOMMENDATIONS

7.1 Designated Substances

7.1.1 Asbestos-Containing Materials

ACMs that may be disturbed by renovation and/or demolition or other activities must be removed by the appropriate method and procedures prescribed in O. Reg. 278/05. The most significant result of the DSS/HMS is that the plaster ceilings and walls found throughout the Building are asbestos-containing and materials must be removed prior to demolition activities. It is anticipated that removal of these materials would be done under large scale Type 3 (high risk) asbestos operations, as defined by O. Reg. 278/05. Other ACMs identified within the Building are likely to be removed concurrently with the asbestos-containing plaster in large scale Type 3 enclosures. Exceptions may be some areas of pipe insulation, as it is present in various locations where plaster is not present such as the parking garage or mechanical rooms. Depending on the remediation contractor strategy, these would be removed under either Type 2 (glove bag) or Type 3 asbestos operations. Asbestos-containing caulking was also identified on exterior windows, which may present some abatement challenges for removal.

Based on professional experience in buildings of similar age and size, Golder provides the following recommendations prior to development of the Building demolition tender package:

- As discussed above, asbestos-containing plaster present throughout the Building requires large scale Type 3 asbestos operations to be performed. Costs would be heavily impacted by both labour and by weight of the plaster and substrate to which it is adhered, as these materials are unlikely separable. As such, the substrate to which the asbestos-containing plaster is adhered should be more thoroughly examined. Of the two (2) units assessed, plaster was adhered to wire mesh and cork board. Golder observed plaster adhered to brick within other areas (basement, stairwells and others) of the Building. As the substrate to which the plaster is adhered is likely not economically feasible to separate, the combined material would have to be disposed of as an ACM. As brick is much heavier that wire mesh or corkboard, the overall costs of abatement would vary depending on the materials present. If plaster is adhered to brick in the other units, the cost impacts would be significant. In addition, multiple layers of plaster may also be present within some areas as numerous renovations may have occurred over the years, thus adding to the labour and disposal costs. Golder recommends additional intrusive investigations be performed at select locations prior to large scale abatement. This work should be completed in conjunction with the demolition and design team (i.e., architects, structural. mechanical and electrical engineers and a construction manager or general contractor).
- All drywall samples tested were determined to be non-ACM. Although these samples were collected from spatially separate areas of the Building and collected in accordance with O. Reg. 278/05, additional layers or applications may be present within areas that were not accessible or that were concealed during Golder's assessment. It is noted that the majority of plaster within the building is considered an ACM and it is therefore likely that any drywall uncovered during large scale plaster demolition would also be disposed of as ACM waste as opposed to segregation of the two. Costs of drywall removal would be heavily impacted by labour associated with the removal and somewhat by drywall volume and weight for disposal as asbestos waste. Additional intrusive investigations that are recommended with regard to plaster application may also aid in obtaining more information regarding drywall.

- As the Building is heated by the boiler system that runs hot water through radiative water heaters throughout, mechanical duct work (with the potential to be insulated by ACMs) is likely not present. However, asbestos-containing pipe insulation is present on the majority of lines, many of which are likely concealed within wall cavities that extend to the units. The condition of visible pipe insulation in the basement and garage was generally poor, and thus it is possible that concealed pipe insulation may also be in poor condition. However, concealed pipe insulation would be better protected and could potentially be in better condition, hence further investigation is required. The consequence of identifying poor condition pipe debris within wall cavities is that debris may add to the complexity and labour costs associated with the abatement. Golder recommends obtaining access to a representative number of pipe risers to determine a more accurate quantity and understand the condition of pipe insulation throughout the Building.
- Although Golder collected opportunistic samples of roof tar, there is some risk associated with the unknown composition of the roofing system. The presence of ACM within the roofing system would have large cost and time implications if the roof is to be removed. Golder recommends full depth roof sampling be completed.
- It is unknown whether the elevator shaft contains asbestos. The presence of ACM within the shaft would increase the complexity of the abatement and should be determined. This assessment would require cooperation with an elevator service contractor. The elevator room was observed but not entered due to safety. Although no suspected ACMs were observed, this space should be more carefully inspected if the elevator is shut down. In some cases in buildings of this vintage, entire walls of elevator shafts can be coated with a think skim coat of asbestos containing plaster.
- A flooring material review should be conducted within additional units to determine if conditions are similar to the two (2) units assessed. Multiple layers of flooring should be assessed.
- Black tar was observed on corkboard insulation above ceilings and within the perimeter wall cavity of unit 204. This material was observed but could not be accessed for sampling. Golder recommends this material be further assessed for asbestos content analysis. It is likely the needed information could be determined after exploratory openings are made.
- The hydro vault should be assessed in coordination with a high voltage contractor to determine the presence of designated/hazardous substances.
- The presence of asbestos-containing spray applied fire proofing (“SAFP”) was not discovered within the Building. The Building appeared to be constructed of concrete, concrete block, brick and some wood. The presence of SAFP would have large impacts on abatement costs as it is difficult to remove based on how well it is adhered to the structure and as a result of scaffolding costs required to access it. Based on the observed construction of the building and observations made during the assessment, it is not likely to be present however; coordinated investigations with the design and demolition team would help to reduce the potential cost and schedule impacts should it be identified during demolition activities.

- Bell and spigot joints located on cast iron pipe lines were observed throughout the parking garage and basement and are suspected to contain asbestos-containing packing material that must be treated as an ACM until tested and proven otherwise. Removal or disturbance must be, as a minimum, completed in accordance with Type 2 glovebag operations as prescribed by O. Reg. 278/05 or these materials can be tested for ACM. Testing of bell and spigot joints can be completed prior to demolition of these piping systems, but must follow Type 2 asbestos glovebag operations for precautionary measures. Following the initial removal and sampling, the remaining bell and spigot joints can be removed following a defined procedure (i.e., as general demolition if results determine there are no ACM present or continued as Type 2 asbestos glovebag operations if results determine they are ACM).
- Gaskets and various seals were not sampled as it was determined that sampling would have compromised the integrity of the equipment. These materials may contain asbestos and should be tested prior to removal and/or disturbance.
- The Buildings structural systems should be evaluated to determine the sequencing of abatement. Plaster that is adhered to block or brick or any other surface that provides structural support to the Building may impact abatement sequencing, which may not be the most economical method of abatement. Exploratory openings for assessment of potentially concealed hazardous materials should be chosen in consultation with the structural engineer and thus serve a dual purpose.

7.1.2 Lead

Based on the findings of the current assessment, the following recommendations are made with respect to lead at the Building:

- As many of the materials tested have a lead-containing coating, waste characterization is to be performed including analysis of both the lead coated surface and the underlying substrate for lead leachate, using the Toxicity Characteristic Leaching Procedure ("TCLP") as specified in O. Reg. 347. Based on the results of the TCLP analysis, removed lead-containing materials would either be considered as construction waste or leachate toxic waste. All leachate toxic materials would require segregation and final disposal in a landfill licensed to accept leachate toxic waste by the Ontario Ministry of the Environment ("MOE"). Large cost impacts would be associated with waste that is deemed leachate toxic waste.
- Although asbestos precautions supersede lead precautions, disturbance of LCPs requires lead precautions consistent with the *OH&S Act* and follow the MOL Lead Guideline. The MOL Lead Guideline provides recommended safe remedial measures and procedures addressing construction-related work involving lead-contaminated surfaces and/or materials. The MOL Lead Guideline should also be followed as the techniques outlined within the guidelines are applicable to the type of work to be conducted and provide suggested controls to mitigate risk of worker exposure to lead. Disturbance of lead-containing materials should be conducted in accordance with any contract specifications that are generated for the demolition project.
- If additional materials not listed in 6.1.2. that may contain lead are identified during renovation and/or demolition activities (e.g., lead sheeting, flashing or brick ties), they must be treated as lead-containing until tested and proven otherwise. Exploratory openings may aid in the discovery of such materials.

7.1.3 Mercury

The following recommendations are made with respect to mercury at the Building:

- If the fluorescent light tubes are to be removed during renovation activities, they should remain unbroken and kept separate from all other waste to prevent damage prior to disposal. Mercury vapour light tubes/bulbs may be recycled and reused by qualified personnel or may be disposed of in accordance with the appropriate provincial regulations. If mercury vapours are not present in fluorescent light tubes, the MOE does not consider them a hazardous waste product. If it is not possible to confirm the absence or presence of mercury vapours, they must be treated as mercury waste. If this is the case, the most cost effective disposal option is generally to contact a bulb recycler for pickup and recycling. Bulb recyclers remove the mercury vapour prior to final disposal of the bulbs. Disposal or recycling of mercury containing light tubes should be done in accordance with any contract specifications generated for the demolition project.

7.1.4 Silica

The following recommendations are made with respect to silica at the Building:

- Precautions against silica exposure are only required for building materials in poor condition or during disturbance of these materials including, but not limited to, renovation or demolition activities. Disturbance of these materials should be conducted in accordance with the *OH&S Act* and the MOL Silica Guideline or any contract specifications that are generated for the demolition project.

7.1.5 Other Designated Substances

No other designated substances, as defined in *O. Reg. 490/09* under the *OH&S Act,* were observed.

7.2 Hazardous Materials

7.2.1 Mould

No obvious signs of mould contamination were identified during the DSS/HMS and as a result there are no further recommendations.

7.2.2 Ozone-depleting Substances

No suspect ODS-containing equipment were observed during the DSS/HMS.

7.2.3 Polychlorinated Biphenyls

All PCB-containing ballasts and equipment must be identified through information provided on the labels from the ballasts such as the manufacturer, model numbers, serial numbers, and date codes can be collected and compared to the criteria found in the Environment Canada Report EPS 2/CC/2 (revised) August 1991 – Identification of Lamp Ballasts Containing PCBs.

7.2.4 Urea Foam Formaldehyde Insulation

No suspected UFFI was observed during the DSS/HMS and as a result there are no further recommendations.

8.0 CLASS D ESTIMATE

The breakdown of anticipated costs for removal of designated substance and hazardous materials prior to Building demolition is provided below. Note that the below is not a proposal but a preliminary Class D Cost Estimate.

Task	Estimated Cost Totals ($)
Class D Abatement Estimate (based on known information)	$950,000 -$1,050,000
Additional investigations, exploratory openings, tender specifications / drawings, tender closing and walk through, project management and general contract administration	$50,000 - $65,000
Construction monitoring including pre remediation assessments, final visual assessment, air sampling, site meetings and close out documentation*	$50,000 - $75,000
Total Class D Estimate (not including HST)	$1,050,000 – $1,190,000

*Construction monitoring is based upon an estimated abatement time period of five (5) to six (6) months based on the known information of the Building. It is noted that O. Reg. 278/05 has no regulatory requirement for daily ambient air monitoring. Additionally, pre-remediation, final visual inspections and air clearance sampling are not always required prior to building demolition, however; it is anticipated that other trades may require access to the remediated areas before the complete demolition of the Building and therefore air clearance sampling would be required by the O. Reg. 278/05. The construction monitoring cost has been populated based on the assumption that air monitoring, inspections and air clearances be performed on part-time basis. Morguard's requirements for construction monitoring during abatement should be discussed with Golder.

9.0 LIMITATIONS

This report was prepared for the exclusive use of Morguard Investments Limited ("Morguard"). The work was performed according to the terms of the Master Service Agreement dated April 10, 2006 between Golder Associates Ltd. and Morguard Investments Limited. This report is based on data and information collected during the Building visits conducted by Golder Associates Ltd. on December 14 and December 15, 2015, as described in this report.

The conclusions and recommendations contained in this report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with currently accepted environmental assessment standards and practices applicable to this location.

The data and findings presented in this report are valid as of the date of the investigation. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the investigated areas, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report.

The data reported and the findings and recommendations expressed in this report are limited by the Scope of Work. The Scope of Work is based on the request of the client, the time and budgetary constraints imposed by the client, and availability of access to the property.

Because of the limitations stated above, the findings and recommendations expressed by Golder in this report are not and should not be considered an opinion concerning compliance of any past or present owner or operator of the Building with any federal, provincial, or local laws or regulations.

Golder will not be responsible for any real or perceived decrease in a property value, its saleability or ability to gain financing through the reporting of information in this report.

10.0 CLOSURE

If you have any questions or require any further information, please feel free to contact the undersigned at (613) 592-9600. Thank you for the opportunity to be of service. We look forward to working with you again.

GOLDER ASSOCIATES LTD.

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APPENDIX A

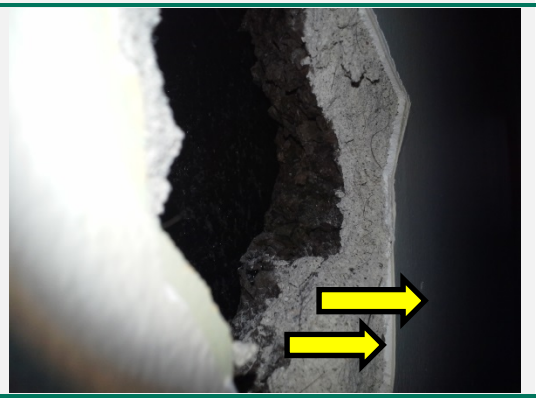
Spreadsheet of Findings

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Table A1: Summary of Materials Sampled for Asbestos Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Gloss black tar	On grey shingles on the roof	N/A[(1)]	N/A	N/A	N/A	01A – 01C	None detected	N/A
Flat black tar	On gravel on the roof	N/A	N/A	N/A	N/A	02A – 02C	None detected	N/A
Flexible light brown caulking	On exterior walls of the elevator shaft room on the roof	N/A	N/A	N/A	N/A	03A – 03C	None detected	N/A
Black (appears grey) caulking	**On metal duct and siding on the exterior walls of the elevator shaft room on the roof**	**15 Linear meters**	**Good**	**No**	**High**	**04A – 04C**	**15% Chrysotile**	
White stipple coat over cream plaster (composite sample)	Over concrete on the ceiling of the exterior front entrance	N/A	N/A	N/A	N/A	05A – 05C	None detected (composite sample)	N/A

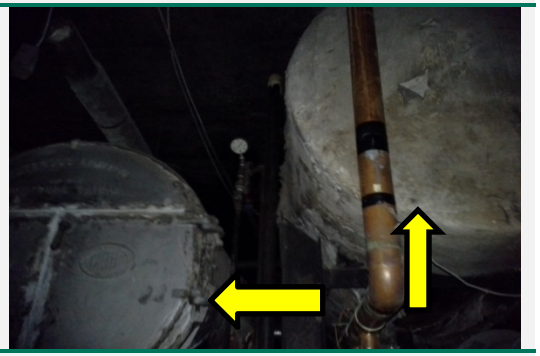
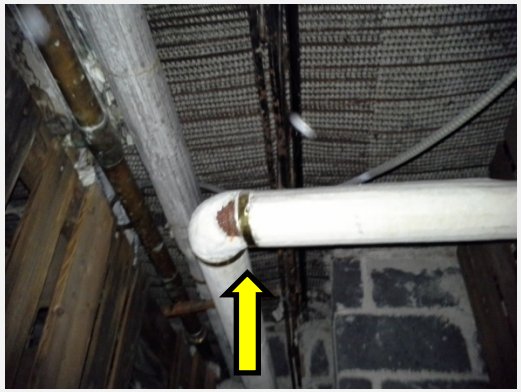
APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Skim / white plaster over rough / grey plaster with horse hair (composite sample)	**Over brick walls and/or metal lath on interior walls and ceilings throughout the stairwell, hallways and apartments**	**Throughout the Building**	**Good**	**No**	**High**	**06A – 06G**	**2% Chrysotile (composite sample)**	
Drywall joint compound	On interior walls located throughout the stairwell, basement hallway, ground floor hallway and the west perimeter wall in apartment #303 and suspected throughout Building	N/A	N/A	N/A	N/A	07A – 07E	None detected	N/A
30 cm by 30 cm cream vinyl floor tile with tan flecks and associated black mastic	Over green vinyl sheet flooring in the apartment in the basement	N/A	N/A	N/A	N/A	08A – 08C	None detected (tile) None detected (mastic)	N/A

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Green vinyl sheet flooring	Under 30 cm by 30 cm cream vinyl floor tile with tan flecks in the apartment in the basement and suspected throughout Building	Not quantified (The interior of the apartment was not accessible during the DSS/HMS) It may also be present throughout other units of Building	Good	No	High	09A – 09C	3% - 5% Chrysotile	
Air-Cell pipe insulation	On cast iron and copper pipes throughout basement storage rooms, laundry room, furnace room and parking garage (Also observed under a layer of parging on a boiler in the furnace room and is	650 Linear meters	Fair to Poor	Yes	Moderate	10A – 10C	50% - 60% Chrysotile	

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
	suspected to be present within additional concealed areas throughout the Building)							
Grey cementitious in-fill	Over wire lath on ceilings and walls throughout the Building	N/A	N/A	N/A	N/A	11A – 11G	None detected	N/A
Skim / white plaster over rough / grey plaster with horse hair (composite sample)	Located over a layer of drywall and original asbestos-containing skim / rough plaster on walls in the hallway in the basement	N/A	N/A	N/A	N/A	12A – 12C	None detected (composite sample)	N/A

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Parging cement	Over Air-Cell insulation on the boilers located in the furnace room in the basement	80 Square meters	Poor	Yes	Moderate	13A – 13C	20% - 30% Chrysotile	
Parging cement	On 2" to 6" cast iron and copper pipe elbows throughout the basement storage rooms, laundry room, furnace room and parking garage (Also suspected to be present within additional concealed areas throughout the Building)	300 Elbows	Fair to Poor	Yes	Moderate	14A – 14C	30% Chrysotile	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Cementitious parging / compound	**Over brick on perimeter walls in the basement laundry room, furnace room and parking garage**	**275 Square meters**	**Good**	**No**	**High**	**15A – 15C**	**2% Chrysotile**	
White fiber insulation	Over wire lath on the ceiling in the furnace room	N/A	N/A	N/A	N/A	16A – 16C	None detected	N/A
Red fire stop	On cast iron pipes and in the wall cavities in apartment #204 and #303	N/A	N/A	N/A	N/A	17A – 17C	None detected	N/A

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Brittle black caulking	**Around exterior front entrance door and window frames**	**20 Linear meters**	**Fair**	**No**	**Moderate**	**18A – 18C**	**5% Chrysotile**	
30 cm by 30 cm white vinyl floor tile with white flecks and associated yellow mastic	Over 30 cm by 30 cm cream vinyl floor tile in the kitchen in apartment #303	N/A	N/A	N/A	N/A	19A – 19C	None detected (tile) None detected (mastic)	N/A

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
30 cm by 30 cm cream vinyl floor tile and associated yellow mastic	Under 30 cm by 30 cm white vinyl floor tile with white flecks in the kitchen in apartment #303	N/A	N/A	N/A	N/A	20A – 20C	None detected (tile) Not detected (mastic)	N/A
Brittle white caulking	**Around exterior window frames**	**265 Linear meters**	**Fair**	**No**	**Moderate**	**21A – 21C**	**2% Chrysotile**	
Flexible white caulking	**Around exterior window frames**	**265 Linear meters**	**Fair**	**No**	**Moderate**	**22A – 22C**	**10% Chrysotile**	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Flexible white (appears black) caulking	Around exterior window frames	265 Linear meters	Fair	No	Moderate	23A – 23C	6% - 7% Chrysotile	
Black mastic	On 30 cm by 30 cm black vinyl floor tile under 30 cm by 30 cm beige/brown patterned vinyl floor tile in the kitchen in apartment #204	8 Square meters (may also be present throughout other units of Building)	Good	No	High	24A – 24C	None detected (black vinyl floor tile) 2% Chrysotile (black mastic)	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
30 cm by 30 cm beige/brown patterned vinyl floor tile and associated yellow mastic	**Under 30 cm by 30 cm non-asbestos-containing grey with square pattern vinyl floor tile in the kitchen in apartment #204**	**8 Square meters (may also be present throughout other units of Building)**	**Good**	**No**	**High**	**25A – 25C**	**2% Chrysotile (beige/brown patterned vinyl floor tile)** None detected (yellow mastic)	
Black tar	On corkboard on perimeter, interior walls (observed in the wall cavity adjacent to plaster on wire lath ceiling in apartment #204)	Not Accessible	Good	No	Low	Not sampled	Sample not Collected (Not accessible)	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Bell and Spigot Joints	Observed on cast iron pipes located throughout the Building (Also suspected to be present within additional concealed areas throughout the Building)	Throughout the Building	Good	Yes	Low	Not sampled (sampling would have affected the integrity of the pipe system)	The packing material contained inside the bell and spigot joints is considered to be asbestos-containing until tested and proven otherwise	

Note: (1) "N/A" indicates not applicable. Sampled material contains < 0.5 % by weight and is not considered to be an asbestos containing material (ACM).

Table A2: Summary of Paints Sampled for Lead Analysis

Sample Number	Description / Location of Material	Condition	Lead Concentration (ppm)	Lead Containing Paint?	Photograph
LP01	Cream paint on plaster walls in the stairwell	Good to Fair	2,100	Yes	
LP02	Black paint over red paint on metal railings in the basement stairwell	Good	3,800	Yes	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Sample Number	Description / Location of Material	Condition	Lead Concentration (ppm)	Lead Containing Paint?	Photograph
LP03	Dark cream paint on structural steel beams in the parking garage	Good	1,400	Yes	
LP04	White paint on plaster walls in the hallway in the basement	Good	1,800	Yes	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Sample Number	Description / Location of Material	Condition	Lead Concentration (ppm)	Lead Containing Paint?	Photograph
LP05	Grey paint over red paint on the concrete floor in the basement	Good to Poor	1,700	Yes	
LP06	Grey-white paint on brick walls in the parking garage	Good to Poor	110	Yes	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Sample Number	Description / Location of Material	Condition	Lead Concentration (ppm)	Lead Containing Paint?	Photograph
LP07	Dark red paint on the metal exterior parking garage bulkhead	Fair	110,000	Yes	
LP08	Dark brown paint on exterior wood window frames	Fair to Poor	150,000	Yes	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Sample Number	Description / Location of Material	Condition	Lead Concentration (ppm)	Lead Containing Paint?	Photograph
LP09	Olive green paint on plaster walls in the hallway in the basement	Good	1,000	Yes	
LP10	Yellow paint on structural steel beams in the parking garage	Good	23,000	Yes	

APPENDIX A
Spreadsheet of Findings - Asbestos and Lead Analysis

Sample Number	Description / Location of Material	Condition	Lead Concentration (ppm)	Lead Containing Paint?	Photograph
LP11	Medium brown paint over red paint on metal in the stairwell	Good to Fair	3,600	Yes	
Not sampled as sampling would have affected the integrity of the pipe system	Observed on cast iron pipes located throughout the Building (Also suspected to be present within additional concealed areas throughout the Building)	Good	N/A	The packing material seal is considered to be lead-containing until proven otherwise	

Note: (1) "N/A" indicates not applicable. Sampled material contains < 90ppm and is not considered to be a lead-containing material (LCM).
(2) Method reporting limit is < 90 ppm, unless otherwise noted.

Created by: KG
Checked by: LC

APPENDIX B

Laboratory Results

OrderID: 671500966

EMSL CANADA, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*): 671500966

EMSL CANADA, INC.
102, 22 ANTARES DRIVE
OTTAWA, ON K2E 7Z6
PHONE: (343)-882-6076
FAX: (343)-882-7077

Company : Golder Associates Ltd	**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 1931 Robertson Road	
City: Ottawa / **State/Province: ON**	**Zip/Postal Code: K2H 5B7** / **Country: Canada**
Report To (Name): KATHRYN GRAHAM.	**Fax #: 613-592-9601**
Telephone #: 613-592-9600	**Email Address:** KATHRYN_GRAHAM@GOLDER.COM
Project Name/Number: 1547068 (2000).	
Please Provide Results: ☐ Fax ☒ Email	**Purchase Order:** / **U.S. State Samples Taken:**

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**For TEM Air 3 hours through 6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%) (LO.5%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT** (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: KATHRYN GRAHAM **Samplers Signature:** [redacted]

Sample #	Sample Description	[redacted]	Date/Time Sampled
01A TO 01C	ON GREY ROOF SHINGLES	GLOSS BLACK TAR	12/14/2015 TO 12/15/2015
02A TO 02C	ON ORIGIONAL GRAVEL ROOF	FLAT BLACK TAR	
03A TO 03C	ON METAL AROUND THE ELEVATOR SHAFT ROOM - ROOF EXTERIOR.	FLEX. BROWN CAULKING	
04A TO 04C	AROUND METAL DUCT ON ELEVATOR SHAFT ROOM EXT. WALLS - ROOF	BLACK (APPEARS GREY) CAULKING	
05A TO 05C	OVER CONCRETE AT ENTRANCE *(COMBINE SAMPLE)	WHITE STIPPLE OVER CREAM PLASTER	
06A	ON BRICK WALL - BASEMENT HALL - ABOVE UNIT #4 (*COMBINE SAMPLES)	ROUGH/GREY PLASTER	
06B	ON BRICK WALL - STAIRWELL - ADJ. TO ROOF ACCESS DOOR	WITH HORSE HAIR AND	
06C	ON WIRE LATH - CEILING - UNIT #204	WHITE SKIM PLASTER	

Client Sample # (s): (01A TO 01C) TO ( ) **Total # of Samples:** 100

Relinquished (Client): KATHRYN GRAHAM **Date:** 12/15/2015 **Time:** 6:30 PM

Received (Lab): OTTAWA HP 15-Dec-16 COURIER HP **Date:** Dec 16, 2015 **Time:** 1:35 PM

Comments/Special Instructions: PLM EPA 600/R-93/116 (<0.5%), ANALYZE ALL MASTIC ON UFT/USF UNLESS INDICATED OTHERWISE IN SAMPLE DESCRIPTION, ANALYZE PLASTER LAYERS AS HOMOGENEOUS SAMPLE (ONE/COMBINED SAMPLE).

EMSL CANADA, INC.
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Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*):

EMSL CANADA, INC.
10 FALCONER DRIVE, UNIT # 3
MISSISSAUGA, ON L5N 3L8
PHONE: (289) 997-4602
FAX: (289) 997-4607

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
06D	ON WALLS IN THE STORAGE ROOM - ADJ. TO KITCHEN - UNIT # 303	ROUGH/GREY PLASTER WITH	12/14/2015 TO 12/15/2015
06E	ON WALLS IN STAIRWELL - LEVEL # 2	HORSE HAIR AND WHITE/ SKIM PLASTER	↓
06F	ON WALLS IN LIVING ROOM - UNIT # 303	↓	↓
06G	ON WALL ADJ. TO ELEVATOR - HALLWAY - GROUND FLOOR	↓	↓
07A	ON WALL ADJ. TO ELEVATORS - GROUND FLOOR	DRY WALL JOINT COMPOUND	↓
07B	ON WALL ADJ. TO STAIRWELL - BASEMENT HALLWAY	↓	↓
07C	ON WALL IN STAIRWELL - ADJ. TO DOOR - LEVEL 4.	↓	↓
07D	AROUND DOOR IN STAIRWELL AT PARKING LEVEL	↓	↓
07E	WEST PERIMETER WALL - UNIT # 303	↓	↓
08A TO 08C	30CM X 30CM CREAM VFT W TAN FLECKS AND ASSOCIATED MASTIC	VINYL FLOOR TILE (VFT)	↓
09A TO 09C	GREEN VINYL SHEET FLOORING (DO NOT ANALYZE BLACK MASTIC).	VINYL SHEET FLOORING (VSF)	↓
10A TO 10C	ON CI/CU PIPES IN STORAGE ROOMS AND PARKING GARAGE.	AIR-CELL PIPE INSULATION	↓
11A TO 11C	CEMENTIOUS IN-FILL ON WIRE LATH - CEILING - STORAGE UNIT	GREY CEM. IN-FILL	↓
11D, 11E	CEM. IN-FILL ON WIRE LATH - WALL CAVITY - UNIT # 204	↓	↓
11F, 11G	CEM. IN-FILL ON WIRE LATH - WALL CAVITY - UNIT # 303	↓	↓
12A TO 12C	OVER DRYWALL - BASEMENT HALLWAY	ROUGH WITH HORSE HAIR AND SKIM PLASTER (OVER DRYWALL)	↓

***Comments/Special Instructions:**

OrderID: 671500966

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Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*):

EMSL CANADA, INC.
102, 22 ANTARES DRIVE
OTTAWA, ON K2E 7Z6
PHONE: (343)-882-6076
FAX: (343)-882-7077

Company : Golder Associates Ltd

Street: 1931 Robertson Road

City: Ottawa | **State/Province: ON** | **Zip/Postal Code: K2H 5B7** | **Country: Canada**

Report To (Name):

Telephone #: 613-592-9600 | **Fax #: 613-592-9601**

Email Address:

Project Name/Number:

Please Provide Results: ☐ Fax ☒ Email | **Purchase Order:** | **U.S. State Samples Taken:**

EMSL-Bill to: ☒ Same ☐ Different
If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☒ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**For TEM Air 3 hours through 6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT** (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: | **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled

NA.

Client Sample # (s): | **Total # of Samples:**

Relinquished (Client): | **Date:** | **Time:**

Received (Lab): | **Date:** | **Time:**

Comments/Special Instructions: PLM EPA 600/R-93/116 (<0.5%)

OrderID: 671500966

EMSL CANADA, INC.
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Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*):

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Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
13A TO 13C	INSULATION ON BOILER #1 AND #2 IN THE FURNACE ROOM - BASEMENT	PARGING	12/14/2015 TO 12/15/2015
14A TO 14C	ON ELBOWS OF CI/CU PIPES - STORAGE ROOM #2, #5 AND PARKING LOT	PARGING	
15A TO 15C	ON WALLS IN THE FURNACE ROOM - BASEMENT.	CEMENTIOUS COMPOUND	
16A TO 16C	OVER WIRE LATH - CEILING - FURNACE ROOM - BASEMENT.	WHITE FIBER INSULATION	
17A TO 17C	AROUND CI PIPES IN WALL CAVITY - UNITS # 204 AND # 303	RED FIRE STOP	
18A TO 18C	AROUND WINDOWS / DOOR FRAME ON EXTERIOR WALLS	BRITTLE BLACK CAULKING	
19A TO 19C	30CM x 30CM WHITE VFT WITH WHITE FLECKS AND ASSOCIATED MASTIC - KITCHEN - UNIT # 303	VFT/MASTIC	
20A TO 20C	30 CM x 30CM CREAM VFT AND ASSOCIATED MASTIC - KITCHEN - UNIT # 303	VFT/MASTIC	
21A TO 21C	ON EXTERIOR WINDOWS (WOOD)	BRITTLE WHITE CAULKING	
22A TO 22C	ON EXTERIOR WOOD WINDOWS.	FLEX. WHITE CAULKING	
23A TO 23C	ON EXTERIOR WOOD WINDOWS.	FLEX. WHITE (APPEARS BLACK) CAULKING	
24A TO 24C	30CM x 30CM BLACK VFT AND ASSOCIATED BLACK MASTIC - KITCHEN - UNIT # 204	VFT/MASTIC	
25A TO 25C	30 CM x 30 CM BEIGE/BROWN PATTERNED VFT - KITCHEN - UNIT # 204 (AND ASSOCIATED YELLOW MASTIC)	VFT/MASTIC	

***Comments/Special Instructions:**

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http://www.EMSL.com / ottawalab@EMSL.com

EMSL Canada Order 671500966
Customer ID: 55GOLA78
Customer PO:
Project ID:

Attn: Kathryn Graham
Golder Associates, Ltd.
1931 Robertson Road
Ottawa, ON K2H 5B7

Phone: (613) 592-9600
Fax: (613) 592-9601
Collected: 12/14/2015
Received: 12/16/2015
Analyzed: 12/22/2015

Proj: 1547068 (2000)

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

Client Sample ID: 01A **Lab Sample ID:** 671500966-0001
Sample Description: on grey roof shingles/gloss black tar

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	100%	None Detected	

Client Sample ID: 01B **Lab Sample ID:** 671500966-0002
Sample Description: on grey roof shingles/gloss black tar

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	100%	None Detected	

Client Sample ID: 01C **Lab Sample ID:** 671500966-0003
Sample Description: on grey roof shingles/gloss black tar

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Black	0%	100%	None Detected	

Client Sample ID: 02A **Lab Sample ID:** 671500966-0004
Sample Description: on original gravel roof/flat black tar

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	5%	95%	None Detected	

Client Sample ID: 02B **Lab Sample ID:** 671500966-0005
Sample Description: on original gravel roof/flat black tar

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	3%	97%	None Detected	

Client Sample ID: 02C **Lab Sample ID:** 671500966-0006
Sample Description: on original gravel roof/flat black tar

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Black	5%	95%	None Detected	

Client Sample ID: 03A **Lab Sample ID:** 671500966-0007
Sample Description: on metal around elevator shaft room - roof ext./flex. Brown caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Brown	0%	100%	None Detected	

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EMSL Canada Order 671500966
Customer ID: 55GOLA78
Customer PO:
Project ID:

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

Client Sample ID: 03B **Lab Sample ID:** **671500966-0008**
Sample Description: on metal around elevator shaft room - roof ext./flex. Brown caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Brown	0%	100%	None Detected	

Client Sample ID: 03C **Lab Sample ID:** **671500966-0009**
Sample Description: on metal around elevator shaft room - roof ext./flex. Brown caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Brown	0%	100%	None Detected	

Client Sample ID: 04A **Lab Sample ID:** **671500966-0010**
Sample Description: around metal duct on elvtr shaft rm ext. wall-roof/black (appears grey) caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	85%	**15% Chrysotile**	

Client Sample ID: 04B **Lab Sample ID:** **671500966-0011**
Sample Description: around metal duct on elvtr shaft rm ext. wall-roof/black (appears grey) caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	85%	**15% Chrysotile**	

Client Sample ID: 04C **Lab Sample ID:** **671500966-0012**
Sample Description: around metal duct on elvtr shaft rm ext. wall-roof/black (appears grey) caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Black	0%	85%	**15% Chrysotile**	

Client Sample ID: 05A **Lab Sample ID:** **671500966-0013**
Sample Description: over concrete at entrance/white stipple over cream plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray/White/Beige	0%	100%	None Detected	

Client Sample ID: 05B **Lab Sample ID:** **671500966-0014**
Sample Description: over concrete at entrance/white stipple over cream plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White/Beige	0%	100%	None Detected	

Client Sample ID: 05C **Lab Sample ID:** **671500966-0015**
Sample Description: over concrete at entrance/white stipple over cream plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	White	0%	100%	None Detected	

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EMSL Canada Order 671500966
Customer ID: 55GOLA78
Customer PO:
Project ID:

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

Client Sample ID: 06A **Lab Sample ID:** **671500966-0016**

Sample Description: on brick wall- basement hall- above unit #4/rough/grey plaster, w/ horse hair, white skim plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray/White	0%	98%	2% Chrysotile	

Client Sample ID: 06B **Lab Sample ID:** **671500966-0017**

Sample Description: on brick wall- stairwell- adj. to roof access door/rough/grey plaster, w/ horse hair, white skim plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray/White	0%	98%	2% Chrysotile	

Client Sample ID: 06C **Lab Sample ID:** **671500966-0018**

Sample Description: on wire lath - ceiling- unit #204/rough/grey plaster, w/ horse hair, white skim plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Gray/White	0%	98%	2% Chrysotile	

Client Sample ID: 06D **Lab Sample ID:** **671500966-0019**

Sample Description: on walls in storage room - adj to kitchen unit 303/rough/grey plaster, w/ horse hair, white skim plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray/White	0%	98%	2% Chrysotile	

Client Sample ID: 06E **Lab Sample ID:** **671500966-0020**

Sample Description: on walls in stairwell- Level #2/rough/grey plaster, w/ horse hair, white skim plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray/White	2%	96%	2% Chrysotile	

Client Sample ID: 06F **Lab Sample ID:** **671500966-0021**

Sample Description: on walls in living room - unti #303/rough/grey plaster, w/ horse hair, white skim plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Gray/White	<1%	98%	2% Chrysotile	

Client Sample ID: 06G **Lab Sample ID:** **671500966-0022**

Sample Description: on walls adj. to elevator- hallway- ground floor/rough/grey plaster, w/ horse hair, white skim plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray/White	0%	98%	2% Chrysotile	

Client Sample ID: 07A **Lab Sample ID:** **671500966-0023**

Sample Description: on wall adj. to elevators- ground floor/dry wall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	100%	None Detected	

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EMSL Canada Order 671500966
Customer ID: 55GOLA78
Customer PO:
Project ID:

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

Client Sample ID: 07B **Lab Sample ID:** **671500966-0024**
Sample Description: on wall adj. to stairwell- basement hallway/dry wall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	3%	97%	None Detected	

Client Sample ID: 07C **Lab Sample ID:** **671500966-0025**
Sample Description: on wall in stairwell- adj. to door - level 4/dry wall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	White	5%	95%	None Detected	

Client Sample ID: 07D **Lab Sample ID:** **671500966-0026**
Sample Description: around door in stairwell at parking level/dry wall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	100%	None Detected	

Client Sample ID: 07E **Lab Sample ID:** **671500966-0027**
Sample Description: west perimeter wall - unit #303/dry wall joint compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	100%	None Detected	

Client Sample ID: 08A-Vinyl Floor Tile **Lab Sample ID:** **671500966-0028**
Sample Description: 30cm x 30cm cream vft w/ tan flecks and its mastic/VFT

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Tan	0%	100%	None Detected	

Client Sample ID: 08A-Mastic **Lab Sample ID:** **671500966-0028A**
Sample Description: 30cm x 30cm cream vft w/ tan flecks and its mastic/VFT

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	100%	None Detected	

Client Sample ID: 08B-Vinyl Floor Tile **Lab Sample ID:** **671500966-0029**
Sample Description: 30cm x 30cm cream vft w/ tan flecks and its mastic/VFT

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Tan	0%	100%	None Detected	

Client Sample ID: 08B-Mastic **Lab Sample ID:** **671500966-0029A**
Sample Description: 30cm x 30cm cream vft w/ tan flecks and its mastic/VFT

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	100%	None Detected	

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EMSL Canada Order 671500966
Customer ID: 55GOLA78
Customer PO:
Project ID:

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

Client Sample ID: 08C-Vinyl Floor Tile **Lab Sample ID:** **671500966-0030**
Sample Description: 30cm x 30cm cream vft w/ tan flecks and its mastic/VFT

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Tan	0%	100%	None Detected	

Client Sample ID: 08C-Mastic **Lab Sample ID:** **671500966-0030A**
Sample Description: 30cm x 30cm cream vft w/ tan flecks and its mastic/VFT

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Black	0%	100%	None Detected	

Client Sample ID: 09A **Lab Sample ID:** **671500966-0031**
Sample Description: green vinyl sheet flooring/vinyl sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Green	0%	95%	**5% Chrysotile**	

Client Sample ID: 09B **Lab Sample ID:** **671500966-0032**
Sample Description: green vinyl sheet flooring/vinyl sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Green	0%	95%	**5% Chrysotile**	

Client Sample ID: 09C **Lab Sample ID:** **671500966-0033**
Sample Description: green vinyl sheet flooring/vinyl sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Green	0%	97%	**3% Chrysotile**	

Client Sample ID: 10A **Lab Sample ID:** **671500966-0034**
Sample Description: on CI/CU pipes in storage rooms and parking garage/air-cell pipe insulation

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray	0%	40%	**60% Chrysotile**	

Client Sample ID: 10B **Lab Sample ID:** **671500966-0035**
Sample Description: on CI/CU pipes in storage rooms and parking garage/air-cell pipe insulation

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray	25%	25%	**50% Chrysotile**	

Client Sample ID: 10C **Lab Sample ID:** **671500966-0036**
Sample Description: on CI/CU pipes in storage rooms and parking garage/air-cell pipe insulation

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/18/2015	Gray	0%	50%	**50% Chrysotile**	

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EMSL Canada Order 671500966
Customer ID: 55GOLA78
Customer PO:
Project ID:

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

Client Sample ID: 11A **Lab Sample ID:** **671500966-0037**
Sample Description: cementious in-fill on wire lath- ceil.- strg unit/grey cem. In-fill

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	3%	97%	None Detected	

Client Sample ID: 11B **Lab Sample ID:** **671500966-0038**
Sample Description: cementious in-fill on wire lath- ceil.- strg unit/grey cem. In-fill

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	5%	95%	None Detected	

Client Sample ID: 11C **Lab Sample ID:** **671500966-0039**
Sample Description: cementious in-fill on wire lath- ceil.- strg unit/grey cem. In-fill

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray	5%	95%	None Detected	

Client Sample ID: 11D **Lab Sample ID:** **671500966-0040**
Sample Description: cem. In-fill on wire lath- wall cavity- unit #204/grey cem. In-fill

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	5%	95%	None Detected	

Client Sample ID: 11E **Lab Sample ID:** **671500966-0041**
Sample Description: cem. In-fill on wire lath- wall cavity- unit #204/grey cem. In-fill

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	4%	96%	None Detected	

Client Sample ID: 11F **Lab Sample ID:** **671500966-0042**
Sample Description: cem. In-fill on wire lath- wall cavity- unit #303/grey cem. In-fill

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray	5%	95%	None Detected	

Client Sample ID: 11G **Lab Sample ID:** **671500966-0043**
Sample Description: cem. In-fill on wire lath- wall cavity- unit #303/grey cem. In-fill

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	5%	95%	None Detected	

Client Sample ID: 12A **Lab Sample ID:** **671500966-0044**
Sample Description: over drywall- basement hallway/rough w/ horse hair and skim plaster (over drywall)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray/White	10%	90%	None Detected	

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Client Sample ID: 12B **Lab Sample ID:** **671500966-0045**
Sample Description: over drywall- basement hallway/rough w/ horse hair and skim plaster (over drywall)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray/White	8%	92%	None Detected	

Client Sample ID: 12C **Lab Sample ID:** **671500966-0046**
Sample Description: over drywall- basement hallway/rough w/ horse hair and skim plaster (over drywall)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray/White	5%	95%	None Detected	

Client Sample ID: 13A **Lab Sample ID:** **671500966-0047**
Sample Description: ins. on boiler #1 & #2 in furnace room- basement/parging

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	0%	70%	**30% Chrysotile**	

Client Sample ID: 13B **Lab Sample ID:** **671500966-0048**
Sample Description: ins. on boiler #1 & #2 in furnace room- basement/parging

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	0%	80%	**20% Chrysotile**	

Client Sample ID: 13C **Lab Sample ID:** **671500966-0049**
Sample Description: ins. on boiler #1 & #2 in furnace room- basement/parging

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray	0%	80%	**20% Chrysotile**	

Client Sample ID: 14A **Lab Sample ID:** **671500966-0050**
Sample Description: elbows of CI/CU pipes- strg room 2, 5, & park lot/parging

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	White	20%	50%	**30% Chrysotile**	

Client Sample ID: 14B **Lab Sample ID:** **671500966-0051**
Sample Description: elbows of CI/CU pipes- strg room 2, 5, & park lot/parging

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	20%	50%	**30% Chrysotile**	

Client Sample ID: 14C **Lab Sample ID:** **671500966-0052**
Sample Description: elbows of CI/CU pipes- strg room 2, 5, & park lot/parging

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray	20%	50%	**30% Chrysotile**	

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Client Sample ID: 15A **Lab Sample ID:** **671500966-0053**
Sample Description: on walls in furnace room- basement/cementious compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	2%	96%	2% Chrysotile	

Client Sample ID: 15B **Lab Sample ID:** **671500966-0054**
Sample Description: on walls in furnace room- basement/cementious compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Gray	5%	95%	None Detected	

Client Sample ID: 15C **Lab Sample ID:** **671500966-0055**
Sample Description: on walls in furnace room- basement/cementious compound

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Gray	5%	95%	None Detected	

Client Sample ID: 16A **Lab Sample ID:** **671500966-0056**
Sample Description: over wire lath- ceiling- furnace room- basement/white fiber insulation

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	97%	3%	None Detected	

Client Sample ID: 16B **Lab Sample ID:** **671500966-0057**
Sample Description: over wire lath- ceiling- furnace room- basement/white fiber insulation

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	95%	5%	None Detected	

Client Sample ID: 16C **Lab Sample ID:** **671500966-0058**
Sample Description: over wire lath- ceiling- furnace room- basement/white fiber insulation

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	93%	7%	None Detected	

Client Sample ID: 17A **Lab Sample ID:** **671500966-0059**
Sample Description: around CI pipes in wall cavity- unti #204 & #303/red fire stop

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Red	4%	96%	None Detected	

Client Sample ID: 17B **Lab Sample ID:** **671500966-0060**
Sample Description: around CI pipes in wall cavity- unti #204 & #303/red fire stop

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Red	4%	96%	None Detected	

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Client Sample ID: 17C **Lab Sample ID:** **671500966-0061**
Sample Description: around CI pipes in wall cavity- unti #204 & #303/red fire stop

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Red	5%	95%	None Detected	

Client Sample ID: 18A **Lab Sample ID:** **671500966-0062**
Sample Description: around windows/ door frame on exterior walls/brittle black caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	95%	**5% Chrysotile**	

Client Sample ID: 18B **Lab Sample ID:** **671500966-0063**
Sample Description: around windows/ door frame on exterior walls/brittle black caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	95%	**5% Chrysotile**	

Client Sample ID: 18C **Lab Sample ID:** **671500966-0064**
Sample Description: around windows/ door frame on exterior walls/brittle black caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	95%	**5% Chrysotile**	

Client Sample ID: 19A-Vinyl Floor Tile **Lab Sample ID:** **671500966-0065**
Sample Description: 30cmx30cm white vft white specks, kitchen unit 303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	100%	None Detected	

Client Sample ID: 19A-Mastic **Lab Sample ID:** **671500966-0065A**
Sample Description: 30cmx30cm white vft white specks, kitchen unit 303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Yellow	0%	100%	None Detected	

Client Sample ID: 19B-Vinyl Floor Tile **Lab Sample ID:** **671500966-0066**
Sample Description: 30cmx30cm white vft white specks, kitchen unit 303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	100%	None Detected	

Client Sample ID: 19B-Mastic **Lab Sample ID:** **671500966-0066A**
Sample Description: 30cmx30cm white vft white specks, kitchen unit 303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Yellow	0%	100%	None Detected	

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Client Sample ID: 19C-Vinyl Floor Tile **Lab Sample ID:** **671500966-0067**
Sample Description: 30cmx30cm white vft white specks, kitchen unit 303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	100%	None Detected	

Client Sample ID: 19C-Mastic **Lab Sample ID:** **671500966-0067A**
Sample Description: 30cmx30cm white vft white specks, kitchen unit 303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Yellow	0%	100%	None Detected	

Client Sample ID: 20A-Vinyl Floor Tile **Lab Sample ID:** **671500966-0068**
Sample Description: 30cmx30cm cream vft, kitchen unit #303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Tan	2%	98%	None Detected	

Client Sample ID: 20A-Mastic **Lab Sample ID:** **671500966-0068A**
Sample Description: 30cmx30cm cream vft, kitchen unit #303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Brown	0%	100%	None Detected	

Client Sample ID: 20B-Vinyl Floor Tile **Lab Sample ID:** **671500966-0069**
Sample Description: 30cmx30cm cream vft, kitchen unit #303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Tan	0%	100%	None Detected	

Client Sample ID: 20B-Mastic **Lab Sample ID:** **671500966-0069A**
Sample Description: 30cmx30cm cream vft, kitchen unit #303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	100%	None Detected	

Client Sample ID: 20C-Vinyl Floor Tile **Lab Sample ID:** **671500966-0070**
Sample Description: 30cmx30cm cream vft, kitchen unit #303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Tan	5%	95%	None Detected	

Client Sample ID: 20C-Mastic **Lab Sample ID:** **671500966-0070A**
Sample Description: 30cmx30cm cream vft, kitchen unit #303/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	2%	98%	None Detected	

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Client Sample ID: 21A **Lab Sample ID:** **671500966-0071**
Sample Description: on exterior windows (wood)/brittle white caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	98%	**2% Chrysotile**	

Client Sample ID: 21B **Lab Sample ID:** **671500966-0072**
Sample Description: on exterior windows (wood)/brittle white caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	0%	98%	**2% Chrysotile**	

Client Sample ID: 21C **Lab Sample ID:** **671500966-0073**
Sample Description: on exterior windows (wood)/brittle white caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	5%	93%	**2% Chrysotile**	

Client Sample ID: 22A **Lab Sample ID:** **671500966-0074**
Sample Description: on exterior windows (wood)/flexible white caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	10%	80%	**10% Chrysotile**	

Client Sample ID: 22B **Lab Sample ID:** **671500966-0075**
Sample Description: on exterior windows (wood)/flexible white caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	10%	80%	**10% Chrysotile**	

Client Sample ID: 22C **Lab Sample ID:** **671500966-0076**
Sample Description: on exterior windows (wood)/flexible white caulking

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	10%	80%	**10% Chrysotile**	

Client Sample ID: 23A **Lab Sample ID:** **671500966-0077**
Sample Description: on exterior windows (wood)/flexible white caulking (appears black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	5%	89%	**6% Chrysotile**	

Client Sample ID: 23B **Lab Sample ID:** **671500966-0078**
Sample Description: on exterior windows (wood)/flexible white caulking (appears black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	5%	89%	**6% Chrysotile**	

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Client Sample ID: 23C **Lab Sample ID:** **671500966-0079**
Sample Description: on exterior windows (wood)/flexible white caulking (appears black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	White	5%	88%	**7% Chrysotile**	

Client Sample ID: 24A-Vinyl Floor Tile **Lab Sample ID:** **671500966-0080**
Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	2%	98%	None Detected	

Client Sample ID: 24A-Mastic **Lab Sample ID:** **671500966-0080A**
Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Black	0%	98%	**2% Chrysotile**	

Client Sample ID: 24A-Mastic 2 **Lab Sample ID:** **671500966-0080B**
Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Yellow	0%	100%	None Detected	

Client Sample ID: 24B-Vinyl Floor Tile **Lab Sample ID:** **671500966-0081**
Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Black	2%	98%	None Detected	

Client Sample ID: 24B-Mastic **Lab Sample ID:** **671500966-0081A**
Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Black	0%	98%	**2% Chrysotile**	

Client Sample ID: 24B-Mastic 2 **Lab Sample ID:** **671500966-0081B**
Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Yellow	5%	95%	None Detected	

Client Sample ID: 24C-Vinyl Floor Tile **Lab Sample ID:** **671500966-0082**
Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Black	2%	98%	None Detected	

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Client Sample ID: 24C-Mastic ***Lab Sample ID:*** **671500966-0082A**

Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Black	0%	98%	**2% Chrysotile**	

Client Sample ID: 24C-Mastic 2 ***Lab Sample ID:*** **671500966-0082B**

Sample Description: 30cmx30cm black vft - kitchen unti 204/VFT/mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Yellow	3%	97%	None Detected	

Client Sample ID: 25A-Vinyl Floor Tile ***Lab Sample ID:*** **671500966-0083**

Sample Description: 30cmx30cm beige/brown patterned VFT kitchen unit 2/VFT/ yellow mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Brown	0%	98%	**2% Chrysotile**	

Client Sample ID: 25A-Mastic ***Lab Sample ID:*** **671500966-0083A**

Sample Description: 30cmx30cm beige/brown patterned VFT kitchen unit 2/VFT/ yellow mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Yellow	4%	96%	None Detected	

Client Sample ID: 25B-Vinyl Floor Tile ***Lab Sample ID:*** **671500966-0084**

Sample Description: 30cmx30cm beige/brown patterned VFT kitchen unit 2/VFT/ yellow mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Brown	0%	98%	**2% Chrysotile**	

Client Sample ID: 25B-Mastic ***Lab Sample ID:*** **671500966-0084A**

Sample Description: 30cmx30cm beige/brown patterned VFT kitchen unit 2/VFT/ yellow mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/22/2015	Yellow	2%	98%	None Detected	

Client Sample ID: 25C-Vinyl Floor Tile ***Lab Sample ID:*** **671500966-0085**

Sample Description: 30cmx30cm beige/brown patterned VFT kitchen unit 2/VFT/ yellow mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Brown	0%	98%	**2% Chrysotile**	

Client Sample ID: 25C-Mastic ***Lab Sample ID:*** **671500966-0085A**

Sample Description: 30cmx30cm beige/brown patterned VFT kitchen unit 2/VFT/ yellow mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	12/21/2015	Yellow	0%	100%	None Detected	

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Analyst(s):

Hilary Roberts	PLM (40)
Simon Parent	PLM (63)

Reviewed and approved by:

Lemma Mohammad , Laboratory Manager
or Other Approved Signatory

None Detected = <0.5%. 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. Ottawa, ON

Report amended: 12/22/201514:23:53 Replaces initial report from: 12/22/201514:09:26 Reason Code: DataEntry-Other (see report comment)

OrderID: 551513220

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EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 551513220

Company : Golder Associates Ltd.	**EMSL-Bill to:** ☐ Different ☑ Same If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 1931 Robertson Road	
City: Canada **State/Province:** ON	**Zip/Postal Code:** K2H 5B7 **Country:** Canada
Report To (Name): KATHRYN GRAHAM	**Telephone #:** 613-592-9600
Email Address: KATHRYN_GRAHAM@GOLDER.COM	**Fax #:** 613-592-9601 **Purchase Order:**
Project Name/Number: 1547068	**Please Provide Results:** ☐ FAX ☑ E-mail ☐ Mail
U.S. State Samples Taken: ON	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☐ 72 Hour | ☐ 96 Hour | ☒ 1 Week | ☐ 2 Week

*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☐ % by wt. ☐ mg/cm² ■ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	☐
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *If no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200 9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: KATHRYN GRAHAM **Signature of Sampler:** Kathryn Graham

Sample #	Location	~~Volume/Area~~	Date/Time Sampled
LP01	ON PLASTER WALLS IN STAIRWELL	CREAM PAINT	12/14/2015 TO
LP02	ON RAILINGS IN THE STAIRWELL - BASEMENT	BLACK (OVER DARK RED) PAINT	12/15/2015
LP03	ON STRUCTURAL STEEL BEAMS IN THE PARKING GARAGE	DARK CREAM PAINT	↓
LP04	ON PLASTER WALLS IN HALLWAY - BASEMENT	WHITE PAINT	
LP05	ON CONCRETE FLOOR - HALLWAY - BASEMENT	GREY PAINT (OVER RED)	

Client Sample #'s (LP01) - TO - (LP11) **Total # of Samples:** 11

Relinquished (Client):	KATHRYN GRAHAM	**Date:**	12/15/2015	**Time:**	5:30PM
Received (Lab):		**Date:**		**Time:**	

Comments:

7752 2364 0894

EMSL Analytical, Inc.
2756 Slough Street

Mississauga, ON L4T 1G3
PHONE: 289-997-4602
FAX: 289-997-4607

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only):*

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	[redacted]	Date/Time Sampled
LP06	ON BRICK WALLS IN THE PARKING GARAGE	GREY-WHITE PAINT	12/14/2015 TO 12/15/2015
LP07	ON METAL GARAGE BULKHEAD - EXTERIOR	DARK RED PAINT	
LP08	ONWOOD EXTERIOR WINDOW FRAMES	DARK BROWN PAINT	
LP09	ON PLASTER WALLS IN THE HALLWAY - BASEMENT	OLIVE GREEN PAINT	
LP10	ON STRUCTURAL STEEL BEAMS IN THE PARKING GARAGE	YELLOW PAINT	
LP11	ON METAL [redacted] IN THE STAIRWELL	MEDIUM BROWN (OVERRED) PAINT	

Comments/Special Instructions:

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	551513220
CustomerID:	55GOLA78
CustomerPO:	1547068
ProjectID:	

Attn: **Kathryn Graham**
Golder Associates, Ltd.
1931 Robertson Road
Ottawa, ON K2H 5B7

Phone: (613) 592-9600
Fax: (613) 592-9601
Received: 12/17/15 10:31 AM
Collected:

Project: **1547068**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
LP01	*551513220-0001*		12/21/2015	2100 ppm
	Site: ON PLASTER WALLS IN STAIRWELL Desc: CREAM PAINT			
LP02	*551513220-0002*		12/21/2015	3800 ppm
	Site: ON RAILINGS IN THE STAIRWELL - BASEMENT Desc: BLACK (OVER DARK RED) PAINT			
LP03	*551513220-0003*		12/21/2015	1400 ppm
	Site: ON STRUCTURAL STEEL BEAMS IN THE PARKING GARAGE Desc: DARK CREAM PAINT			
LP04	*551513220-0004*		12/21/2015	1800 ppm
	Site: ON PLASTER WALLS IN HALLWAY - BASEMENT Desc: WHITE PAINT			
LP05	*551513220-0005*		12/21/2015	1700 ppm
	Site: ON CONCRETE FLOOR - HALLWAY - BASEMENT Desc: GREY PAINT (OVER RED)			
LP06	*551513220-0006*		12/21/2015	110 ppm
	Site: ON BRICK WALLS IN THE PARKING GARAGE Desc: GREY-WHITE PAINT			
LP07	*551513220-0007*		12/21/2015	110000 ppm
	Site: ON METAL GARAGE BULKHEAD - EXTERIOR Desc: DARK RED PAINT			
LP08	*551513220-0008*		12/21/2015	150000 ppm
	Site: ON WOOD EXTERIOR WINDOW FRAMES Desc: DARK BROWN PAINT			
LP09	*551513220-0009*		12/21/2015	1000 ppm
	Site: ON PLASTER WALLS IN THE HALLWAY - BASEMENT Desc: OLIVE GREEN PAINT			
LP10	*551513220-0010*		12/21/2015	23000 ppm
	Site: ON STRUCTURAL STEEL BEAMS IN THE PARKING GARAGE Desc: YELLOW PAINT			
LP11	*551513220-0011*		12/21/2015	3600 ppm
	Site: ON METAL IN THE STAIRWELL Desc: MEDIUM BROWN PAINT (OVER RED)			

Lisa Podzyhun
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 established by the AIHA-LAP, unless specifically indicated otherwise.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 12/24/2015 09:18:17

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

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