Pre-renovation Designated Substances and Hazardous Materials Survey

Three Properties:
2811 Bancroft Drive, Sudbury, Ontario
1955 Kingsway, Sudbury, Ontario
2226 Hudson Street, Sudbury, Ontario

Submitted to:
The City of Greater Sudbury
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1.0 INTRODUCTION

1.1 Purpose

Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) was retained by The City of Greater Sudbury (CGS) to conduct a Designated Substances and Hazardous Materials Survey (DSHMS) of three (3) properties belonging to the CGS (Figure 1). These being the Bancroft Drive (Bancroft Lift Station), Kingsway (Kingsway Lift Station) and Hudson Street (Hudson Lift Station) Lift Stations, located in Greater Sudbury, Ontario (hereafter referred to as the "Site"). The survey included the inspection of the following hazardous or other building materials: asbestos-containing materials (ACM), lead-containing materials (LCM), silica, mercury, suspected visible mould growth (SVG), lamp ballasts potentially containing polychlorinated biphenyls (PCBs) and ozone depleting substances (ODS).

The objective of the DSHMS was to identify and quantify, where reasonably possible, within the context of the project scope of work, designated substances (DS) and other regulated materials in the Site buildings, as defined and regulated by Section 30 of the Ontario Occupational Health Safety and Safety Act (OHSA) Revised Statues of Ontario 1990 (as amended), and enforced by the Ontario Ministry of Labour (MOL). The other hazardous materials included in the survey are not regulated by Section 30 of the OHSA; however, these materials may impact the work and workers on the project.

Preliminary recommendations for hazardous materials abatement and removal methods will also be provided, as Amec Foster Wheeler understands that the purpose of the DSHMS was to support contractor tenders and renovation activities conducted by contractors.

This survey is intended for pre-construction purposes only, and may not provide sufficient detail for long-term management of ACMs as required in Section 8 (3) of Ontario Regulation 278/05: Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations (O. Reg. 278/05).

2.0 SCOPE OF WORK

The DSHMS was completed in accordance with Amec Foster Wheeler's Proposal No. PY161005 dated 10 February, 2016. The scope of work included the following tasks:

- Conducted a survey of all readily accessible areas within the Site buildings and associated structures to identify building materials suspected to contain DS and hazardous building materials. The survey included a description of the materials suspected to contain DS and hazardous building materials, as well as their known locations, physical condition, and where possible a visual estimation of quantity. Digital photographs were taken of the identified building materials that contained DS and hazardous materials;

- Collection of bulk samples of building materials suspected to contain asbestos and paint samples potentially containing lead;
- Submission of analytical samples in accordance with appropriate quality assurance/quality control (QA/QC) protocols to an accredited laboratory for analyses; and,
- Preparation of a final report which includes a description of the sampling and analytical methods, all laboratory reports, interpretation of the analytical results, a discussion of findings, conclusions and recommendations for the management of the identified materials, as appropriate.

The following discussion provides an overview of items **not** included in the DSHMS:

1. Process equipment or articles within the Site buildings such as furniture, stored items, subsurface materials or equipment (e.g. drums, vessels, underground storage tanks, etc.) were not included in this survey.
2. Electrical and mechanical systems remained active during this survey and a thorough inspection of such equipment (to confirm the possible presence of PCBs or asbestos) was beyond the scope of this work program. Also, an inspection for mercury switches and in some cases for asbestos gaskets in active equipment was not possible. The potential presence of these materials was noted based on visual inspections only (i.e., no sampling and no equipment dismantling).
3. Additionally, areas that would require confined space entry protocols (e.g., utility corridors, tunnels, crawl spaces, wet wells, etc.) or sampling of materials that could result in a hazard to the surveyor or damage to the equipment or building, were not included in this survey. Inaccessible areas also included the entrance of the receiving well (wet well) at Bancroft Lift Station and the external well on the outside of the three lift stations.
4. Structural components and exterior surfaces of the building including the roof, window caulking, the poured concrete foundation and brick veneer were also not included in the assessment as there was potential to cause damage to the building envelope. Samples from the building envelope were collected in instances where minimal damage would occur (i.e., peeling and flaking materials).

This survey was completed in general accordance with the above scope of work. The field portion was completed by an Amec Foster Wheeler technician on the 14th and 27th of June 2016. A detailed summary of Amec Foster Wheeler's sampling methodology and definitions are provided within the report. A photographic log is provided in Appendix A. Background information and sampling procedures are provided in Appendix B. Laboratory certificate of analyses for asbestos and lead are provided in Appendix C. Figures are provided at the end of the report.

Further limitations of the survey are described in Section 8.0 and in Appendix D.

3.0 GENERAL DESCRIPTION OF BUILDINGS

Based on discussion with CGS and Site observations, Amec Foster Wheeler understands the following about the Site buildings:

3.1 Bancroft Lift Station

- The Bancroft Drive Lift Station is part of the CGS Lift Station network, in use to move wastewater from lower to higher elevations in the Minnow Lake neighborhood (Photo 1).
- The Bancroft Drive Lift Station consists of one (1) 49 square metre (m^2) building with a sub-level basement containing a two tiered wet well. The building is divided into two (2) sections, with two (2) separate entrances, side by side. The sub-level basement section consists of a staircase leading to the poured concrete wet well area, which includes, but not limited to, a screen to remove coarse material, pumps and piping with associated valves, motors, a power supply system, an equipment control and alarm system, an odour control system and a ventilation system. The wet well area is considered an inaccessible area and was only observed from the entrance. The main floor of the building consists of painted concrete block walls with a plywood ceiling and houses the diesel generator system, which includes, but not limited to, a two (2) millimetre (mm) double walled diesel tank, ventilation and air exchange system with various associated piping. A 1.8 m barbed wire equipped chain linked fence surrounds building, which was unlocked at the time of the site visit. The CGS reported that the building was built in 1965.
- Information regarding previous renovations or additions / demolitions was not made available for review. There were no previous Designated Substance Survey (DSS) reports or documentation provided to Amec Foster Wheeler.

The general building details were as follows:

Exterior Walls:	Brick wall (Graffiti covered) with metal soffit and fascia
Interior Walls:	Painted concrete block
Floors:	Painted poured concrete
Ceilings:	Painted plywood
Structure:	Sub-level poured concrete/ground level, concrete block and wooden frame
Mechanical:	Gas heating unit and electrical heating unit
Roof:	Wood roof with asphalt shingles

3.2 Kingsway Lift Station

- The Kingsway Lift Station is part of the CGS Lift Station network, in use to move wastewater from lower to higher elevation in the Minnow Lake/New Sudbury neighborhood (Photo 6).
- The Kingsway Lift Station consists of a one (1) single storey, 42 m^2 building with 1 entrance. The main floor of the building houses the diesel generator system, which includes, but not limited to, a 2 mm double walled diesel tank, ventilation and air exchange system with various associated piping. Approximately 15 m south of the lift station building is an associated wet well / vents and electrical / instrumentation structure (Photo 10). The CGS reported that the building was in 1966.
- Information regarding previous renovations or additions / demolitions was not made available for review. There were no previous DSS reports or documentation provided to Amec Foster Wheeler.

The general building details were as follows:

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Exterior Walls:	Brick
Interior Walls:	Painted gypsum board/ unfinished concrete block
Floors:	Painted poured concrete
Ceilings:	Painted gypsum board
Structure:	Concrete block
Mechanical:	Natural gas heating unit
Roof:	Wooden roof with asphalt shingles

3.3 Hudson Street Lift Station

- The Hudson St. Lift Station is part of the CGS Lift Station network, being in use as a facility to move wastewater from lower to higher elevation in the New Sudbury neighborhood (Photo 11).
- The Hudson St. Lift Station consists of a 1 single storey, 43 m^2 building with 1 entrance. The main floor of the building houses the diesel generator system, which includes, but not limited to, a 2 mm double walled diesel tank, ventilation and air exchange system with various associated piping. Approximately 6 m south of the lift station building is an associated wet well / vents and electrical / instrumentation structure (Photo 12). A 1.8 m barbed wire equipped chain linked fence surrounds building which was locked at the time of the site visit. The CGS reported that the building was in 1976.
- Information regarding previous renovations or additions / demolitions was not made available for review. There were no previous DSS reports or documentation provided to Amec Foster Wheeler.

The general structure details were as follows:

Exterior Walls:	Brick walls with metal soffit and fascia
Interior Walls:	Cement Block covered with unfinished cement board and perforated metal sheeting
Floors:	Painted poured concrete.
Ceilings:	Unknown covered with unfinished cement board
Structure:	Concrete block and wood frame
Mechanical:	Natural Gas heater
Roof:	Wood/Shingles

4.0 REGULATORY REQUIREMENTS AND GUIDELINES

4.1 Designated Substances

This DS report is made to fulfill the Owner's requirements under Section 30 of the OHSA. The building owner must provide this report to all contractors working on the Site. Subsequently, all contractors must furnish this report to their subcontractors. The DS defined under the OHSA and their corresponding regulations at the time of the survey are summarized below.

"Designated Substance" as defined by the OHSA means "*a biological, chemical or physical agent or combination thereof prescribed as a designated substance to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled.*" The OHSA has issued specific regulations under Section 30 of the Act for these substances. The Designated Substances Regulations identified under the Industrial Regulation of the OHSA, provide guidance on exposure and medical monitoring, permissible occupational exposure limits, etc.

The MOL issued a regulation and/or guideline associated with construction related activities for only three of the eleven designated substances and includes asbestos, lead, and silica.

There are eleven designated substances defined by the OHSA, which are regulated by O. Reg. 490/09 - *Designated Substances* in a workplace, as defined by these regulations (manufacturing/process). During manufacturing processes and work within a workplace, hygiene air monitoring could be performed to assess worker exposure levels.

A summary of detailed information regarding the DS and hazardous materials and the regulatory framework surrounding each substance, has been included in Appendix B.

5.0 METHODOLOGY

Ms. Sascha Mills of Amec Foster Wheeler performed the survey and sampling program on 14 and 27 of June 2016. Surveys of all known and accessible areas within the Lift Station buildings and various exterior structures on the properties were performed.

The assessment was performed to establish the location and type of hazardous building materials incorporated in the structures and its finishes. For the purpose of the assessment, and this report, designated substances are defined as those containing the following substances:

- Asbestos;
- Lead;
- Mercury; and,
- Silica (free crystalline silica).

The investigation included an examination for the presence of the following hazardous building materials:

- PCB lamp ballasts;
- Ozone Depleting Substances; and,
- Mould or microbial contamination (visible growth only).

The following DS are not typically found in building materials in a composition/state that are in a hazardous form for worker exposure during general renovation and/or demolition activities; therefore, these materials were not addressed in this survey. Furthermore, CGS did not report the use of any of the following designated substances in any processes:

- Arsenic;
- Acrylonitrile;
- Benzene;
- Coke oven emissions;
- Ethylene oxide;
- Isocyanates; and,
- Vinyl chloride (vinyl chloride monomer, not PVC).

Suspected DS and hazardous materials included in this report were visually identified by appearance, age, and knowledge of current and historical uses of the Site and building materials. The surveys included a detailed description of any suspected DSHMS and included hazardous materials identified within the Site structures.

The exterior building finishes were not removed during the assessment to determine the presence of concealed materials. Concealed locations, such as spaces above solid ceilings, and within shafts and pipe chases were accessed through existing access panels, if present. The attic spaces at the Bancroft Dr. Lift Station and the Kingsway Lift Station via the roof hatch and were observed to be insulated with fiberglass insulation.

Bulk samples of suspected ACM were submitted under chain of custody protocol to the International Asbestos Testing Laboratories (IATL) of Mount Laurel, New Jersey. IATL is accredited for bulk asbestos fiber analysis by the National Voluntary Laboratory Accreditation Program (NVLAP). Samples were analyzed using polarized light microscopy (PLM) methodology (EPA/600/R-93/116).

Paint chip samples were submitted to IATL for lead analysis. IATL is accredited for lead analysis by the National Lead Laboratory Accreditation Program (NLLAP). The samples were subsequently analyzed using flame atomic absorption spectroscopy (FAAS) methodology (ASTM D3335-85A).

6.0 RESULTS

The following section provides an overview of the individual DS and hazardous building materials and the presence of such substances identified at the time of the surveys. A photographic log of select sampled building materials is provided in Appendix A.

6.1 Asbestos-Containing Materials

Amec Foster Wheeler submitted a total of twenty seven (27) bulk samples for analysis of suspected friable and non-friable ACM from homogeneous building materials in various locations of the Lift Station buildings to identify the presence, quantity and where possible the type of asbestos. A total of thirty (30) samples were analyzed with the inclusion of secondary layers. A summary of results of the bulk sampling is found in Table 1. The sample locations are shown on Figures 2 A, B, C.

The IATL Laboratory Certificates of Analysis are provided in Appendix C.

The following sections provide the findings of the survey based on the visual observations and appearance and condition of the materials.

6.1.1 Sprayed Fireproofing and Thermal Insulation\

No sprayed fireproofing or thermal insulation was observed in the three (3) Lift Stations.

Asbestos-containing sprayed fireproofing may be present in inaccessible spaces, such as above solid ceilings, in chases, in column enclosures or within shafts in the buildings.

Dust or fireproofing within ducts, fan units, etc., could not be and were not surveyed and sampled. O. Reg. 278/05 (Section 12 (4) 3) states that ducts and air handling equipment in a building with asbestos-containing sprayed fireproofing are considered to be contaminated in absence of sampling within the duct and equipment. In locations where asbestos-containing sprayed fireproofing is present, ducts are to be assumed to have asbestos-containing fireproofing, fireproofing overspray, or associated dust present within the ducts.

6.1.2 Texture Finishes (Acoustic/Decorative)

No texture finishes were identified at any of the three (3) Lift Stations.

6.1.3 Pipe Insulation

6.1.3.1 Bancroft Drive Lift Station

No pipe insulation was observed in the survey. However, pipes insulated with friable or non-friable asbestos insulations may be present in inaccessible spaces such as beyond the landing in the entrance of the wet well and below.

6.1.3.2 Kingsway Lift Station

No pipe insulation was observed in the survey. However, pipes insulated with friable or non-friable asbestos insulations may be present in inaccessible spaces such as beyond the landing in the entrance of the wet well and below.

6.1.3.3 Hudson Street Lift Station

No pipe insulation was observed in the survey. However, pipes insulated with friable or non-friable asbestos insulations may be present in inaccessible spaces such as beyond the landing in the entrance of the wet well and below.

6.1.4 Duct Insulation

Ducts were observed to be uninsulated at all three (3) Lift Station locations.

6.1.5 Mechanical Equipment Insulation

No mechanical insulation was observed at the three (3) Lift Stations.

6.1.6 Vermiculite

No visual evidence of loose fill vermiculite was present at any of the three (3) Lift Stations. A visual inspection of the attic area at all three sites indicates they are insulated with fiberglass insulation. Demolition or destructive testing of concrete block walls or solid ceilings was not performed, to access areas for inspection or sampling.

6.1.7 Plaster

No plaster finishes were observed at the three (3) Lift Stations.

6.1.8 Drywall Joint Compound

6.1.8.1 Bancroft Drive Lift Station

No drywall joint compound was observed at the Bancroft Dr. Lift Station.

6.1.8.2 Kingsway Lift Station

The ceiling and walls of the Kingsway Lift Station were finished with drywall containing joint compound. Three samples were collected (1955Ki-A-JC-01-03), submitted for analysis and found to be non-asbestos containing.

6.1.8.3 Hudson Street Lift Station

No drywall joint compound was observed at the Hudson St. Lift Station.

6.1.9 Asbestos Cement Products (Transite/Parging/Concrete)

6.1.9.1 Bancroft Drive Lift Station

No transite, parging or concrete board was observed at the Bancroft Dr. Lift Station.

6.1.9.2 Kingsway Lift Station

No transite, parging or concrete board was observed at the Kingsway Lift Station.

6.1.9.3 Hudson Street Lift Station

The ceiling and walls of the Hudson St. Lift Station were finished with cement board and perforated metal sheeting. Three samples were collected (2226Hu-A-CB-01-03), submitted for analysis and found to be non-asbestos containing.

6.1.10 Vinyl Sheet Flooring

Vinyl sheet flooring was not observed at the three (3) Lift Stations.

6.1.11 Vinyl Floor Tile and Mastic

No vinyl floor tiles or mastic was observed at the three (3) Lift Stations.

6.1.12 Caulking / Adhesive

6.1.12.1 Bancroft Drive Lift Station

Three (3) samples of brown caulking (2811Ba-Ex-Cau-01-03) were collected from around the entrance door and were submitted for analysis and found to be non-asbestos containing.

6.1.12.2 Kingsway Lift Station

Three (3) samples of brown caulking (1955Ki-Ex-Cau-01-03) were collected from both the exhaust vent and the intake vent and were submitted for analysis and found to be non-asbestos containing.

6.1.12.3 Hudson Street Lift Station

Three (3) samples of brown caulking (2226Hu-Cau 01-03) were collected from both the exhaust vent and the intake vent and were submitted for analysis and found to be non-asbestos containing.

6.1.13 Rubber Flooring

No rubber flooring was observed at the three (3) Lift Stations.

6.1.14 Concrete Leveling Compound

6.1.14.1 Bancroft Drive Lift Station

No concrete leveling compound was observed at the Bancroft Dr. Lift Station.

6.1.14.2 Kingsway Lift Station

No concrete leveling compound was observed at the Kingsway Lift Station.

6.1.14.3 Hudson Street Lift Station

Three (3) samples of concrete leveling compound (2226Hu-A-LC-01-03) were collected from around the floor area and were submitted for analysis and found to be non-asbestos containing.

6.1.15 Roofing, Roofing Felt and Tar

6.1.15.1 Bancroft Drive Lift Station

Three (3) samples of roofing shingles (2811Ba-Ex-A-01-03) were collected from the perimeter of the roof and were submitted for analysis and found to be non-asbestos containing.

6.1.15.2 Kingsway Lift Station

Three (3) samples of roofing shingles (1955Ki-Ex-SH-01-03) were collected from the perimeter of the roof and were submitted for analysis and found to be non-asbestos containing.

6.1.15.3 Hudson Street Lift Station

Three (3) samples of roofing shingles (2226Hu-Ex-A-01, 02 and 03) were collected from around the roof and were submitted for analysis and found to be non-asbestos containing.

6.1.16 Presumed Asbestos-Containing Materials

ACM may be present in forms that were not observed or sampled (non-friable unless noted otherwise) during the Site inspection including, but not limited to:

- dust in ductwork and HVAC equipment (friable);
- exterior cladding;
- fire-door cores;
- insulation on or in high voltage wiring;
- thermal insulating materials such as gaskets associated with mechanical equipment; and,
- wiring and electrical components.

For the purpose of renovation, demolition, or any other alteration or disturbance, all suspect ACMs, unless confirmed through sampling and analysis, should be considered to contain asbestos and handled in accordance with a written work plan as required by O. Reg. 278/05.

If present, these materials must be presumed to be ACM and are best sampled immediately prior to commencing renovations or demolition of the affected materials.

6.2 Lead-Containing Materials

6.2.1 Lead-Containing Paint

Paint potentially containing lead was identified within the buildings and various components, such as wells, vents, posts on each Lift Station property.

Visually distinctive paint finishes that were identified on the surface of building materials, in more than a limited quantity (i.e., approximately 30 m² or more), were sampled in ten (10) locations to test for the presence and quantity of lead. Paint finishes in limited quantities which were visibly peeling and flaking was also sampled. A summary of bulk samples and the analytical results are summarized in Table 2. The sample locations are indicated on Figures 2 A, B, C.

A lead-containing material (paint) is not defined by the MOL and materials with 90 µg/g (0.009%) or greater would require lead handling procedures or special precautions. Materials with 5,000 µg/g (0.5%) or greater would follow the MOL 2004 Lead Guideline to assist workplace parties understand some of their obligations under the Occupational Health and Safety Act and to define the classification of work for lead-containing construction operations.

6.2.1.1 Bancroft Drive Lift Station

A total of five (5) paint samples were collected from the Bancroft Dr. Lift Station; three (3) from the interior of the building (2811Ba-B-P-01-03), one (1) from the exterior of the building (2811Ba-Ex-P-04) and one (1) from the well cover adjacent to the building (2811Ba-Ex-P-05).

The interior paint samples were collected from the main floor walls and ceiling (white), floor (grey) and metal exhaust pipe cover (silver/grey). The exterior paint samples were collected from the intake vent at the back of the building and the second sample was collected from the adjacent well cover. Results and general condition are as follows:

- 2811Ba-B-P-01– Floor (grey) - Result - 900 µg/g (0.090%) – Condition – Fair - (Photo 2)
- 2811Ba-B-P-02 – Walls and ceiling (white) - Result - <68 µg/g (<0.0068%) – Condition – Poor (Photo 3)
- 2811Ba-B-P-03 – Metal exhaust pipe cover (silver) - Result – (Void) – Condition – Fair
- 2811Ba-Ex-P-04 – Vent (graffiti mix) - Result - 120 µg/g (0.012%) – Condition – Very Poor - (Photo 4)
- 2811Ba-Ex-P-04 – Well Cover (brown) - Result - 2100 µg/g (0.21%) – Condition – Fair - (Photo 5)

Sample 2811Ba-B-P-03 – Metal exhaust pipe cover (silver/grey) had an insufficient quantity of material and therefore could not be tested. It is recommended that should the exhaust pipe cover require replacement, lead handling procedures be in place as a precautionary measure.

All of the samples collected were found to be below the 5,000 µg/g (0.5%) level, however, three (3) of the five (5) samples tested were found to be over 90 µg/g (0.009%), which will require lead handling procedures or special precautions. The interior and exterior painted surfaces are considered to be in very poor to fair condition.

6.2.1.2 Kingsway Lift Station

A total of three (3) paint samples were collected from the Kingsway Lift Station; two (2) from the interior of the building (1955Ki-A-P-01-02), and one (1) from the exterior of the building (1955Ki-Ex-P-03).
The interior paint samples were collected from the main floor walls and ceiling (white) and the floor (grey). The exterior paint sample was collected from the from the entrance door. Results and general condition are as follows:

- 1955Ki-A-P-01– Walls and ceiling (white) - Result - <140 µg/g (<0.014%) – Condition – Fair - (Photo 7)
- 1955Ki-A-P-02 – Floor (grey) - Result - <91 µg/g (<0.0091%) – Condition – Fair (Photo 8)
- 1955Ki-Ex-P-03 – Entrance Door (Brown) - Result - <98 µg/g (<0.0098%) – Condition – Fair - (Photo 9 & 10)

There is visually similar paint to sample 1955Ki-Ex-P-03 – Entrance Door (Brown) above, noted on the associated wet well / vents and electrical / instrumentation structures adjacent to the building, which will require lead handling procedures or special precautions (Photo 10).

All of the samples collected were found to be below the 5,000 µg/g (0.5%) level, however, all three (3) samples tested were found to be over 90 µg/g (0.009%), which will require lead handling procedures or special precautions. The painted surfaces are considered to be in fair condition.

6.2.1.3 Hudson Street Lift Station

A total of two (2) paint samples were collected from the Hudson Lift Station; one (1) from the interior of the building (2226Hu-A-P-01), and one (1) from the exterior of the building (2226Hu-Ex-P-02).

The interior paint sample was collected from the floor (grey). The exterior paint sample was collected from the entrance door. Results and general condition are as follows:

- 2226Hu-A-P-01– Floor (grey) - Result - <35 µg/g (<0.0035%) – Condition – Fair
- 2226Hu -Ex-P-03 – Entrance Door (Brown) - Result - Void – Condition – Fair

Sample (2226Hu-Ex-P-03) Entrance Door (Brown) had an insufficient quantity of material and therefore could not be tested. Visually similar brown paint was sampled at the Bancroft and Kingsway Lift Stations and was found to be over 90 µg/g (0.009%) lead by weight, which will require lead handling procedures or special precautions. The brown paint at the Hudson Lift Station and associated wet well / vents and electrical / instrumentation structures adjacent to the building, will require lead handling procedures or special precautions (Photo 12).

The location of this paint sample location is indicated on Figure 3 C and included the brown paint on the door and wet well. The painted surfaces are considered to be in fair condition.

6.2.1.4 General Observations

During the Site surveys, the majority of painted surfaces at two (2) of the three (3) Lift Stations were observed to be in fair condition. The exception was the interior white wall paint (poor condition) on the walls and the exterior graffiti surfaces (very poor condition) of the Bancroft Dr. Lift Station.

6.2.2 Other Lead Products

Based on the visual survey of the Lift Station properties and the Site inspection identified the following that may contain lead; conduits, solder, cable coverings, and electrical equipment.

These materials were not sampled at the time of the surveys. It should be assumed that all solder material associated with copper and any cast-iron plumbing throughout the buildings may contain lead due to the presumed ages of the buildings.

6.3 Arsenic

Potential sources of arsenic were not identified during the Site inspection.

Low concentrations of arsenic can sometimes be present in paint. The paint samples collected were not analyzed for arsenic.

6.4 Mercury

6.4.1.1 Bancroft Drive Lift Station

Based on the visual survey, the Bancroft Dr. Lift Station contained fluorescent light fixtures on the interior of the main floor room that houses the diesel generator. The bulbs associated with these types of lighting typically contain mercury vapour. Based on the survey, there are approximately twelve (12) bulbs which will require special handling during disposal.

Four (4) metal-halide lights were visible from the entrance into the sub-level basement wet well area. Additional lighting may be present that was inaccessible in the wet well area.

Two (2) thermostats were noted on the main floor. There may be more in the wet well sub-basement of the building. Electrical switches were also present. These materials may contain mercury and will need to be assessed prior to the renovation/demolition of the building.

Low concentrations of mercury can be sometimes present in paint. Paint samples collected were not analyzed for mercury.

6.4.1.2 Kingsway Lift Station

Based on the visual survey, the Kingsway Lift Station contained fluorescent light fixtures on the interior of the building. The bulbs associated with these types of lighting typically contain mercury vapour. Based on the survey, there are seven (7) bulbs which will require special handling during disposal.
Four (4) thermostats were noted on the north wall. There may be more in the wet well and associated electrical panel. Electrical switches were also present. These materials may contain mercury and will need to be assessed prior to the renovation/demolition of the building. These materials may contain mercury and will need to be assessed prior to the renovation/demolition of the building.

Low concentrations of mercury can be sometimes present in paint.
Paint samples collected were not analyzed for mercury.

6.4.1.3 Hudson Street Lift Station

Based on the visual survey, the Hudson St. Lift Station contained fluorescent light fixtures on the interior of the building. The bulbs associated with these types of lighting typically contain mercury vapour. Based on the survey, there are seven (7) bulbs which will require special handling during disposal.

Five (5) thermostats were noted on the south wall. There may be more in the wet well and associated electrical panel. Electrical switches were also present. These materials may contain mercury and will need to be assessed prior to the renovation/demolition of the building. These materials may contain mercury and will need to be assessed prior to the renovation/demolition of the building.

Low concentrations of mercury can be sometimes present in paint.
Paint samples collected were not analyzed for mercury.

6.5 Silica

Based on the visual inspection of the Site buildings at the three (3) Lift Station properties, as well as the historical use of the Site, crystalline silica will be present in poured floors ceilings, concrete block walls, parking barricades and mortar.

6.6 Other Designated Substances

No evidence suggesting the significant presence of acrylonitrile, arsenic, benzene, ethylene oxide, isocyanates, vinyl chloride, and coke oven emissions was observed at any of the three (3) Lift Station properties during the survey. These designated substances are not typically found in building materials in a composition/state that is hazardous. Therefore, these materials were not addressed in this survey.

6.7 Ozone Depleting Substances

No ODSs were noted during the Site visits.

6.8 PCBs

6.8.1.1 Bancroft Drive Lift Station

Six (6) visually similar double light fixtures were observed. One of the ballasts was examined and was found to be non-PCB containing (Philips Advance – Optimum IOPA-2P32-LW-N).

Potentially PCB impregnated cables and other electrical equipment were not sampled.

6.8.1.2 Kingsway Lift Station

Four (4) light fixtures were observed, three (3) visually similar ceiling mounted double light fixtures and one (1) wall mounted single light fixture, which was inaccessible due to its close proximity to the diesel generator. One (1) of the double light fixtures was examined and was found to be non-PCB containing (Thomas Light fixture Dated 99/06/28). One (1) emergency light was on the interior of the building mounted over the entrance.

Potentially PCB impregnated cables and other electrical equipment were not sampled.

6.8.1.3 Hudson Street Lift Station

Four (4) light fixtures were observed, three (3) visually similar ceiling mounted double light fixtures and one (1) wall mounted single light fixture, which was inaccessible due to its close proximity to the diesel generator. One (1) of the double light fixtures was examined and was found to be non-PCB containing (Thomas Light fixture Dated 99/06/28). The light fixtures and florescent bulbs were the same as identified at the Kingsway Lift Station. Potentially PCB impregnated cables and other electrical equipment were not sampled.

6.9 Suspect Visible Mould Growth

6.9.1 Bancroft Drive Lift Station

No Suspect Visible Mould Growth (SVMG) was observed during the survey.

Water damage and SVG may be present in inaccessible areas, such as the sub-level basement of the wet well that were not inspected as part of this scope of work.

6.9.2 Kingsway Lift Station

No SVMG was observed during the survey.

Water damage and SVMG may be present in inaccessible areas of the Site building that were not inspected as part of this scope of work.

6.9.3 Hudson Street Lift Station

No SVG was observed during the survey.

Water damage and SVMG may be present in inaccessible areas of the Site building that were not inspected as part of this scope of work.

7.0 RECOMMENDATIONS

The following recommendations are provided based on the findings of this DSHMS, as outlined in this report.

The presence of DS during renovations or demolition projects requires protective measures to be employed to minimize potential worker exposure in accordance with the OHSA, O. Reg. 278/05 and relevant Guidelines, as outlined in this report.

All waste handling is regulated by O. Reg. 347.

7.1 Worker Notification – Designated Substances

The building owner must notify all employees and contractors involved with building maintenance, renovations, and/or demolition activities, of the presence of designated substances, as required by the OHSA. A copy of this report should also be made available to the Joint Health and Safety Committee (JHSC).

This report must be given to the constructor. In turn, the constructor must provide this report to contractors and sub-contractors.

Prior to tendering project work in the building, the building owner or owner's agent must provide this report to constructors bidding on the project work. In turn, the constructor must provide this report to contractors and subcontractors prior to requesting bids. This report also fulfills the requirements of Section 10 of Ontario Regulation 278/05 - *Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations* (O. Reg. 278/05). This requires that owners report the presence of both friable and non-friable asbestos-containing materials (ACMs) to constructors as part of the tendering process or prior to arranging for work.

Constructors/contractors must use the information in this report when filing a Notice of Project Form with the MOL. In Section 6 of the form, check all Designated Substances listed in this report that will be disturbed. The type of asbestos abatement operation (Type 1, 2, or 3) must be selected in Section 5 of the form. The type of asbestos abatement depends on what ACMs will be removed as part of the renovation project.

Dispose of waste containing hazardous materials as per the requirements of applicable waste handling regulations (waste handling facilities may also have site specific requirements).

7.2 Asbestos-Containing Materials

7.2.1 Friable ACM

No friable ACMs were identified through sampling at all three (3) lift stations.

7.2.2 Non-Friable ACM

No non-friable ACM were identified through sampling at all three (3) lift stations.

7.2.3 Management (Long-Term)

If ACM had been identified or is suspected and identified in the future, the following would apply.

The ACM must be inspected at least every 12 months and be managed by an Asbestos Management Program (AMP) in accordance with O. Reg. 278/05. All ACM that remains in-place must be in good physical condition, and removal or repair is required when ACM becomes damaged (refer to Section 7.2.5).

If the Site contains ACM, an Asbestos Management Program is required for any asbestos containing material (friable and non-friable) which is not removed. As part of asbestos management, the Owner shall perform and/or include;

1. Prepare and maintain on the premises a record of the location of all identified ACM. The record shall contain whether the material is friable or non-friable and shall be updated at least once in each 12-month period.
2. Regulatory Requirements and Client Policies.
3. Roles and Responsibilities.
4. Notifications to occupants and/or tenants. Give any other person who is an occupier of the building written notice of any information in the record that relates to the area they occupy or any work done by that person.
5. Establish and maintain an asbestos awareness program for all building personnel who are likely to work in close proximity to/or may potentially disturb the friable ACM in accordance with Section 8(3) of O. Reg. 278/05. The program should include: (i) the hazards of asbestos exposure; (ii) the use, care and disposal of protective equipment and clothing to be used and worn when doing the work; (iii) personal hygiene to be observed when doing the work; and (iv) the measures and procedures prescribed in the regulations.
6. Emergency Reaction and Procedures.
7. Work Practices (Type 1, 2, 3 and Glove Bag work).

8. Record Keeping.
9. Contractor Requirements

7.2.4 Demolition and Renovation Projects

All friable and non-friable ACM must be removed from the area of a renovation prior to renovations and demolition projects. Removal or abatement of ACM must be completed by a qualified asbestos abatement worker and in accordance with the requirements of O. Reg. 278/05. Abatement activities for confirmed ACMs must be completed using Type 1, 2 and 3 procedures in accordance with O.Reg 278/05. The required procedures will depend on the friability of the material to be abated and the type of tools and method of removal to be used.

Every effort was made to identify potential ACMs; however, in some instances the following ACMs are suspected to be hidden and/or inaccessible:

- gaskets in pipe joints (on pump equipment and roof drains);
- transite board and/or insulating tar paper in and around electrical equipment;
- vermiculite insulation (concrete masonry block walls); and,
- underground sewer pipes.

If suspect ACM is identified during renovation or demolition projects, it should either be sampled and tested for asbestos content or presumed to be ACM. Unforeseen discoveries of asbestos must be reported to the MOL and owner, to remain in compliance with O.Reg. 278/05 and work must be stopped in the work area.

7.3 Lead-Containing Materials

7.3.1 Bancroft Drive Lift Station

Paint potentially containing lead was not identified within the building. The analytical results did not return concentrations in excess of 0.5% or 5,000 µg/g lead by dry weight, the limit determining it a lead-containing paint. However, results indicated that all of the four (4) paint samples analyzed was greater than 0.009% or 90 µg/g lead by weight (2811Ba-A-P-01, 2811Ba-A-P-02, 2811Ba-Ex-P-04, 2811Ba-Ex-P-05). As these materials have lead concentrations greater than 0.009% or 90 µg/g, special handling procedures and worker protection may be required (please see below). The painted surfaces are considered to be in very poor to fair condition. In addition, potential lead-containing materials include electrical cable coverings and electrical equipment.

7.3.2 Kingsway Lift Station

Paint potentially containing lead was not identified within the building. The analytical results did not return concentrations in excess of 0.5% or 5,000 µg/g lead by dry weight, the limit determining it a lead-containing paint. However, results indicated that all three (3) paint

samples analyzed have greater than 0.009% or 90 µg/g lead by dry weight (1955Ki-A-P-01, 1955Ki-A-P-02 and 1955Ki -Ex-P-03). As these materials have lead concentrations greater than 0.009% or 90 µg/g, special handling procedures and worker protection may be required (please see below). The painted surfaces are considered to be in fair condition. In addition, potential lead-containing materials include electrical cable coverings and electrical equipment.

7.3.3 Hudson Street Lift Station

Paint potentially containing lead was not identified within the building. The analytical results did not return concentrations in excess of 0.5% or 5,000 µg/g lead by dry weight, the limit determining it a lead-containing paint. None of the paint analyzed was greater than 0.009% or 90 µg/g lead by weight, however the brown paint used on the door and the wet well, vents and associated electrical panel is similar to samples (2811Ba-Ex-P-05 and 1955Ki-Ex-P-03), which had content of lead concentrations greater than 0.009% or 90 µg/g, therefore it is recommended that the same precautionary special handling procedures and worker protection be followed (please see below). The painted surfaces are considered to be in fair condition. In addition, potential lead-containing materials include electrical cable coverings and electrical equipment.

7.3.4 Remedial Work (Short-Term)

Damaged paint containing greater than 0.009% or 90 µg/g lead by dry weight should be removed or repaired immediately to minimize any potential worker exposure within the Bancroft Dr. Lift Station. It is recommended that the white paint on the interior walls and ceiling and the graffiti paint on the exterior be repaired or removed. The area to be repaired or removed was observed to be approximately 135 m^2 on the exterior of the building and 60 m^2 on the interior of the building. This material will require lead handling procedures or special precautions.

Lead-containing paint debris must be cleaned up immediately. In areas of reported Lead-containing paint debris restrict access to the area until arrangements for clean-up can occur.

7.3.5 Abatement Guidelines

Lead-containing products disturbed during construction may result in worker exposure to lead. Cutting, grinding, drilling, removing, stripping or demolition of materials containing or coated with lead should be completed only with respiratory protection, as outlined, and worker safety precautions as outlined in the *Ministry of Labour Guideline – Lead on Construction Projects, 2004* (MOL Guideline). The Ministry has not established a lower limit for concentrations of lead in paint (or other materials) below which precautions do not need to be considered, and will not accept US EPA or HUD limits (0.5% lead) for this purpose. Therefore, the precautions and details of worker safety will need to be assessed on a project-by-project basis.

We recommend that the building owner and contractor obtain advice to develop a site-specific safety plan (including air monitoring where required) that considers the factors that would affect potential lead exposure of workers. Performing an exposure assessment during work that disturbs reported lead-containing materials or coatings may be able to reduce the use of some

of the precautions that are required. Paints and materials with concentrations lower than 0.5% lead may require modified or reduced procedures than those outlined in the Guideline, as exposures at any level may be a concern.
The building owner and/or contractor should develop site specific procedures for the MOL designated lead operations. These lead operations and procedures and practices are outlined in the MOL Guideline; however, site specific procedures should be considered.

The disposal of construction waste containing lead is controlled under O. Reg. 347 and may be subject to lead leachate analysis prior to disposal (Leachate Criteria, Schedule 4 of O. Reg. 347).

7.4 Mercury

Materials containing mercury were identified at all three (3) Lift Station properties. Typically a worker's exposure to mercury is considered low if the material surfaces/coatings or equipment remain intact (in good physical condition).

Appropriate procedures must be taken to limit exposure to mercury-containing particulate during renovation or demolition projects, as appropriate to protect the worker.

Do not break lamps or separate liquid mercury from components. Mercury-containing materials and lamps should be recycled to reclaim the mercury. Disposal in significant quantities would require mercury-containing materials to be disposed of as hazardous waste.

Mercury vapour is present in fluorescent lights and HID lamps. According to the Pollution Prevention Fact Sheet #21 (Environment Canada, September 2001) titled "*Mercury-Containing Products*", most HID lights qualify as hazardous waste when removed from service. The hazardous waste would be classified as 146T on the facility Generator Registration Report under O. Reg. 347.

7.5 Silica

Crystalline silica is present in the building concrete (e.g., concrete slab floor, concrete block walls and the sludge storage tank).

Construction disturbance of silica-containing products may result in exposures to airborne silica, especially if performed indoors and/or while dry. Cutting, grinding, drilling or demolition of silica-containing materials should be completed with proper respiratory protection and worker safety precautions as outlined in the *Ministry of Labour Guideline – Silica on Construction Projects, 2004*.

7.6 Polychlorinated Biphenyls (PCBs)

The possible presence of PCBs in fluorescent or HID lamp ballasts can be determined based on a visual assessment of the ballast manufacturer labels and comparison of the information to the 1991 Environment Canada document entitled "*Identification of Lamp Ballasts Containing PCBs*" or through laboratory testing. The inspection should be performed while the equipment is de-energized and/or by a licensed electrician during renovation activities. PCB-containing lamp ballasts in good condition and still in service do not require removal or replacement. Leaking ballasts should be verified for PCB content (or assumed), and if found to be PCB containing, managed in accordance with MOE regulations regarding PCB wastes.

Where maintenance alteration, renovation, or demolition activities undertaken at a Site may result in the generation of more than 1.0 kg of PCB waste, it will be necessary to establish a secure licensed PCB storage facility at the Site or dispose of the wastes at an approved PCB disposal or destruction facility. PCB wastes totalling less than 1.0 kg may be disposed as non-hazardous waste at any licensed waste disposal site in accordance with applicable regulations.

7.7 Suspect Visible Mould Growth

SVMG was not identified in the any of the three (3) Lift Stations, however, if it is identified in the future the procedures as outlined in the *Canadian Construction Association – CCA82* document and the Environmental Abatement Council of Ontario's (EACO) *Mould Abatement Guidelines, Edition 2 (2010)* should be followed.

8.0 SURVEY LIMITATIONS

Within the limitations of the agreed-upon scope of work, the field observations, measurements and analysis are considered sufficient to form a general inventory of designated substances and hazardous materials in the sections surveyed. It should be noted that the data presented herein were collected at specific sampling locations, and depending on the homogeneity of the samples. The data may vary between these locations. Some inherent limitations exist as to the thoroughness of this assessment due to the nature of building construction. For example, it may not practical to test all pipe insulation for asbestos content or all paint for lead content at the Site, due to the amount and locations and being located under existing materials. Some reasonable extrapolation (e.g., sampling of similar materials) was required from the findings of the assessment. For example, samples of suspect ACM and LCP were not collected in each homogeneous area of the building when homogeneous materials of a similar nature, composition, and color were sampled in other homogeneous areas.

Within the limitations of the agreed-upon scope of work, the survey did not include building materials found within or forming part of the building envelope and building mechanical systems and equipment. The inspection did not include the identification of suspected designated substances located in the interior of electrical, mechanical (i.e. interior surfaces of ventilation ducting, etc.), inside wall cavities (e.g. pipe chases), inaccessible ceiling plenums, subfloors, underlying materials (e.g., underlying flooring and paint layers), and where sampling could have affected the integrity of the system (e.g., water-proof roof membrane and caulking). Amec

Foster Wheeler is not responsible for the repairs of building materials that were sampled during the survey.

Within the limitations of the agreed-upon scope of work, this assessment has been undertaken and performed in a professional manner in accordance with generally accepted practices, using the degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. Due to physical limitations inherent to this assessment, Amec Foster Wheeler expressly does not warrant that the Site is free of designated substances or that all designated substances have been identified. No other warranties, expressed or implied, are made.

9.0 CLOSURE

Amec Foster Wheeler has prepared this report for the expressed use of CGS and may be relied upon by CGS. No other person or organization is entitled to rely upon any part of this report without the prior written consent of Amec Foster Wheeler. CGS may release all or part(s) of this report to third parties; however, such third party in using this report agrees that it shall have no legal recourse against Amec Foster Wheeler or its subsidiaries, and shall indemnify and defend Amec Foster Wheeler or its subsidiaries from and against all claims arising out of or in conjunction with such use or reliance. This report does not constitute legal advice.

This report presents an overview of issues of concern with the specified designated substances, and included hazardous building materials reflecting Amec Foster Wheeler's best judgment using information reasonably available at the time of Amec Foster Wheeler's Site survey. In preparing this report, Amec Foster Wheeler has relied upon certain information and representations provided by CGS. Amec Foster Wheeler did not attempt to independently verify the accuracy or completeness of that information. To the extent that the conclusions in this report are based in whole or in part on such information, those conclusions are contingent on its accuracy and validity. Amec Foster Wheeler assumes no responsibility for any consequence arising from any information or condition that was concealed, withheld, misrepresented, or otherwise not fully disclosed or available to Amec Foster Wheeler.

No other warranty, expressed or implied, is made. The general limitations of the work are provided in Appendix D.

If you require any assistance or have any question, please contact the undersigned at 705. 682.2632.

Respectfully submitted,

Amec Foster Wheeler Environment & Infrastructure,
a Division of Amec Foster Wheeler Americas Limited

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Senior Industrial Hygienist

Table 1: Asbestos Sample Results

Sample No.	Sample Location / Room	Sample Description	Laboratory Results
2811 Bancroft Drive			
2811 BA-EX-CAU-01	Exterior / Around Door	Brown Caulking	Not detected
2811 BA-EX-CAU-02	Exterior/ Around Door	Brown Caulking	Not detected
2811 BA-EX-CAU-03	Exterior/ Around Door	Brown Caulking	Not detected
2811 BA-EX-SH-01	Exterior/Roof	Shingles	Not detected
2811 BA-EX-SH-01 (L2)	Exterior/Roof	Shingles	Not detected
2811 BA-EX-SH-02	Exterior/Roof	Shingles	Not detected
2811 BA-EX-SH-02 (L2)	Exterior/Roof	Shingles	Not detected
2811 BA-EX-SH-03	Exterior/Roof	Shingles	Not detected
2811 BA-EX-SH-03 (L2)	Exterior/Roof	Shingles	Not detected
1955 Kingsway			
1955 KI-A-JC-01	Interior Walls	Joint Compound	Not detected
1955 KI-A-JC-02	Interior Walls	Joint Compound	Not detected
1955 KI-A-JC-03	Interior Walls	Joint Compound	Not detected
1955 KI-EX-CAU-01	Exterior/Exhaust Vent	Brown Caulking	Not detected
1955 KI-EX-CAU-02	Exterior/Exhaust Vent	Brown Caulking	Not detected
1955 KI-EX-CAU-03	Exterior/Intake Vent	Brown Caulking	Not detected
1955 KI-EX-SH-01	Exterior/Roof	Shingles	Not detected

Sample No.	Sample Location / Room	Sample Description	Laboratory Results
1955 KI-EX-SH-02	Exterior/Roof	Shingles	Not detected
1955 KI-EX-SH-03	Exterior/Roof	Shingles	Not detected
2226 Hudson Street			
2226 HU-A-CB-01	Left of Door	Concrete Board	Not detected
2226 HU-A-CB-02	Under Intake Vent	Concrete Board	Not detected
2226 HU-A-CB-03	Hatch Access	Concrete Board	Not detected
2226 HU-A-LC-01	Floor	Leveling Compound	Not detected
2226 HU-A-LC-02	Floor	Leveling Compound	Not detected
2226 HU-A-LC-03	Floor	Leveling Compound	Not detected
2226 HU-EX-CAU-01	Exterior / Exhaust Vent	Brown Caulking	Not detected
2226 HU-EX-CAU-02	Exterior / Exhaust Vent	Brown Caulking	Not detected
2226 HU-EX-CAU-03	Exterior / Intake Vent	Brown Caulking	Not detected
2226 HU-EX-SH-01	Exterior / Roof	Shingles	Not detected
2226 HU-EX-SH-02	Exterior / Roof	Shingles	Not detected
2226 HU-EX-SH-03	Exterior / Roof	Shingles	Not detected

**An asbestos-containing material (ACM) is defined as a material that contains to 0.5% or greater, asbestos by dry weight in accordance with O. Reg. 278/05.*

*Table 1 represents a summary of laboratory results and **must** be read in conjunction with the detailed findings provided in this report.*

Table 2: Lead Paint Sample Results

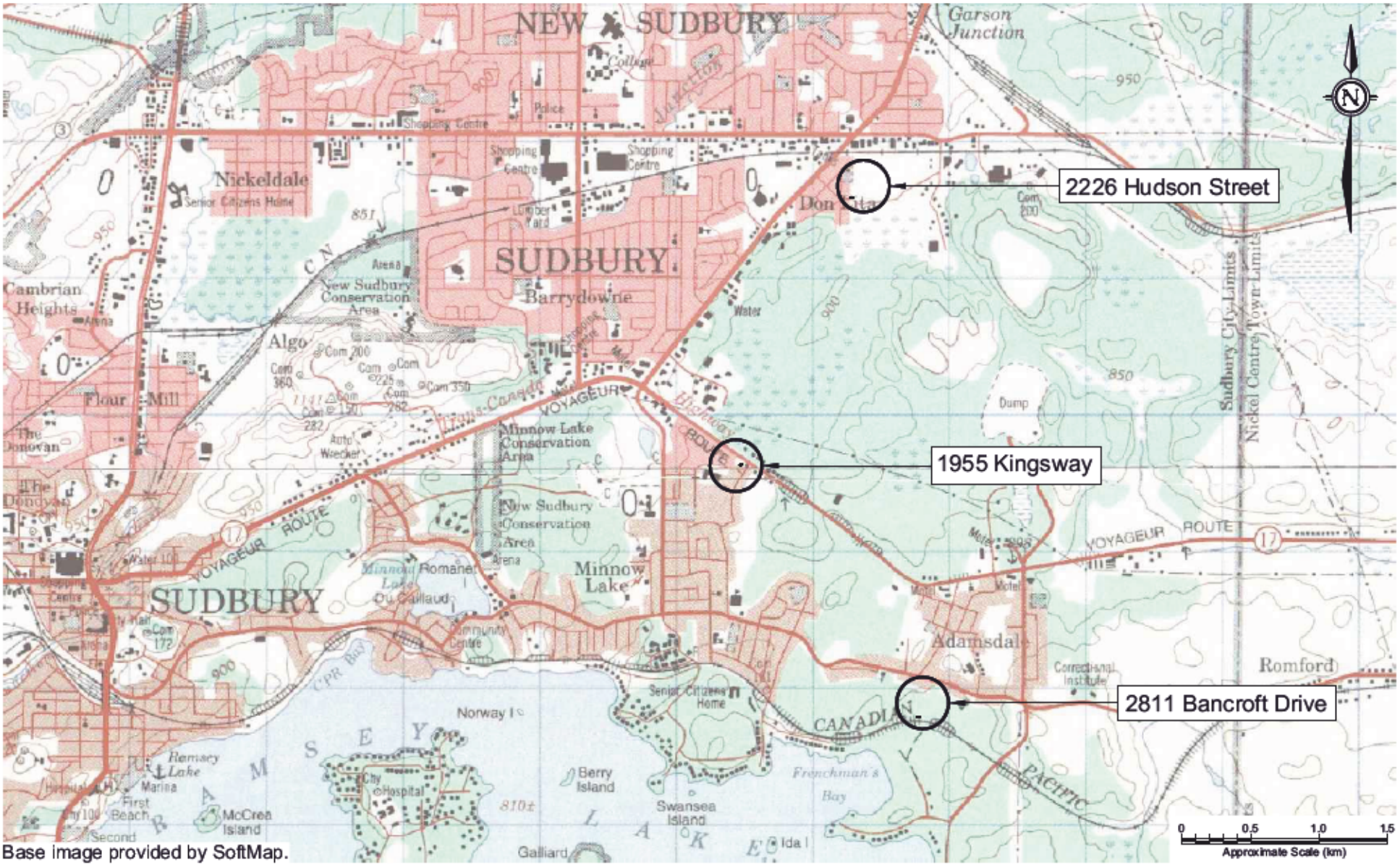
Sample No.	Sample Location	Item Painted	Paint Colour	Laboratory Results (µg/g (%))
2811 BA-B-P-01	Interior	Floor	Grey	*900 (0.090)*
2811 BA-B-P-02	Interior	Wall	White	<68 (<0.0068)
2811 BA-B-P-03	Interior	Exhaust	Grey	*Void - ISQ*
2811 BA-EX-P-04	Exterior	Wall	Graffiti Mix	*120 (0.012)*
2811 BA-EX-P-05	Exterior	Well	Brown	*2,100 (0.21)*
1955 KI-A-P-01	Interior	Wall	/White	140 (0.014)
1955 KI-A-P-02	Interior	Floor	Floor/Grey	<91 (0.0091)
1955 KI-EX-P-03	Exterior	Door	Door/Brown	*<98 (0.0098)*
2226 HU-A-P-01	Interior	Floor	Grey	<35 (<0.0035)
2226 HU-EX-P-02	Exterior	Door	Brown	Void - ISQ

a lead-containing material (paint) is not defined by the MOL and materials with 90 µg/g (0.009%) or greater would require lead handling procedures or special precautions. Materials with **5000 µg/g (0.5%) or greater would follow the MOL 2004 Lead Guideline.*

Note: Bolded entries indicate exceedance of MOL 2004 Lead Guideline. Italic entries indicate results greater than 90 µg/g (0.009%), requiring lead handling procedures or special precautions.

-ISQ-Insufficient Quantity

*Table 2 represents a summary of laboratory results and **must** be read in conjunction with the detailed findings provided in this report.*

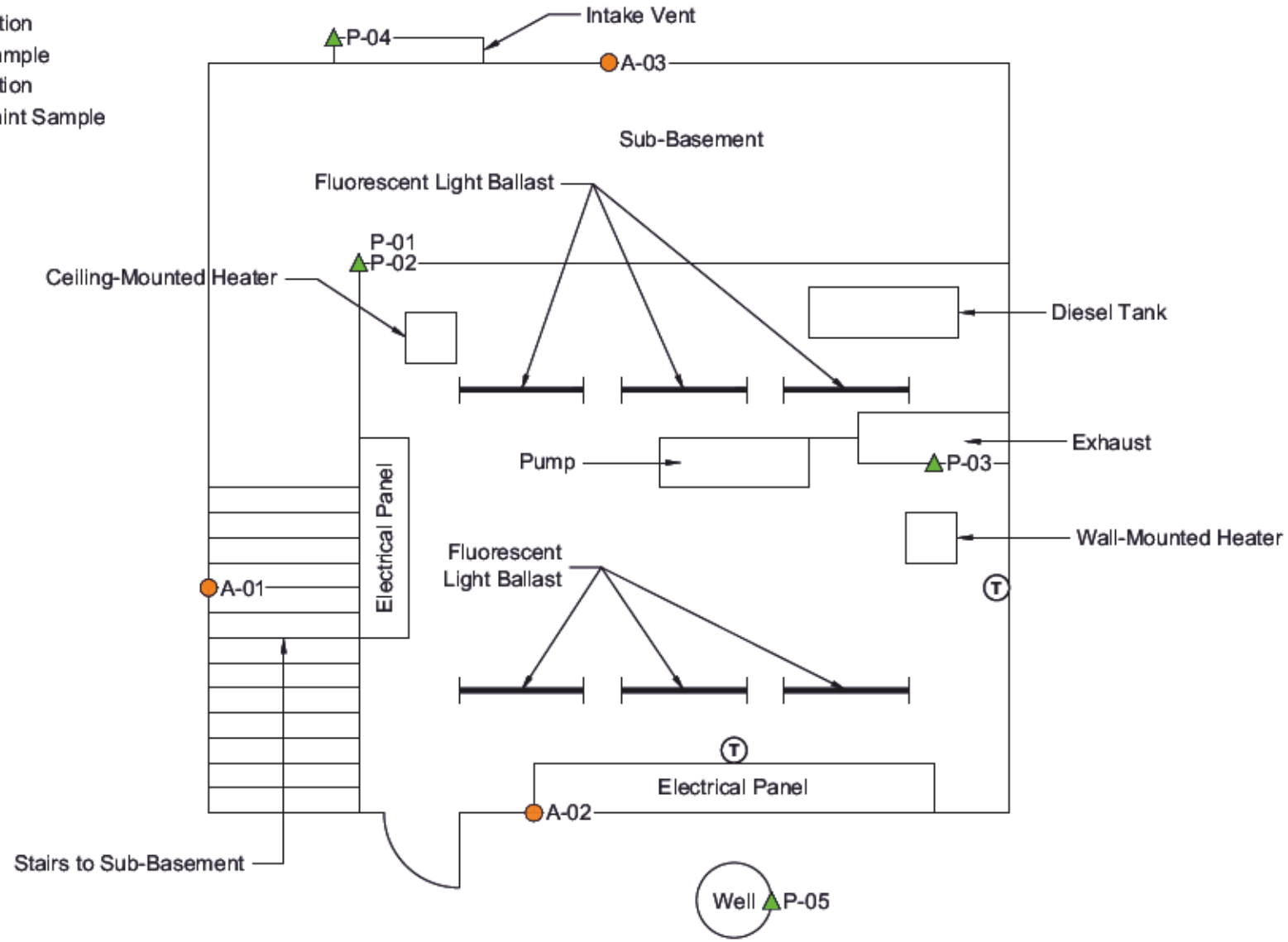


Base image provided by SoftMap.

Sudbury Greater Grand	The City of Greater Sudbury	DWN BY: MAT	PROJECT: Pre-renovation Designated Substances and Hazardous Materials Survey Three Properties: Bancroft Street, Kingsway, Hudson Street City of Greater Sudbury, Ontario	REV. NO.: 1
		CHK'D BY: SEW		DATE: July 2016
Amec Foster Wheeler Environment & Infrastructure 131 Fielding Road Lively, Ontario P3Y 1L7 705-682-2632	amec foster wheeler	SCALE: as shown	TITLE: Site Location Map	PROJECT NO: TY161003.7002
				FIGURE NO: 1

Legend:

- ACM Sample Location
- Confirmed ACM Sample
- Paint Sample Location
- Confirmed Lead Paint Sample
- (T) Thermostat

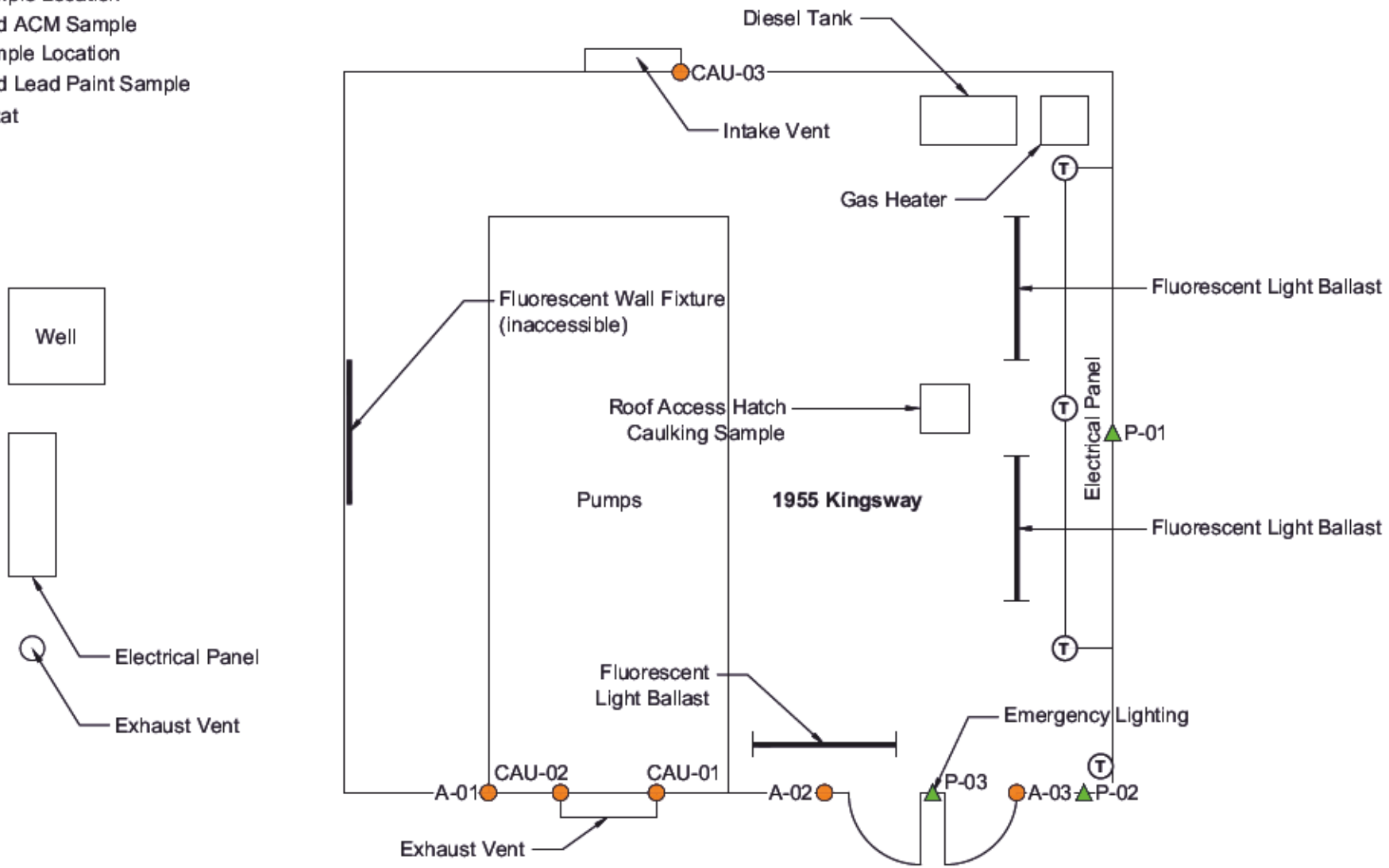


Drawing based on data provided from site visit.

Sudbury	The City of Greater Sudbury	DWN BY: MAT	PROJECT: Pre-renovation Designated Substances and Hazardous Materials Survey Three Properties: Bancroft Street, Kingsway, Hudson Street City of Greater Sudbury, Ontario	REV. NO.: 1
		CHK'D BY: SM		DATE: July 2016
Amec Foster Wheeler Environment & Infrastructure 131 Fielding Road Lively, Ontario P3Y 1L7 705-682-2632	amec foster wheeler	SCALE: N.T.S.	TITLE: Bulk Sample Locations - 2811 Bancroft Drive (Built 1965 - 49m^2)	PROJECT NO: TY161003.7002 FIGURE NO: 2A

Legend:

- ACM Sample Location
- Confirmed ACM Sample
- Paint Sample Location
- Confirmed Lead Paint Sample
- (T) Thermostat

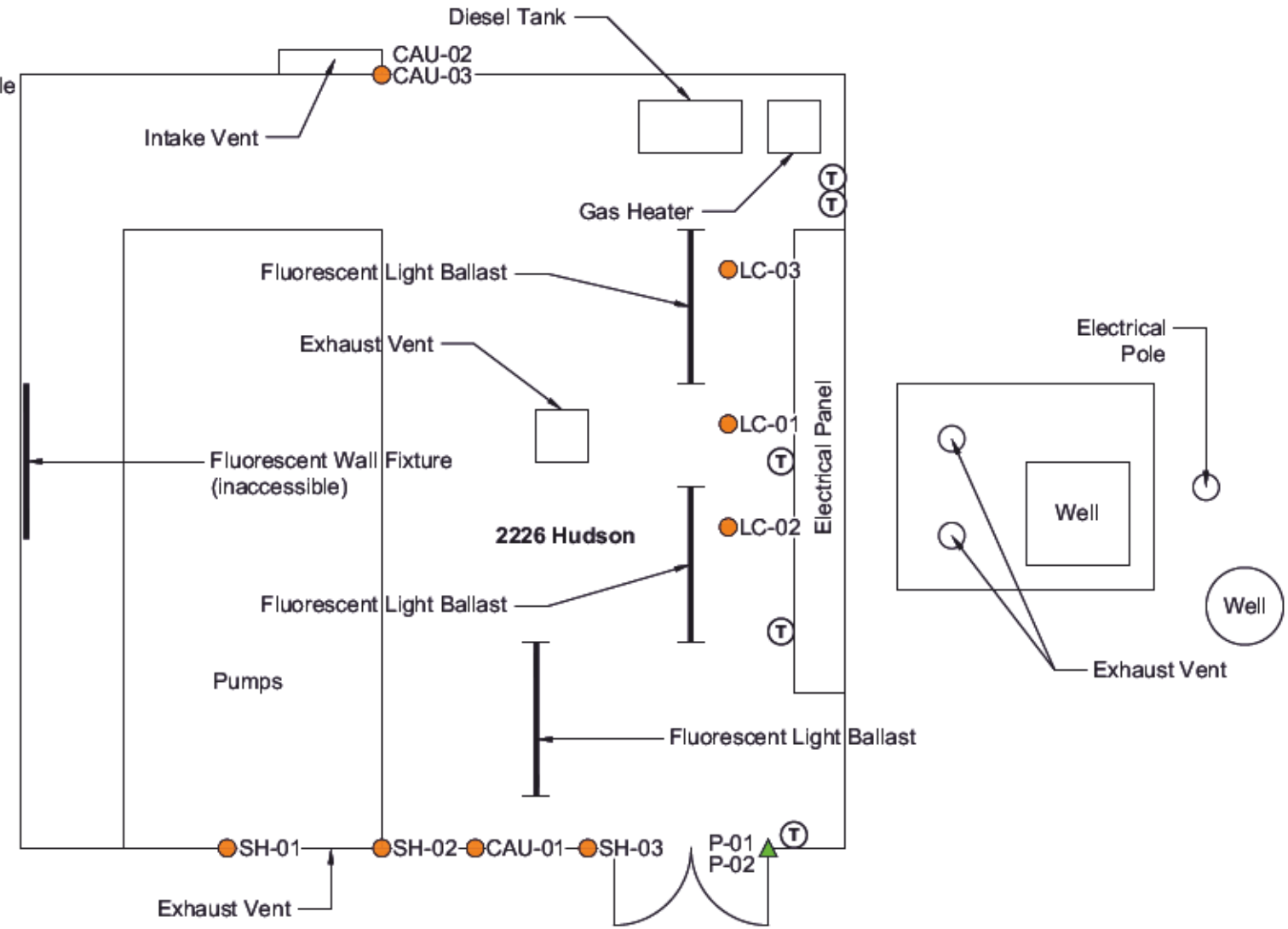


Drawing based on data provided from site visit.

Sudbury	The City of Greater Sudbury	DWN BY: MAT	PROJECT: Pre-renovation Designated Substances and Hazardous Materials Survey Three Properties: Bancroft Street, Kingsway, Hudson Street City of Greater Sudbury, Ontario	REV. NO.: 1
		CHK'D BY: SM		DATE: July 2016
Amec Foster Wheeler Environment & Infrastructure 131 Fielding Road Lively, Ontario P3Y 1L7 705-682-2632	amec foster wheeler	SCALE: N.T.S.	TITLE: Bulk Sample Locations - 1955 Kingsway (Built 1955 - 42 m^2)	PROJECT NO: TY161003.7002 FIGURE NO: 2B

Legend:

- ACM Sample Location
- Confirmed ACM Sample
- Paint Sample Location
- Confirmed Lead Paint Sample
- (T) Thermostat



Drawing based on data provided from site visit.

Sudbury Greater Sudbury	The City of Greater Sudbury	DWN BY: MAT	PROJECT: Pre-renovation Designated Substances and Hazardous Materials Survey Three Properties: Bancroft Street, Kingsway, Hudson Street City of Greater Sudbury, Ontario	REV. NO.: 1
		CHK'D BY: SM		DATE: July 2016
Amec Foster Wheeler Environment & Infrastructure 131 Fielding Road Lively, Ontario P3Y 1L7 705-682-2632	amec foster wheeler	SCALE: N.T.S.	TITLE: Bulk Sample Locations - 2226 Hudson Street (Built 1976 - 43 m^2)	PROJECT NO: TY161003.7002 FIGURE NO: 2C

APPENDIX A

PHOTOGRAPHIC LOG

Photo 1: *Bancroft Drive Lift Station* – Paint damaged by graffiti.

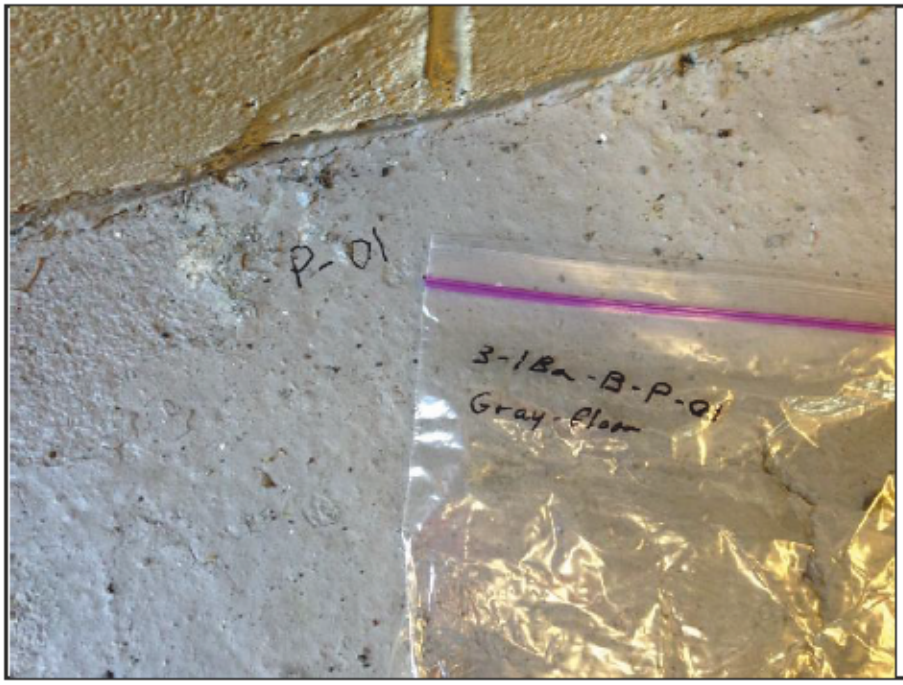


Photo 2: *Bancroft Drive Lift Station* Sample # 2811Ba-B-P-01– Floor (grey) 900 µg/g (0.090%) lead by dry weight – Condition – Fair

Photo 3:
Bancroft Drive Lift Station
Sample # 2811Ba-B-P-02 – Walls and ceiling (white) - <68 µg/g (0.0068%) lead by dry weight – Condition – Poor

.

Photo 4:
Bancroft Drive Lift Station
Sample # 2811Ba-Ex-P-04 – Vent (graffiti mix) - 120 µg/g (0.012%) lead by dry weight – Condition – Very Poor

Photo 5:
Bancroft Drive Lift Station
Sample # 2811Ba-Ex-P-04 – Well Cover (brown) - 2100 µg/g (0.21%) lead by dry weight – Condition - Fair

Photo 6:
Kingsway Lift Station - Exterior

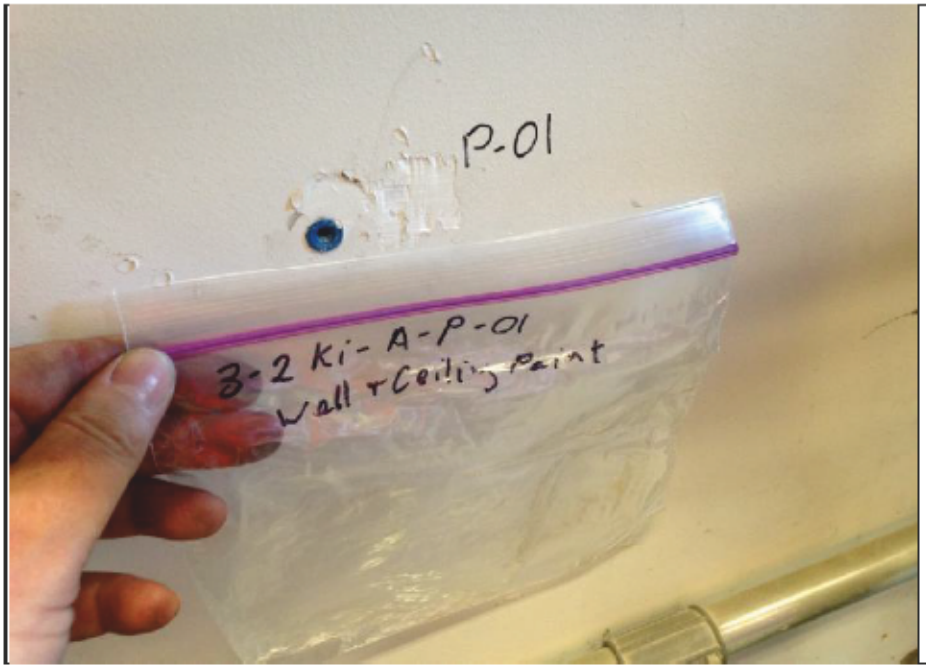


Photo 7: *Kingsway Lift Station* Sample # 1955Ki-A-P-01– Walls and ceiling (white) - Result - <140 µg/g (<0.014%) lead by dry weight – Condition – Fair

Photo 8: *Kingsway Lift Station* Sample # 1955Ki-A-P-02 – Floor (grey) - Result - <91 µg/g (<0.0091%) lead by dry weight – Condition – Fair

Photo 9: *Kingsway Lift Station* Sample # 1955Ki-Ex-P-03 – Entrance Door (Brown) - Result - <98 µg/g (<0.0098%) – Condition – Fair

Photo 10: *Kingsway Lift Station* Wet well / vents and electrical / instrumentation structure contains visually similar paint to sample 1955Ki-Ex-P-03 – Entrance Door (Brown) - Result - <98 µg/g (<0.0098%) above

Photo 11: *Hudson Rd. Lift Station* – exterior brown paint located on vent (14 000 µg/g or 1.4% lead by dry weight).

Photo 12: *Hudson Rd. Lift Station* – Exterior brown paint on associated wet well / vents and electrical / instrumentation structure contains visually similar paint to sample 1955Ki-Ex-P-03 – Entrance Door (Brown) - Result - <98 µg/g (<0.0098%)

APPENDIX B

BACKGROUND INFORMATION AND SAMPLING PROCEDURES

Background Information and Sampling Procedures

Arsenic

Arsenic compounds are used as wood preservatives (e.g., pressure-treated wood), insecticides, herbicides, and in metal alloys and are naturally present in certain minerals and soils. Arsenic has been known to be used as a paint pigment. Although the OHSA does not regulate the use of arsenic in paint, safety precautions must be taken to prevent arsenic-containing particulates from becoming airborne during demolition or renovation projects.

Arsenic Sampling Strategy

Arsenic has been known to be used as a paint pigment. Paint samples were not collected for arsenic analysis as part of this survey.

Asbestos

The handling, identification, documentation, and removal of asbestos are regulated by O. Reg. 278/05. ACM is defined by O. Reg. 278/05 as being a material that contains 0.5% or more asbestos fibres by dry weight. As described in Section 8 of O. Reg. 278/05, a record of ACM must be developed as part of on-going asbestos management in buildings. The record of ACM includes, but is not limited to, the location and condition of ACM and whether it is considered friable or non-friable.

Asbestos is the name used for a group of fibrous minerals that occur naturally in soil and rock. There are over 3,000 products that may have contained asbestos, such as roofing shingles, ceiling tiles, floor tiles, asbestos cement products, gaskets, insulation, paper products, and other building and insulating products. ACMs are divided into the following two broad categories:

- **Friable ACM:** materials that, (a) when dry, can be crumbled, pulverized or powdered by hand pressure, or (b) is crumbled, pulverized or powdered (O. Reg. 278/05 definition). Typical friable materials include acoustical or decorative spray applications, fireproofing, and mechanical insulation.

  ACM that is friable has a much greater potential than non-friable ACM to release airborne asbestos fibres when disturbed. The most common friable ACM used in the past are surfacing materials (usually sprayed fireproofing, texture, decorative or acoustic sprayed finishes) and thermal insulations on mechanical systems.
- **Non-friable ACM:** hard or manufactured products wherein the asbestos fibres are bound. Typical non-friable ACM includes; tar and floor tiles, pre-formed manufactured cement wallboards, pipes, and siding. Though many non-friable ACM products are considered non-friable when intact, they can become friable during demolition or renovation activities.

Special considerations: some ACMs, such as plaster, and compressed fibre ceiling tiles (and sometimes drywall compound) are considered non-friable materials when in-place and in good condition as the associated binding agent prevents the release of airborne fibres. These

materials are non-friable in place, but can generate dust upon removal. These materials are referred to as potentially friable materials (or miscellaneous friable materials). Therefore, these materials can be handled as non-friable if in good condition and undisturbed; however, the binding agent can be relatively weak, and if disturbed or damaged in any way, the material may act as a friable material with an increased risk of asbestos fibre release. These materials must be handled as friable materials in the event of any disturbance or damage. Drywall joint compound is a non-friable building material; however, due to general dust release and generation during removal additional measures to Type 1 or Type 2, as Regulated, may be required (addition of negative pressure, etc.). It is generally recommended that a competent asbestos professional be consulted and a site specific program be developed prior to any major disturbance.

Vermiculite insulation is an unconsolidated material and asbestos fibres may not be uniformly distributed in the material. As such, the standard Phase Light Microscopy (PLM) analytical method is not recommended for quantification and is used solely to determine the presence or absence of asbestos fibres. Any observation of asbestos fibres in the sample is reported as positive for asbestos, or negative (non-detect) if not observed.

The handling, identification, documentation, and removal of asbestos are regulated by O. Reg. 278/05.

ASBESTOS SAMPLING STRATEGY

The survey included a detailed description of any suspected ACM identified. Details of location, type of building material, where possible an estimation of quantity, condition, and accessibility were recorded. ACM samples were not collected from every room, but representative samples were collected from each of the finishes encountered within the building.

There has never been a complete ban on the use of asbestos products in Canada, although asbestos products are subject to various prohibitions and restrictions under Provincial and Federal legislation. While ACM are still manufactured globally and are available for limited use in Canada, the building products available since the late 1980s to early 1990s tend to be low risk, non-friable materials. Buildings constructed between 1986 and 1990 are unlikely to contain high risk ACM such as mechanical or spray applied insulation and newer buildings (post-1992) are less likely to contain non-friable ACM.

There is no construction cut-off date in provincial legislation for the provision of ACM surveys. Amec Foster Wheeler's sampling strategy is to focus on those materials most likely to contain regulated concentrations of asbestos (i.e., ACMs defined as having an asbestos concentration 0.5% or greater) based on knowledge of the use and manufacture of building materials. While no survey could ever fully eliminate the possible presence of all ACMs, or more so, the presence of asbestos in building materials, Amec Foster Wheeler believes this sampling strategy is appropriate and a prudent and responsible limitation.

Asbestos bulk samples were collected in groups in compliance with the requirements of O. Reg. 278/05 (the Regulation). The Regulation identifies the minimum number of samples to be collected and analyzed (one, three, five or seven, depending on quantity, application and friability) from each homogeneous material, in order for the material to be considered non-asbestos. This frequency is indicated in Table 1 of the Regulation. A homogeneous material is defined in O. Reg. 278/05, as one that is uniform in colour and texture. The surveyor used information obtained on Site by visual examination and available information on the phases of the construction, and reported renovations, to determine the extent of each homogeneous area and the number of samples required. In addition, visual differences in applications were noted where possible.

Most buildings undergo renovations on a frequent basis, including the removal and replacement of plaster finishes, drywall partitions and installation of new partitions. Attempts to distinguish and delineate asbestos-containing drywall compound from new non-asbestos drywall compound is often difficult and may be unachievable. This may also be applicable to other finishes such as plasters. Therefore, such materials were sampled at various locations in the building including columns, interior walls, stairwells and corridors and mechanical spaces to get an understanding of the Site conditions. Where various construction periods or visually similar products were present, Amec Foster Wheeler made a reasonable attempt to follow the Regulation with respect to sampling by collecting a minimum of three or up to seven samples for each visibly different material, as outlined in Table 1 of O. Reg. 278/05.

Bulk samples of suspected ACM were submitted under chain of custody protocol to International Asbestos Testing Laboratories (IATL) of Mount Laurel, New Jersey. IATL is accredited for bulk asbestos fiber analysis by the National Voluntary Laboratory Accreditation Program (NVLAP). Samples were analyzed using polarized light microscopy (PLM) methodology (EPA/600/R-93/116). This method is specified by O. Reg. 278/05 for establishing whether the material is asbestos-containing and defining the content and type of asbestos. Results of <0.5% asbestos are considered to be non-asbestos. Note that small asbestos fibres may be missed by PLM due to resolution limitations of the optical microscope that can result in a false negative analytical result; therefore, negative results (i.e. non-detect for asbestos fibres) cannot be guaranteed. Transmission Electron microscopy (TEM) can be used to confirm PLM results; however, this method is not included in this scope of work.

The laboratory followed a “positive-stop” analysis methodology and stopped analyzing a sample set if any one of the series of samples proves to be positive for the presence of asbestos; therefore, duplicate samples taken in order to satisfy the requirements of O. Reg. 278/05 were not analyzed if the initial sample was identified as asbestos-containing. However, all bulk samples of surfacing materials (i.e. fireproofing, plaster and texture coat) were analyzed in order to assist in evaluating the Site conditions and determine the consistency of such materials. Only one result of greater than 0.5% asbestos content is required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos (O. Reg. 278/05). The laboratory stopped analyzing samples from a

homogeneous material once greater than 0.5% asbestos was detected in any of the samples of that material. All samples of a homogeneous material were analyzed if no asbestos was detected.
Where building materials are described in this report as non-asbestos, or described as containing no asbestos, this is subject to the limitations of the analytical method used, and should be understood to mean no asbestos was detected by the laboratory, but may remain bound in compounds or in a smaller size than detectable by the specified method.

Basis of Evaluation and Recommendation

The condition and the potential for disturbance of any ACM observed were visually evaluated. The evaluation criteria were based on the conclusions of published studies, particularly the "*Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario*", existing Ontario regulation, and our experience involving buildings that contain ACM.

An ACM was considered damaged, if it is sprayed material that is delaminating, mechanical insulation with damaged/missing insulation or jacketing, or non-friable materials that have been pulverized or damaged so that they may have become friable.

The priority for remedial action is not only based on the evaluation of condition, but also on several other factors which include:

- Accessibility or potential for direct contact and disturbance.
- Practicality of repair (e.g., will damage to the ACM continue after it is repaired).
- Visibility/accessibility of the material.
- Efficiency of the work (e.g., if damaged ACM is being removed in an area, it may be most practical to remove all ACM in the area even if it is in good condition).

ACM Evaluation – Matrix Assessment of Condition

In evaluating the condition of ACM, the following criteria are used:

GOOD Completely covered in jacketing or other cover material and/or exhibits no evidence of damage or deterioration. No insulation or friable ACM is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

FAIR Minor damage to jacketed or covered surface (cuts, tears, nicks, deterioration, or delamination). Friable ACM is exposed but not showing surface disintegration. The extent of missing ACM should be minor to none and the damage should be readily repairable.

POOR Original insulation jacket or surface cover is missing, damaged, deteriorated, or delaminated. Friable ACM is exposed and significant areas have been damaged. Damage cannot be readily repaired.

Asbestos Sampling Exclusions

ACMs may be present in forms that were not observed or sampled (non-friable unless noted otherwise) during the Site inspection including, but not limited to:

- Sampling the materials may cause consequential damage to the property (e.g. active equipment, asbestos-cement products, concrete block, roofing and windows);
- Sampling the material may have been hazardous to the surveyor (e.g., electrical hazard);
- The material is inaccessible without major demolition (e.g., above drywall ceiling, etc.);
- Sampling materials due to height constraints; or,
- The material is present in such an inconsistent fashion that without complete removal of finishes, the extent of ACM cannot be determined (e.g., floor leveling compound).

For the purpose of renovation, demolition, or any other alteration or disturbance, all suspect ACMs, unless confirmed through sampling and analysis, should be considered to contain asbestos and handled in accordance with a written work plan as required by O. Reg. 278/05.

If present, these materials must be presumed to be ACM and are best sampled immediately prior to commencing renovations or demolition of the affected materials.

Lead

In building construction, lead was frequently used for roofs, cornices, tank linings, electrical conduits, as a main component of soft solder ally used to seal pipe joints and in caulking, ceramic glazing and other such materials. Lead was also used extensively for pigmentation, sealing, and as a drying agent in oil based paints up until the early 1950's. Exterior paints typically contained up to 60% lead by weight.

The MOL issued the "*Lead on Construction Projects*" guideline in September 2004. The guideline includes legal requirements, health effects, controls of the health hazard, classification of construction operations, and measures and procedures for working with the designated substance during operations that create lead dust or fumes.

The United States Department of Housing and Urban Development (the U.S. HUD) guideline of 1 milligram per square centimeter (mg/cm^2), 0.5% lead by weight, or 5,000 parts per million (ppm) lead is used in the United States as a guideline for determining whether the use of safety precautions would be required during operations that create lead dust or fumes.

In 1976, the Canadian Federal Hudson introduced the Liquid Coating Materials Regulations under the Federal Hazardous Products Act (HPA), restricting the maximum total lead content of paints and other liquid coating materials used in or around premises attended by children or pregnant women to 0.5% by weight (5,000 mg/kg). In January 1991, Health Canada negotiated a voluntary reduction of lead content in all Canadian produced consumer paint to a maximum of 0.06%. Recently the Canadian Federal Hudson revoked Part 1 of the HPA and enacted the Surface Coating Materials Regulations (SOR/2005-109) under the Canada Consumers Product Safety Act (S.C. 2010) which reduce the maximum total lead content of any new surface coatings for consumer products to 0.009% (90 mg/kg). This reduction does not generally apply to surface coating applied to buildings or other structures used for agricultural or industrial purposes or as an anti-weathering or anti-corrosive coating.

The OHSA does not set a regulatory limit on the concentration of lead in paint and based on discussions with the MOL, any concentration of lead in paint applications should be considered to be lead-containing. For this report, all paints with a lead concentration greater than the laboratory RL (reliable detection Limit) for the analytical test method have been discussed. For the purposes of this survey where occupational exposures are considered during demolition or renovation, a surface coating containing greater than 0.5% or 5,000 mg/kg (5,000 µg/g) or 1 mg/cm^2 for XRF analysis is considered by Amec Foster Wheeler as presenting an increased potential for worker exposure and subject to controls. Materials with content of lead in any concentration may require special handling procedures and worker protection (i.e., >0.009%).

Lead Sampling Strategy

The survey included a description of building materials suspected to contain lead. Details of location, description, and condition were recorded.

Amec Foster Wheeler performed a visual survey of the Site for the presence of potential lead-containing building materials. Paint chip samples of primary paint colors potentially having greater than 0.5% lead by dry weight were collected and submitted to IATL for lead analysis. IATL is accredited for lead analysis by the National Lead Laboratory Accreditation Program (NLLAP). The samples were subsequently analyzed using flame atomic absorption spectroscopy (FAAS) methodology (ASTM D3335-85A). Paint chip samples were generally collected of typical primary paint colours from common building materials which would be subject to maintenance or recycling during demolition such as walls, trim, doors, etc. It was not Amec Foster Wheeler's intent to sample minute colours (i.e. one random trim colour). Building materials with prefinished coating (i.e., metal siding), where a sample could not be obtained without extensive damage, where substrate interference may pose an issue or if the paint coating was inaccessible (i.e., height) were not collected.

Basis for Evaluation, Condition and Recommendations for Lead

The condition and the potential for disturbance of any lead-containing material observed were visually evaluated. Condition and evaluation of lead paint is summarized below.

Condition

- Good: no visible damage or exposed material.
- Fair: repairable damage with minor amounts of exposed or damaged material (peeling, flaking), minor removal required.
- Poor: extensive damage with missing or exposed paint or substantially damaged materials.

Mercury

Mercury can be used in fluorescent, compact fluorescent and high intensity discharge (HID) lamps, electrical switches, thermostats, thermometers, and certain batteries. All fluorescent and compact fluorescent lights contain mercury regardless of the date of manufacture.

The Canadian Council of Ministers of the Environment (CCME) "*Canada-Wide Standard for Mercury-Containing Lamps*" (2001) is largely geared towards reducing the amount of mercury in lamps at the manufacturing stage; however, they do recommend that the release of mercury can be minimized through the proper recycling and disposal of mercury-containing lamps.

Mercury was also commonly added to leaded paints as a fungal retardant, however it is not commonly tested for as the proper handling and disposal of lead-containing paints would typically minimize any safety or disposal issues for mercury.

In January 1991, under the voluntary industry program negotiated by Health Canada, the intentional addition of mercury to Canadian produced consumer paints for interior use ceased. Under the Federal Surface Coating Materials Regulations (SOR/2005-109), the maximum total mercury concentration of paints and other surface coatings is restricted to 10 mg/kg (0.001%) when a dried sample is tested in accordance with a method that conforms to good laboratory practices. The 10 mg/kg mercury restriction is unique to Canada and is based on a toxicological assessment by Health Canada in 1995, which was reconfirmed in 2004.

The survey included the visual identification of known mercury sources, which may include fluorescent and compact fluorescent lamps.

No sampling for mercury in paint was completed as part of this survey.

Silica

Silica is used in the manufacture of glass, ceramics, abrasives, water treatment products and filtration systems. Crystalline silica materials also are used in the production of concrete or mortar-based building materials, cement, acoustic ceiling tiles, and ceramic tiles which are used for construction purposes. Common construction sand contains free crystalline silica and is present in ceiling tiles, concrete products, mortar, and brick.

The MOL issued the "*Silica on Construction Projects*" guideline in September 2004. The guidelines include legal requirements, health effects, control of the health hazard, classification

of construction operations, and measures and procedures for working with the designated substance during operations that create silica dust.

Silica may be present in many building materials and is therefore expected to be present in the Site building. As such, Amec Foster Wheeler did not specifically survey or sample for the presence of silica, however it has been noted in this report.

HAZARDOUS BUILDING MATERIALS

Polychlorinated Biphenyls (PCB) Containing Lamp Ballasts

PCB-containing products were manufactured for use in applications where stable, fire-resistant, and heat-transfer properties were demanded between 1926-29 and 1977. Most PCBs were sold for use as dielectric fluids (insulating liquids) in electric transformers and capacitors. Other uses included heat transfer fluid, hydraulic fluid, dye carriers in carbonless copy paper, plasticizers in paints, adhesives, and caulking compounds. In Canada, PCBs were prohibited from being used in products, equipment, machinery, electrical transformers and capacitors that were manufactured or imported into the country after July 1980. However, older equipment in use after this date may still contain PCBs if the equipment's fluid has not been changed, or if there was sufficient inventory of such equipment.

PCBs are also regulated under the Federal Canadian Environmental Protection Act, 1999, PCB Regulation SOR/2008-273 which came into force September 2008 and subsequent amendment regulation SOR 2010-57. The Federal PCB regulations generally establish deadlines for ending the use and long term storage of PCBs and products containing PCBs. PCB-containing equipment or any PCB-containing substance with a PCB concentration at or in excess of 2 ppm for liquids and 50 ppm for solids (including applied surface coatings such as paint) are subject to the above Federal regulations.

This survey was limited to potential PCB containing lamp ballasts and is intended for pre-construction or pre-demolition purposes only, and may not provide sufficient detail for long term management of PCBs or to determine end-of-use inventories as required in SOR/2008-273-PCB Regulation.

As part of the survey, Amec Foster Wheeler assessed the Site for the presence of potential PCB-containing lamp ballasts.

The possible presence of PCBs in the fluorescent or other lamp ballasts (i.e. HID) was determined based on a visual assessment and the 1991 Environment Canada document entitled "*Identification of Lamp Ballasts Containing PCBs*." Light fixtures were randomly checked for the presence of PCB light ballasts. A 10% audit of the ballasts was conducted and fixtures were selected randomly and inspected for manufacturer's markings and the presence of PCBs. No testing of PCB-containing liquids or dielectric fluids associated with these ballasts was performed. The majority of light fixtures on-Site were observed to be fluorescent.

Suspect Visible Mould Growth (SVG)

Mould spores are ubiquitous in both indoor and outdoor environments and in the presence of adequate moisture, may pose a concern in a building environment.

There is currently no legislation/regulations specifically covering exposure to mould and/or mould remediation practices in Canada and there are no occupational exposure limits that define acceptable levels of mould exposure without adverse health effects. However, Section 25 and 27 of the OHSA states that an employer and supervisor must take every reasonable precaution to ensure the health and safety of their workers. This includes exposure to moulds and other biological matter.

Direction on the assessment and remediation of mould in Ontario is based on the following documents:

- *"Mould Guidelines for the Canadian Construction Industry"* Canadian Construction Association (document CCA82), February 2004.
- *"Mould Abatement Guidelines, Second Edition."* Environmental Abatement Council of Ontario (EACO), 2010.
- *"Fungal Contamination in Public Buildings Health Effects and Investigation Methods"* Health Canada, 2004.

Suspected mould growth on building materials is identified by visual growth (referred to as suspect visible mould growth (SVG) or evidence of water intrusion / damage. Amec Foster Wheeler performed a walk-through visual inspection of the Site for evidence of substantial moisture issues and mould reservoirs and/or amplifiers. The presence and extent of any SVG and water damage was determined using reasonable means noting that Amec Foster Wheeler may not have been able to identify all possible fungal reservoirs, as certain materials may be hidden by walls, finishes and equipment.

No samples of SVG were collected as part of the project scope of work.

Ozone Depleting Substances (ODSs)

Ozone depleting substances (ODSs) include any substances 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 1 January 1996 (subject to certain essential uses) and a freeze on the production and import of HCFC-22 by 1 January 1996. These regulations also require the complete elimination of HCFC-22 by the year 2020. ODSs and other halocarbons are regulated by Ontario Regulation 463/10 made under the Environmental Protection Act (EPA).

This survey was limited to the visual identification of suspected ODS-containing equipment in accessible areas of the Site. No sampling of suspected ODS-containing equipment was completed as part of this survey.

APPENDIX C

LABORATORY CERTIFICATE OF ANALYSIS

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513749 - PLM
Project: Lift Station DSS-2811 Bancroft
Project No.: TY161003.7002

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5972180 **Client No.:** 2811 BA-EX-CAU-01	**Description:** Brown Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972181 **Client No.:** 2811 BA-EX-CAU-02	**Description:** Brown Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972182 **Client No.:** 2811 BA-EX-CAU-03	**Description:** Brown Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972183 **Client No.:** 2811BA-EX-A-01	**Description:** Brown Shingle **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose	Percent Non-Fibrous Material: 60
Lab No.: 5972183(L2) **Client No.:** 2811BA-EX-A-01	**Description:** Black Tar Paper **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Cellulose	Percent Non-Fibrous Material: 10
Lab No.: 5972184 **Client No.:** 2811BA-EX-A-02	**Description:** Brown Shingle **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose	Percent Non-Fibrous Material: 60

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Randy Caran

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5972184(L2)
Client No.: 2811BA-EX-A-02
Description: Black Tar Paper
Facility:
Location:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
90 Cellulose

Percent Non-Fibrous Material:
10

Lab No.: 5972185
Client No.: 2811BA-EX-A-03
Description: Brown Shingle
Facility:
Location:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
40 Cellulose

Percent Non-Fibrous Material:
60

Lab No.: 5972185(L2)
Client No.: 2811BA-EX-A-03
Description: Black Tar Paper
Facility:
Location:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
90 Cellulose

Percent Non-Fibrous Material:
10

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Randy Caran

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Appendix to Analytical Report

Customer Contact: Shelley Wainio
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

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Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513750 - Lead Paint
Project: Lift Station DSS-2811 Bancroft
Project No.: TY161003.7002

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.:5972175
Client No.:2811 BA-B-P-01
Description: Grey Paint
Location: Floor
Result (% by Weight):0.090
Result (ppm):900
Comments:

Lab No.:5972176
Client No.:2811 BA-B-P-02
Description: White Paint
Location: Wall
Result (% by Weight):<0.0068
Result (ppm):<68
Comments:

Lab No.:5972177
Client No.:2811 BA-B-P-03
Description: Grey Paint
Location: Exhaust
Result (% by Weight): Void
Result (ppm): Void
Comments:**

Lab No.:5972178
Client No.:2811 BA-EX-P-04
Description: Dark Grey Paint
Location: Exhaust
Result (% by Weight):0.012
Result (ppm):120
Comments:

Lab No.:5972179
Client No.:2811 BA-EX-P-05
Description: Brown Paint
Location: Well
Result (% by Weight):0.21
Result (ppm):2100
Comments:

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: AME926

Report Date: 7/11/2016
Report No.: 513750 - Lead Paint
Project: Lift Station DSS-2811 Bancroft
Project No.: TY161003.7002

Appendix to Analytical Report:

Customer Contact: Shelley Wainio
Analysis: ASTM D3335-85a

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Paint
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.

Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.

LSD=0.2 ppm MDL=0.0044% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

*** Matrix / substrate interference possible.

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CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513750 - Lead Paint
Project: Lift Station DSS-2811 Bancroft
Project No.: TY161003.7002

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com.**

* NOTE: Multiple samples received in container. Composite analysis requested per EPA/HUD guidelines not covered by NLLAP/AIHA accreditation.

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CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513744 - PLM
Project: Lift Station DSS-1955 Kingsway
Project No.: TY161003.7002

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5972196 **Client No.:** 1955 KI-A-JC-01	**Description:** White Joint Compound **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972197 **Client No.:** 1955 KI-A-JC-02	**Description:** White Joint Compound **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972198 **Client No.:** 1955 KI-A-JC-02	**Description:** White Joint Compound **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972199 **Client No.:** 1955 KI-EX-CAU-01	**Description:** Brown Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972200 **Client No.:** 1955 KI-EX-CAU-02	**Description:** Brown Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972201 **Client No.:** 1955 KI-EX-CAU-03	**Description:** Brown Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Randy Caran

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513744 - PLM
Project: Lift Station DSS-1955 Kingsway
Project No.: TY161003.7002

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5972202 **Client No.:** 1955 KI-EX-SH-01	**Description:** Black Shingle **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 35 Cellulose	Percent Non-Fibrous Material: 65
Lab No.: 5972203 **Client No.:** 1955 KI-EX-SH-02	**Description:** Black Shingle **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 35 Cellulose	Percent Non-Fibrous Material: 65
Lab No.: 5972204 **Client No.:** 1955 KI-EX-SH-03	**Description:** Black Shingle **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 35 Cellulose	Percent Non-Fibrous Material: 65

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Randy Caran

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: AME926

Report Date: 7/11/2016
Report No.: 513744 - PLM
Project: Lift Station DSS-1955 Kingsway
Project No.: TY161003.7002

Appendix to Analytical Report

Customer Contact: Shelley Wainio
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Client: AME926

Report Date: 7/11/2016
Report No.: 513744 - PLM
Project: Lift Station DSS-1955 Kingsway
Project No.: TY161003.7002

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

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1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

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CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513746 - Lead Paint
Project: Lift Station DSS-1955 Kingsway
Project No.: TY161003.7002

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.: 5972193
Client No.: 1955 KI-A-P-01
Description: White Paint
Location: Wall
Result (% by Weight): <0.014
Result (ppm): <140
Comments: *

Lab No.: 5972194
Client No.: 1955 KI-A-P-02
Description: Grey Paint
Location: Floor
Result (% by Weight): <0.0091
Result (ppm): <91
Comments:

Lab No.: 5972195
Client No.: 1955 KI-EX-P-03
Description: Brown Paint
Location: Door
Result (% by Weight): <0.0098
Result (ppm): <98
Comments:

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

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131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513746 - Lead Paint
Project: Lift Station DSS-1955 Kingsway
Project No.: TY161003.7002

Appendix to Analytical Report:

Customer Contact: Shelley Wainio
Analysis: ASTM D3335-85a

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

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Sample Matrix: Paint
Exceptions Noted: See Following Pages

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Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.

Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.

LSD=0.2 ppm MDL=0.0044% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

*** Matrix / substrate interference possible.

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CERTIFICATE OF ANALYSIS

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131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513746 - Lead Paint
Project: Lift Station DSS-1955 Kingsway
Project No.: TY161003.7002

Disclaimers / Qualifiers:

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* NOTE: Multiple samples received in container. Composite analysis requested per EPA/HUD guidelines not covered by NLLAP/AIHA accreditation.

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CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513721 - PLM
Project: Lift Stations (2226 Hudson)
Project No.: TY161003.7002

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5972335 **Client No.:** 2226 HU-A-CB-01	**Description:** Grey Cementitious **Facility:**	**Location:** Left Of Door
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Synthetic	Percent Non-Fibrous Material: 85
Lab No.: 5972336 **Client No.:** 2226 HU-A-CB-02	**Description:** Grey Cementitious **Facility:**	**Location:** Under Filters
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Synthetic	Percent Non-Fibrous Material: 80
Lab No.: 5972337 **Client No.:** 2226 HU-A-CB-03	**Description:** Grey Cementitious **Facility:**	**Location:** Hatch Access
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972338 **Client No.:** 2226 HU-A-LC-01	**Description:** Grey Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972339 **Client No.:** 2226 HU-A-LC-02	**Description:** Grey Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972340 **Client No.:** 2226 HU-A-LC-03	**Description:** Grey Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature: Vane Smith III
Analyst: Vane Smith

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

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Client: AME926

Report Date: 7/11/2016
Report No.: 513721 - PLM
Project: Lift Stations (2226 Hudson)
Project No.: TY161003.7002

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5972341 **Client No.:** 2226 HU-EX-CAU-01	**Description:** Brown Caulk **Facility:**	**Location:** Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972342 **Client No.:** 2226 HU-EX-CAU-02	**Description:** Brown Caulk **Facility:**	**Location:** Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972343 **Client No.:** 2226 HU-EX-CAU-03	**Description:** Brown Caulk **Facility:**	**Location:** Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5972344 **Client No.:** 2226 HU-EX-SH-01	**Description:** Grey/Black Shingle **Facility:**	**Location:** Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose	Percent Non-Fibrous Material: 90
Lab No.: 5972345 **Client No.:** 2226 HU-EX-SH-02	**Description:** Grey/Black Shingle **Facility:**	**Location:** Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose	Percent Non-Fibrous Material: 85
Lab No.: 5972346 **Client No.:** 2226 HU-EX-SH-03	**Description:** Grey/Black Shingle **Facility:**	**Location:** Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose	Percent Non-Fibrous Material: 85

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature: Vane Smith III
Analyst: Vane Smith

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513721 - PLM
Project: Lift Stations (2226 Hudson)
Project No.: TY161003.7002

Appendix to Analytical Report

Customer Contact: Shelley Wainio
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

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Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

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CERTIFICATE OF ANALYSIS

Client: AMEC Foster Wheeler
131 Fielding Road
Lively ON P3Y 1L7

Client: AME926

Report Date: 7/11/2016
Report No.: 513722 - Lead Paint
Project: Lift Stations (2226 Hudson)
Project No.: TY161003.7002

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.: 5972333
Client No.: 2226 HU-A-P-01
Description: Grey Paint
Location: Floor
Result (% by Weight): <0.0035
Result (ppm): <35
Comments:

Lab No.: 5972334
Client No.: 2226 HU-EX-P-02
Description: Brown Paint
Location: Door
Result (% by Weight): Void
Result (ppm): Void
Comments: **

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/1/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: AME926

Report Date: 7/11/2016
Report No.: 513722 - Lead Paint
Project: Lift Stations (2226 Hudson)
Project No.: TY161003.7002

Appendix to Analytical Report:

Customer Contact: Shelley Wainio
Analysis: ASTM D3335-85a

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Paint
Exceptions Noted: See Following Pages

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iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.

Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.

LSD=0.2 ppm MDL=0.0044% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

*** Matrix / substrate interference possible.

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* NOTE: Multiple samples received in container. Composite analysis requested per EPA/HUD guidelines not covered by NLLAP/AIHA accreditation.

APPENDIX D

LIMITATION

AMEC FOSTER WHEELER ENVIRONMENT AND INFRASTRUCTURE, A DIVISION OF AMEC FOSTER WHEELER AMERICAS LIMITED

STATEMENT OF GENERAL CONDITIONS - ENVIRONMENTAL SERVICES

1. STANDARD OF CARE - In the performance of professional services, Amec Foster Wheeler uses that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same or similar localities. No warranty, either express or implied, is made or intended by this Agreement or by furnishing oral or written reports of the findings. Amec Foster Wheeler is to be liable only for damage proximately caused by the negligence of Amec Foster Wheeler. The CLIENT recognizes that subsurface conditions may vary from those encountered at the location where borings, surveys or explorations are made by Amec Foster Wheeler and that the data, interpretations and recommendation of Amec Foster Wheeler are based solely on the information available to him. Amec Foster Wheeler will not be responsible for the interpretation by others of the information developed.
2. SITE INFORMATION - The CLIENT has agreed to make available to Amec Foster Wheeler all relevant information and documents under his control regarding past, present and proposed conditions of the site. The information shall include, but not be limited to, plot plans, topographic surveys, hydrologic data and previous soil and geologic data including borings, field or laboratory tests and written reports. The CLIENT shall immediately transmit to Amec Foster Wheeler any new information that becomes available or any change in plans. The CLIENT also ensured uninterrupted site access for Amec Foster Wheeler throughout performance of this Agreement.
   Amec Foster Wheeler agrees to include a review of all historical information obtained by the CLIENT or provided by the CLIENT to assist in the investigation of the Site unless and except to the extent that such a review is limited or excluded from the scope of work to be performed by Amec Foster Wheeler.
3. FULL DISCLOSURE - The CLIENT acknowledges that in order for Amec Foster Wheeler to properly advise and assist the CLIENT in respect of the investigation of the Site, Amec Foster Wheeler has relied upon full disclosure by the CLIENT of all matters pertinent to an investigation of the Site.
4. DELAYS AND INTERRUPTIONS - Should Amec Foster Wheeler have been delayed or interrupted by others in the performance of its services or be required to perform additional services as a result of any delay or interruption caused by others, Amec Foster Wheeler shall be equitably compensated by the CLIENT for all costs, charges and expenses which it may incur as a result of such delay or interruption and any such additional services to be performed and any and all consequences resulting from such delay or interruption.
5. USE OF WORK PRODUCT – Amec Foster Wheeler agrees to provide to the CLIENT interim reports outlining the progress of the investigation of the Site on a periodic basis and a final comprehensive report upon the completion of the investigation of the Site.
6. COMPLETE REPORT - This document being a part of the Report is of a summary nature and is not intended to stand alone without reference to the instructions given to Amec Foster Wheeler by the CLIENT, communications between Amec Foster Wheeler and the CLIENT,

and to any other reports, writings or documents prepared by Amec Foster Wheeler for the CLIENT relative to the specific Site described herein, all of which constitute the Report. Wherever the word "Report" is used herein, it shall refer to any and all of the documents referred to herein.

In order to properly understand the suggestions, recommendations and opinions expressed herein, reference must be made to the whole of the Report. Amec Foster Wheeler cannot be responsible for use by any part of portions of the report without reference to the whole report.

7. LIMITATIONS ON SCOPE OF INVESTIGATION AND WARRANTY DISCLAIMER

There is no warranty, expressed or implied, by Amec Foster Wheeler that:

a) The investigation shall uncover all potential contaminants, including asbestos, on the Site; or
b) The Site will be entirely free of all Targeted Contaminants or other contaminants as a result of any cleanup work undertaken on the Site, since it is not possible, even with exhaustive sampling, testing and analysis, to document all potential contaminants on the Site.

Classification and identification of soils, rocks, geological units, contaminated materials and contaminant quantities have been based on commonly accepted practices in environmental consulting practice in this area.

The CLIENT acknowledges that:

a) The investigation findings are based solely on the information generated as a result of the specific scope of the investigation authorized by the CLIENT;
b) any assessment regarding the presence of contamination of the Site is based on the interpretation of conditions determined at specific sampling locations and depths and that conditions may vary between sampling locations;
c) there can be no assurance that isolated pockets of contaminants are not located on the Site;
d) any assessment is also dependent on and limited by the accuracy of the analytical data generated by the sample analyses;
e) any assessment is also limited by the scientific possibility of determining the presence of contaminants for which scientific analyses have been conducted; and
f) the analytical parameters selected are limited to those outlined in the CLIENT's authorized scope of investigation (in the absence of any evidence of potential contamination sources on the Site, which may warrant expanding the analytical parameters).

8. REMEDIATION COST ESTIMATES - Estimates of remediation costs can only be based on the specific information generated and the technical limitations of the investigation authorized by the CLIENT. Accordingly, estimated costs for remediation only represent the cost to clean up known contaminants that have been identified during the course of the investigation. As remediation of a Site is often an iterative exercise, estimated costs for remediation should only be interpreted to cover the first stage of any Site remediation until such time as verification samples indicate that the Site has been fully remediated and AMEC shall therefore not be liable for the accuracy of any estimates of remediation costs provided.
9. CONTROL OF WORK AND JOBSITE SAFETY – Amec Foster Wheeler is only responsible for the activities of its employees on the jobsite. The presence of Amec Foster Wheeler

personnel on the Site shall not be construed in any way to relieve the CLIENT or any contractors on Site from their responsibilities for Site safety. The CLIENT undertakes to inform Amec Foster Wheeler of all hazardous conditions, or possible hazardous conditions which are known to him. The CLIENT also recognizes that the activities of Amec Foster Wheeler may uncover previously unknown hazardous materials and that such a discovery may result in the necessity to undertake emergency procedures to protect Amec Foster Wheeler employees as well as the public at large and the environment in general. The CLIENT also acknowledges that in some cases the discovery of hazardous conditions and materials will require that certain regulatory bodies be informed and the CLIENT agrees that notification to such bodies by Amec Foster Wheeler will not be a cause of action or dispute.

10. LIMITATION OF RESPONSIBILITY

Limitation of Liability - The CLIENT has agrees that, notwithstanding any other provision negotiated as part of Amec Foster Wheeler's contract, the total liability of Amec Foster Wheeler, its officers, directors and employees for liabilities, claims, judgments, demands and causes of action arising under or related to this Agreement, whether based in contract or tort, shall be limited to the total compensation actually paid to Amec Foster Wheeler for the services hereunder or $50,000, whichever is less. All claims by the CLIENT shall be deemed relinquished unless filed within one (1) year after substantial completion of the services hereunder.

No Special or Consequential Damages - CLIENT and Amec Foster Wheeler agree that to the fullest extent permitted by law that Amec Foster Wheeler shall not be responsible for any consequential, incidental or indirect damages.

Indemnification - Because CLIENT owns and/or operates the site where work is being performed, CLIENT has and shall retain all responsibility and liability associated with the environmental conditions at the site. Unless specifically identified elsewhere, CLIENT'S responsibility and liability includes the handling and disposal of any samples or hazardous materials generated on the site as a result of Amec Foster Wheeler's performance hereunder. To the fullest extent permitted by law, the CLIENT agrees to defend, indemnify and hold Amec Foster Wheeler, its agents, subcontractors, and employees harmless from and against any and all claims, defense costs, including attorney's fees, damages, and other liabilities arising out of or in any way related to CONSULTANT's reports or recommendations concerning this Agreement, Amec Foster Wheeler's presence on the project property, or the presence, release, or threatened release of asbestos, hazardous substances, or pollutants on or from the project property; provided that the CLIENT shall not indemnify Amec Foster Wheeler against liability for damages to the extent caused by the negligence or intentional misconduct of Amec Foster Wheeler, its agents, subcontractors, or employees