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Limited Designated Substance Survey Report

Vaughan Willard Public School

1911 Dixie Road North, Pickering, Ontario

Prepared for

Durham District School Board
400 Taunton Road East, Whitby, Ontario

April 25, 2022
Parasol Project No: 13032

Executive Summary

Parasol Environmental Inc. (Parasol) was retained by the Durham District School Board to conduct a Limited Designated Substance Survey within Vaughan Willard Public School located at 1911 Dixie Road North, Pickering, Ontario. The purpose of the survey was to record the presence, location, condition and quantities of Designated Substances and Hazardous Materials within the surveyed area that may be disturbed during the planned renovation and building addition. Additional information is provided to document corrective measures necessary to ensure that remedial action occurs applying the proper abatement procedures, if necessary.

The survey was completed by Brad Panzer of Parasol on April 13, 2022.

The following table summarizes the Designated Substances and Hazardous Materials observed within the surveyed area.

Designated Substance or Hazardous Material	Findings	Recommendation
Asbestos	Confirmed and suspected asbestos-containing materials were identified as follows: Friable Asbestos <ul style="list-style-type: none">• Mechanical Insulations (parging cement) Non-Friable Asbestos <ul style="list-style-type: none">• Vinyl Floor Tiles• Transite Cement (piping)	The following remedial work is necessary to comply with Ontario Regulation 278/05: <ul style="list-style-type: none">• Remove and replace vinyl floor tiles using Type 1 asbestos abatement procedures
Benzene	No major sources were identified.	No recommendations are warranted as no benzene products were observed.
Lead	Low-level lead concentrations were found to be present in the following materials: <ul style="list-style-type: none">• White Paint• Blue Paint• Masonry Block Mortar Lead of varying concentrations is also suspected to be present in the following items: <ul style="list-style-type: none">• Batteries in Emergency Lighting• Ceramic Floor and Wall Tile Glazing• Solder on pipe fittings• Wiring Connectors• Electric Cable Sheathing	All paint and brick mortar were observed in GOOD condition. If disturbed, remove using lead abatement procedures as per EACC "Lead Guideline for Construction, Renovation, Maintenance or Repair".
Mercury	Mercury vapour is presumed to be present within all fluorescent light tubes.	If removed, the fluorescent lights and thermostats are to be kept sealed and intact, which will prevent direct skin contact and the inhalation of mercury vapour.
Silica	Crystalline silica is suspected to be present within:	The removal or disturbance of material suspected to contain crystalline silica are to

Designated Substance or Hazardous Material	Findings	Recommendation
	<ul style="list-style-type: none">• Ceramic tiles and grout,• Masonry and mortar,• Concrete (poured or pre-cast)	follow procedures outlined in the MOL document <i>“Guideline - Silica on Construction Projects”</i> , dated September 2004.
Polychlorinated Biphenyls (PCBs)	T8 light fixtures observed contain non-PCB electronic ballasts. Suspect PCB-containing products observed include: <ul style="list-style-type: none">• Caulking	If disturbed, compare fluorescent light fixture's ballast to the Environment Canada Document, <i>“PCB Identification of Lamp Ballasts Containing PCBs”</i> dated August 1991. If the ballast does not contain a label that states “PCB Free” or the serial code that does not identify it as “PCB Free” then the ballast should be presumed to contain PCBs and disposed of accordingly.
Mould	No major sources were identified.	No recommendations are warranted as no mould or water-damaged building materials were observed.
Other Designated Substances	The following Designated Substances are not likely to be found in the area assessed: <ul style="list-style-type: none">• Acrylonitrile• Arsenic• Coke Oven Emission• Ethylene Oxide• Isocyanates• Vinyl Chloride	No recommendations are warranted as none were observed.

Before any renovation activities, perform an intrusive investigation for concealed Designated Substances and sample building materials that were not previously tested and may be disturbed as part of the renovation. In addition, consideration should be given to mechanical, electrical and structural components that pass beyond the rooftop into the building and may be impacted by the project. Further, consideration of the known or suspected asbestos-containing materials within the building should be assessed that may be disrupted during the renovation.

This executive summary is to be read in conjunction with the remainder of the report.

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1.0 Introduction

1.1 Background

Parasol Environmental Inc. (Parasol) was retained by the Durham District School Board to conduct a Limited Designated Substance Survey within Vaughan Willard Public School located at 1911 Dixie Road North, Pickering, Ontario. The purpose of the survey was to record the presence, location, condition and quantities of Designated Substances and Hazardous Materials within the surveyed area that may be disturbed during the planned renovation and building addition. Additional information is provided to document corrective measures necessary to ensure that remedial action occurs using the proper abatement procedures, if necessary.

The survey was completed by Brad Panzer of Parasol on April 13, 2022.

2.0 Regulatory Framework

The following Acts, Regulations, Guidelines and documents were utilized for the survey and the preparation of this report:

1. *Occupational Health and Safety Act R.S.O. 1990, c. O.1.*
 - I. *Ontario Regulation 278/05- Designated Substances – Asbestos on Construction Projects and in Buildings and Repair Operations.*
 - II. *Ontario Regulation 490/09- Designated Substances.*
 - III. *Ontario Regulation 833 – Control of Exposure to Biological or Chemical Agents.*
 - IV. *Ontario Regulation 213/91 – Construction Projects*
2. Ministry of Labour (MOL) Document, “*Guideline - Lead on Construction Projects*”, September 2004.
3. Environmental Abatement Council of Canada (EACC) “*Lead Guideline for Construction, Renovation, Maintenance or Repair*”, October 2014.
4. Ministry of Labour (MOL) Document, “*Guideline - Silica on Construction Projects*”, September 2004.
5. Environment Canada Document, “*PCB Identification of Lamp Ballasts Containing PCBs*” August 1991.
6. Canadian Construction Association (CCA), “*Mould Guidelines for the Canadian Construction Industry*”, 2018.
7. Environmental Abatement Council of Canada (EACC) “*Mould Abatement Guidelines - Edition 3*”, 2015.
8. Ontario Ministry of Labour (MOL), *Alert: Mould in Workplace Buildings*, ISSN: 1195-5228, December 2000.
9. Environmental Abatement Council of Canada (EACC) “*Pre-Construction Designated Substances and Hazardous Materials Assessments Guideline for Construction, Renovation and Demolition Projects*” 2021.

Ontario Regulation 490/09 – *Designated Substances* defines the eleven (11) Designated Substances, establishes the requirements for workplaces containing these materials, which include the health and safety responsibilities, control programs to minimize worker’s exposures, and sets out the maximum exposure concentrations.

The control and management of asbestos in Ontario are further prescribed by Ontario Regulation 278/05- *Designated Substances – Asbestos on Construction Projects and in Buildings and Repair Operations*.

The major components of O. Reg 278/05 require that an asbestos survey record be completed for buildings or private residences with more than four units, and an asbestos management program be established for the asbestos-containing materials present within these buildings. The regulation also states the frequency in which a building material must be sampled, and defines an asbestos-containing material. The current definition of asbestos-containing material in Ontario is having 0.5% or greater fibrous silicate asbestos content by dry weight. Further, the Regulation divides asbestos-containing material into friable material (a

material, when dry, can be crumbled, pulverized, or powdered by hand pressure, or is crumbled, pulverized, or powdered) and non-friable material. In addition, the Regulation also defines the minimum measures and procedures for the repair or removal of asbestos-containing materials. Due to the limited scope of this survey, this report does not meet all the requirements of O. Reg. 278/05 and additional asbestos-containing materials may be present within the building that are not noted within this report. Within this report, building materials are separated into the typical applications of asbestos-containing materials.

Section 30 of the Occupational Health and Safety Act requires an Owner to determine and list Designated Substances present at a project site before beginning work. Further, this information must be included in tender documents, and the Owner and Constructor must ensure that each prospective contractor and subcontractor receive a copy of the information before entering into a binding contract. Otherwise, the Owner is liable to the constructor and every contractor and subcontractor who suffers any loss or damage as a result of the failure. The same liability applies to the Constructor regarding their contractors and subcontractors. This report meets the requirements of Section 30 of the Act.

Section 6, subsection 3 of O. Reg 213/91 requires that a Notice of Project be filed with the Ministry of Labour before beginning a project and the document requires the constructor to remark if any Designated Substance will be used, handled, or disturbed on the project. The information provided in this report can be used for the Notice of Project.

Based on the Environmental Abatement Council of Canada (EACC) “*Lead Guideline for Construction, Renovation, Maintenance or Repair*”, dated October 2014, and for this report, paints, mortar, or surface coatings containing less than or equal to 0.1% lead by weight (1000 µg/g or 1000 mg/kg or 1000 ppm lead) are considered low-level lead paints, mortars, or surface coatings. Paints, mortars, or surface coatings containing greater than 0.1% lead by weight (1000 µg/g, or 1000 mg/kg, or 1000 ppm) but less than 0.5% lead by weight (5000 µg/g, or 5000 mg/kg, or 5000 ppm lead) are considered lead-containing paints, mortars, or surface coatings. Paints, mortars, or surface coatings containing equal to or greater than 0.5% lead by weight (5000 µg/g, or 5000 mg/kg, or 5000 ppm lead) are considered lead-based paints, mortars, or surface coatings.

3.0 Methodology and Scope

3.1 Scope of Assessment

The survey was limited to the areas illustrated on the architectural drawings provided by the Client. The scope of the assessment was carried out in all accessible areas on a non-intrusive basis. Areas that were inaccessible at the time of the survey are listed in Section 3.11.

For this assessment, the following Designated Substances, as defined under *Ontario Regulation 490/09-Designated Substances* made under the *Occupational Health and Safety Act R.S.O. 1990, c. O.1* were assessed for as they are typically found in buildings and building material:

1. Asbestos
2. Benzene
3. Lead
4. Mercury
5. Silica

In addition to the above-noted Designated Substances, Parasol personnel also documented the presence of the following hazardous materials, which have similar Regulations that outline the management, handling and disposal of the material.

1. Polychlorinated Biphenyls
2. Mould

For this assessment, the following Designated Substances, as defined under *Ontario Regulation 490/09-Designated Substances* made under the *Occupational Health and Safety Act R.S.O. 1990, c. O.1*, were not assessed as they would not be found in building materials that may be disturbed as part of this project and typically only found in industrial or manufacturing settings.

1. Acrylonitrile
2. Arsenic
3. Coke Oven Emission
4. Ethylene Oxide
5. Isocyanates
6. Vinyl Chloride

No additional comments will be made regarding these materials within this report unless the Owner or the Owner Representative notifies Parasol of the use of these materials within the building.

3.2 Methodology

The assessment was completed largely on a visual basis at ground level and representative checks were made above ceilings with the aid of a six-foot (6FT) step ladder. Locations and building materials present above this height were considered to be inaccessible. In addition, due to the non-intrusive nature of the assessment, materials concealed above solid ceiling finishes, within wall cavities, and below floor grade may be present that are not documented within this report. Designated Substances should be presumed to be present within these locations and all necessary precautions should be followed when accessing these spaces.

3.3 Asbestos

Representative bulk samples of building materials were collected in the frequency required under Table 1, Subsection 3(3) of *Ontario Regulation 278/05- Designated Substances – Asbestos on Construction Projects and in Buildings and Repair Operations*. Samples were submitted to EMC Scientific Inc., an independent, NVLAP accredited laboratory for analysis. The bulk samples were analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques in accordance with the *EPA 600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials*. If a material was determined to be asbestos-containing, the laboratory was instructed to cease analysis of the remaining samples in the Sample Set.

The locations and conditions of the asbestos-containing materials identified within the building are detailed in this report. The condition criteria were evaluated using The Public Works and Government Services Canada (PWGSC) document *Public Services and Procurement Canada Asbestos Management Standard* updated June 1, 2019, which were then used to form recommendations for the asbestos-containing material present within the surveyed area.

The condition of the asbestos-containing material was assessed as follows:

Condition	Non-Friable	Friable
GOOD	<ul style="list-style-type: none">• Material intact and stable• Minor cracks may be present on the surface	<ul style="list-style-type: none">• Material is intact, with no signs of damage or delamination.• Up to 1% of sprayed fireproofing has visible damage.• Mechanical insulation is completely covered in jacketing, with no penetrations or exposed insulation.
FAIR	<ul style="list-style-type: none">• Criteria not used	<ul style="list-style-type: none">• Jacket insulation is missing• Minor damage (cuts, tears, or nicks) to jacketed insulation.• Insulation is exposed but not showing surface disintegration.• Missing insulation ranges from minor to none.
POOR	<ul style="list-style-type: none">• Material is broken, lifted, damaged, or deteriorated	<ul style="list-style-type: none">• Damage cannot be easily repaired• More than 1% of sprayed fireproofing is damaged, delaminated, or deteriorated.

Condition	Non-Friable	Friable
		<ul style="list-style-type: none">• The original insulation jacket is missing, damaged, deteriorated, or delaminated.• Insulation is exposed and significant areas have been dislodged.

3.4 Excluded Asbestos-Containing Building Materials

Due to the non-intrusive basis of the survey, the following building materials, if present, were excluded from the survey but should be considered asbestos-containing until proven otherwise: roofing materials, refractory brick in boilers and incinerators, fire door core insulation, elevator brakes, mastics, high voltage wiring, heat shields within light fixtures, mechanical packing and gaskets, insulation or vermiculite inside wall cavities or concealed spaces, insulations within mechanical units or ducts, wall finishes concealed behind visible wall finishes, window and door glazing/caulking compounds, flooring material concealed beneath visible flooring and/or concealed beneath existing sub-floors, ceramic tile grout and mortar/adhesive concealed behind ceramic tiles, and sub-grade materials.

3.5 Benzene

No samples of building materials suspected of containing benzene were collected. If above or below grade fuel tanks were present within the assessed area, they were noted within the appropriate findings section.

3.6 Lead

Representative bulk samples of the most prevalent painted finishes and/or masonry mortar suspected of containing lead that is to be disturbed as part of the project were collected at the time of the assessment. A small area of the mortar or paint and subsurface layers were collected by scraping the material down to the substrate to which they are applied. Paint finishes of limited applications were not collected. Samples were submitted to EMSL Canada Inc. (EMSL), an ELLAP accredited laboratory. The paint or mortar samples were analyzed using Flame Atomic Absorption Spectrometry in accordance with EPA Method SW 846 3050B/7000B *Flame Atomic Absorption Spectrophotometry*. Results of the analysis were reported by the laboratory as the percentage of lead by weight of the total sample (% by wt.) or the mass of lead by the mass of the total sample (mg/kg).

The condition of painted surfaces and/or masonry mortar is also detailed in this report. A visual assessment of the mortar or paint for signs of cracking, chipping, flaking, bubbling and deterioration due to friction were noted and were assessed as GOOD, FAIR or POOR based on the degree and extent of deterioration.

The remainder of the suspect lead-containing material (lead piping, copper pipes soldering joints, wiring connectors, electric cable sheathing, batteries, and lead sheeting) were noted if present.

3.7 Mercury

A visual inspection was completed based on the age, appearance, and historical uses of suspect mercury-containing equipment, building materials, or products to identify their locations and quantities. Suspect mercury-containing equipment was not dismantled nor were samples collected for the determination of mercury content.

3.8 Silica

A visual inspection of building materials suspected of containing crystalline silica (e.g., concrete, cement, tile, brick, masonry, mortar) was completed based on the historical use of suspect silica-containing materials in certain materials. Samples of building material were not collected for the determination of the presence or absence of crystalline silica.

3.9 Mould Contamination

A visual inspection to note the extent of surface mould growth and water-damaged building materials was completed within the assessed areas. No sampling for mould spore concentration, or destructive testing

to identify concealed mould growth or water damage, was completed. Surface discolouration, material degradation, or suspect mould growth were noted.

3.10 Polychlorinated Biphenyls

A visual inspection for polychlorinated biphenyls (PCBs) was completed on a select number of accessible fluorescent light ballasts present within the assessed areas. If available, information was collected from the ballasts' label and compared to the information in the Environment Canada Document, "PCB Identification of Lamp Ballasts Containing PCBs", dated August 1991. It is important to note that due to safety precautions, the light fixtures were not opened to obtain the manufacturer's details as the fixtures were not de-energized. If visual confirmation of PCB content within the ballast could not be made, it was assumed that light fixtures in areas constructed before 1980 and did not have T8 style fluorescent light fixtures are PCB-containing until proven otherwise.

Information from electrical equipment, transformers specifically, was limited to the exterior labels, or nameplates, a review of maintenance records, and the age of the building to determine PCB content. No dielectric fluids were collected at the time of the assessment.

Caulking and sealants were not sampled or analyzed for PCB content. It should be assumed that if the material was installed before 1980, it contains PCBs until proven otherwise.

Dry-type transformers and fluorescent light ballasts with T8 style lights are presumed to be free of PCBs.

3.11 Inaccessible Locations

At the time of the survey the following locations were inaccessible:

1. Under sink in 108-Classroom (Locked).
2. Under sink in 110-Classroom (Locked).

It should be presumed that asbestos-containing materials are present within these locations until proven otherwise.

4.0 Existing Reports and Drawings

The following reports were provided to Parasol and the information presented within these reports was utilized in the preparation of this report.

1. Detailed Asbestos-Containing Building Materials Survey Report – Maple Environmental Inc. December 2017 (Maple Project No.16312-096).

Detailed drawings were provided by the client and can be found in Appendix B.

5.0 Findings

The results of the visual identification and the bulk sampling completed during the duration of the survey are summarized below. The materials are divided into typical building material applications. The Laboratory Certificate of Analysis for the bulk samples collected while on site are presented in Appendix A.

5.1 Building Information

A summary of pertinent building details specific to the surveyed area is provided in the table below. Information is based on onsite observations, and interviews conducted as well as the provided prior reports.

Building Element	Details
Date of Construction & Additions	Original Building-1956, Building Additions-1965, 1980, 2007
Number of Floors	1 Plus Upper Mechanical Room
Total Area	37,933 SF
Roof Type	Flat
Floors	Concrete, Vinyl Floor Tiles, Terrazzo, Ceramic Tile

Building Element	Details
Walls	Drywall, Masonry Block, Ceramic Tile
Ceilings	Lay-in Ceiling Tiles
HVAC	Forced Air, Radiators
Structure	Wood, Corrugated Metal, Concrete, Steel
Exterior Cladding	Brick, Texture Finish, Metal

The following section summarizes the findings of the assessment and provides a general description of the hazardous materials identified and their locations.

5.2 Asbestos

5.2.1 Building Materials Not Observed

At the time of the survey, the following building materials, which are known to historically contain asbestos were not observed and therefore are not discussed further within the report.

1. Sprayed Fireproofing
2. Plaster Finishes
3. Vermiculite
4. Vinyl Sheet Flooring

5.2.2 Acoustic Ceiling Tiles

The following acoustic ceiling tiles were observed to be present at the time of the survey:

Tile Number	Sample Number	Description	Locations	Asbestos Content	Notes
AT-01	NA	2'x4' Pinholes and Fleck	Throughout	NA	New-Date Stamped (07/19/16)
AT-02	NA	2'x4' Pinholes and Small Fleck	Loc.#151, 156B	NA	New-Date Stamped (09/08/08)

ND= None Detected, NA= Not Applicable, CH= Chrysotile Asbestos, AM= Amosite Asbestos

5.2.3 Texture Coat Finishes

Texture coat finish was observed to be applied to the exterior brick within the surveyed area. Analysis of Sample Set S08A-C determined that the material does not contain asbestos.

5.2.4 Drywall Finishes

Drywall with joint compound applied to gypsum board was observed throughout the building as wall and ceiling finishes.

Analysis of Sample Set S01A-C determined that the samples collected within the original 1956 building portion of the surveyed area do not contain asbestos.

Analysis of Sample Set S11A-C determined that the samples collected within the 1980 building addition portion of the surveyed area do not contain asbestos.

5.2.5 Insulations

Friable asbestos-containing insulations and non-asbestos-containing insulations were observed to be present on mechanical systems throughout the surveyed area.

5.2.5.1 Fitting Insulation

Asbestos-containing Parging Cement was observed to be applied to pipe fittings within the surveyed area. Parging Cement was previously sampled by Others and confirmed to contain **25-50% Chrysotile asbestos**. At the time of the current assessment, Parging Cement was observed to be in GOOD condition.

The remaining insulated fittings present within the surveyed area was observed to be fibreglass and PVC; materials not suspected to contain asbestos.

5.2.5.2 Straight Insulation

Cellulose insulation was observed to be present on pipe straights within the surveyed area. Analysis of Sample Set S04A-C determined that the material does not contain asbestos.

The remaining pipe straights within the surveyed area was observed to be fibreglass and PVC; materials not suspected to contain asbestos

5.2.5.3 Duct Insulation

Ducts present within the surveyed area were observed to be externally insulated with fibreglass; a building material not suspected to contain asbestos, or were not insulated.

5.2.5.4 Mechanical Equipment Insulation

Mechanical equipment (radiators and air handling units) within the surveyed area was observed to be externally uninsulated.

5.2.6 Vermiculite

No loose-fill vermiculite was observed to be present within the building at the time of the assessment. However, as the survey was non-destructive, loose-fill vermiculite may be present within the voids of the masonry blocks, which is a historical application of vermiculite. Precaution should be taken if the masonry block is to be disturbed.

5.2.7 Vinyl Floor Tiles

The following vinyl floor tiles were observed to be present at the time of the survey:

Tile Number	Sample Number	Description	Locations	Asbestos Content	Notes
VFT-01	Sampled by Others 16312 S05A-C	12"x12" White with Grey Flecks	Loc.#108, 110	ND	-
		Black Mastic		ND	
VFT-02	Surveyed by Others	12"x12" White with Navy, Blue and Orange Fleck	Loc.#151	NA	New-Recently Installed
VFT-03	S05A-C	12"x12" Yellow with Brown Streaks	Stairs to 201-Mech. Room	1% CH	1 Tile POOR
		Black Mastic		ND	

ND= None Detected, NA= Not Applicable, CH= Chrysotile Asbestos, AM= Amosite Asbestos

5.2.8 Transite Cement Products

Transite cement products were observed to be present within the surveyed area in the form of piping (Rainwater Leaders).

No samples of the transite cement products were collected as sampling could disrupt the integrity of the material. Transite cement products typically contain Chrysotile or Amosite asbestos of varying percents.

Visual identification is typically reliable for identifying transite cement products; however, a non-asbestos-containing equivalent of transite cement products is manufactured.

Transite piping was observed to be in GOOD condition at the time of the assessment.

5.2.9 Caulking

The following caulking types were observed to be present at the time of the survey:

Number	Sample Number	Description	Locations	Asbestos Content	Notes
CK-01	S03A-C	Grey, soft	Doors and Masonry Block Walls	ND	-
CK-02	S09A-C	Brown, soft	Exterior Windows, Doors and Metal Panels	ND	-
CK-03	S10A-C	Beige, Soft	Interior Doors and Masonry Block Walls	ND	-

ND= None Detected, NA= Not Applicable, CH= Chrysotile Asbestos, AM= Amosite Asbestos

5.2.10 Other

- Mortar applied to masonry block finishes was observed throughout the original 1956 building. Analysis of Sample Set S02A-C determined that the material does not contain asbestos.
- Mortar applied to masonry block finishes was observed throughout the 1980 building addition. Analysis of Sample Set S06A-C determined that the material does not contain asbestos.
- Mortar applied to masonry block finishes was observed throughout the exterior of the 1980 building addition. Analysis of Sample Set S07A-C determined that the material does not contain asbestos.

5.3 Benzene

No products suspected of containing benzene were identified within the assessed area.

5.4 Lead

Results of the lead in paint chips and/or masonry mortar are presented in the table below. The Certificate of Analysis is attached in Appendix A.

Sample No	Sample Location	Description	Substrate	Result	Lead Class	Condition
Pb-01	108-Classroom	White Paint	Walls/Deck	<0.0080%	Low-Level Lead	GOOD
Pb-02	110-Classroom	Mortar	Masonry Block	<40mg/Kg	Low-Level Lead	GOOD
Pb-03	Exterior	Mortar	Masonry Block	<40mg/Kg	Low-Level Lead	GOOD
Pb-04	Exterior	Blue Paint	Doors/Trim	<0.0080%	Low-Level Lead	GOOD

As noted in the EACC guidelines, results above 0.1% are considered elevated and specific procedures apply to the removal or disturbance of these materials.

The following building materials were observed to be present within the assessed area and are suspected to contain lead:

1. Batteries in Emergency Lighting
2. Ceramic Floor and Wall Tile Glazing
3. Solder on pipe fittings
4. Wiring Connectors
5. Electric Cable Sheathing

5.5 Mercury

5.5.1 Lamps

Mercury vapour is presumed to be present within all fluorescent light tubes.

5.5.2 Devices and Equipment

Thermostatic switches within the assessed areas were not observed to have liquid mercury present.

It is important to note that equipment present within the assessed area was not dismantled to verify the presence or absence of mercury within. As such, concealed mercury-containing devices may be present that are not noted within this report. Caution should be taken when dismantling this equipment as mercury-containing components should be assumed to be present.

5.6 Silica

The following building materials were observed to be present within the assessed area and are presumed to contain crystalline silica:

1. Ceramic tiles and grout
2. Masonry and mortar
3. Concrete (poured or pre-cast)

5.7 PCBs

5.7.1 Light Fixtures

Light fixtures observed within the surveyed area were observed to contain T8 lights, which contain electronic ballast and do not contain PCBs.

5.7.2 Transformers

Transformers were not observed to be present within the assessed area.

5.7.3 Other

Based on the age of the building, the following building materials were observed and are presumed to contain PCBs:

1. Caulking

5.8 Mould

No obvious visible mould growth and water damage were observed to be present within the surveyed area.

6.0 Conclusions and Recommendations

Based on the results of the bulk sampling and visual identification, the following Designated Substances and Hazardous Materials are known and/or assumed to be present within the surveyed area:

1. Asbestos
2. Lead
3. Mercury
4. Silica
5. PCBs

Parasol proposes the following recommendations:

6.1 General Recommendations

6.1.1 Asbestos

Based on the results of the bulk sampling and visual identification, the following asbestos-containing building materials were identified:

1. Mechanical Insulations (parging cement)
2. Vinyl Floor Tiles
3. Transite Cement Products (rainwater leaders)

Due to the presence of asbestos-containing materials within the building, the Asbestos Management Program must be updated and maintained for the building.

Perform a reassessment survey of asbestos-containing materials on an annual basis (minimum requirement).

Before any renovation activities, perform an intrusive investigation for concealed asbestos-containing materials and sample building materials that were not previously tested and may be disturbed as part of the renovation.

Before completing any renovation or alteration, all asbestos-containing material that may be disturbed as part of the project should be removed following Ontario Regulation 278/05.

6.1.2 Asbestos Abatement Procedures

The removal of non-friable asbestos-containing material (vinyl floor tiles and transite) is to be completed using Type 1 asbestos abatement procedures provided that the material is wetted and non-powered hand tools are used. If power tools are required, then Type 3 asbestos abatement procedures apply.

The removal of friable asbestos-containing material (parging cement fittings) is to be completed using Type 2 asbestos abatement procedures provided that less than one square meter ($1m^2$) of the material is disturbed. If greater than one square meter ($1m^2$) is disturbed, then Type 3 asbestos abatement procedures apply.

Depending on the condition, geometry and size, the removal of mechanical insulations are to be completed using Type 2, Glove Bag or Type 3 asbestos abatement procedures.

6.1.3 Lead

Based on the results of the bulk sampling and the visual identification, low-level lead concentrations (less than or equal to 0.1% lead by weight (1000 $\mu\text{g/g}$ or 1000 mg/kg or 1000 ppm lead)) were found to be present in the following building materials: white paint, blue paint and masonry block mortar.

Low-level lead guidelines only apply if they meet the following criteria:

1. The paint and substrate are disturbed in a non-aggressive manner or not heated,
2. Dust control and suppression procedures are utilized so that the TWA (10 mg/m 3) for particulates not otherwise specified (PNOS) is not exceeded, and,
3. Washing facilities are available for workers to wash hands and faces.

Removal or disturbance of paints and brick mortar is to follow the procedures outlined in the EACC document *"Lead Guideline for Construction, Renovation, Maintenance or Repair"*, October 2014.

6.1.4 Mercury

Mercury vapour is present within fluorescent lights.

When removing the fluorescent lights, the materials are to be handled carefully to ensure they are kept sealed and intact, which will prevent direct skin contact and the inhalation of mercury vapour. Mercury is to be disposed of per Ontario Regulation 347 if greater than five kilograms (5 kg) is produced within a month.

6.1.5 Silica

Crystalline silica is suspected to be present within the ceramic tiles and grout, masonry and mortar, and concrete (poured or pre-cast) within the assessed area.

The removal or disturbance of material suspected to contain crystalline silica should follow procedures outlined in the MOL document "*Guideline - Silica on Construction Projects*", dated September 2004.

6.1.6 PCBs

The light fixtures observed at the time of the assessment contain T8 lights, which are known to contain non-PCB electronic ballasts. Therefore, no PCB recommendations apply to the removal of these fixtures.

If the fluorescent light fixtures are to be disturbed as part of the project, they should be disassembled and the information on the ballast compared to the Environment Canada Document, "*PCB Identification of Lamp Ballasts Containing PCBs*" dated August 1991. If the ballast does not contain a label that states "PCB Free" or the serial code that does not identify it as "PCB Free" then the ballast should be presumed to contain PCBs and disposed of accordingly.

6.1.7 Mould

No visible mould growth or water-damaged building materials were observed within the assessed area. If mould growth is discovered as part of the renovation project, then the material should be removed following the Environmental Abatement Council of Canada (EACC) "*Mould Abatement Guidelines - Edition 3*", dated 2015. Further, a qualified Health and Safety professional should be consulted to inspect and verify the proper removal of the building materials.

6.2 Remedial Recommendations

The following remedial work should be completed regardless of the planned renovation.

6.2.1 Asbestos

The following remedial work is necessary if the asbestos-containing building materials are to remain:

Location	Description and Quantity	Remedial Recommendations
Stairwell to 201-Mechanical Room	1 SF Vinyl Floor Tiles	Remove and Replace using Type 1 Asbestos Abatement Procedures

7.0 Statement of Limitations

The information and recommendations detailed in this report were carried out by trained professional and technical staff following generally accepted engineering and scientific work practices and procedures. Recommendations provided in this report have been generated in accordance with accepted industry guidelines and practices. These guidelines and practices are considered acceptable as of the date of this report.

During the preparation of this report, Parasol relied on information provided by the client, which includes reports and test results prepared by other consultants, the history and use of the site supplied by on-site personnel, and testing services provided by independent laboratories. Parasol has not made any independent verification of the provided information.

The collection of samples at the location noted was consistent with the scope of work agreed upon with the person or entity to whom this report is addressed and the information obtained concerning prior site investigations. As conditions between samples may vary, the potential remains for the presence of unknown additional contaminants for which there were no known indicators.

Information provided in this report by Parasol is intended for the client's use only. Parasol will not provide results or information to any party unless disclosure by Parasol is required by law. Any use by a third party of reports or documents authored by Parasol or any reliance by a third party on or decisions made by a third party based on the findings described in said documents is the sole responsibility of such third parties.

Parasol accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

Please contact the undersigned regarding the information presented within this report.

Sincerely,



Brad Panzer, Senior Project Manager
Parasol Environmental Inc.

Appendix A
Laboratory Certificate of Analysis

Laboratory Analysis Report

To:

Brad Panzer
 Parasol Environmental
 125-1860 Appleby Line, Unit #14
 Burlington, Ontario
 L7L 7H7

EMC LAB REPORT NUMBER: A78714

Job/Project Name: Vaughan Willand P.S.

Job No: 13032

Analysis Method: Polarized Light Microscopy – EPA 600

Number of Samples: 33

Date Received: Apr 14/22

Date Analyzed: Apr 22/22

Date Reported: Apr 22/22

Analyst: Joseph Woo

Reviewed By: Fajun Chen, Ph.D., *Laboratory Director*



Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
S-01A	A78714-1	DJC/ 108- classroom	White, joint compound	ND		100
S-01B	A78714-2	DJC/ 108- classroom	White, joint compound	ND		100
S-01C	A78714-3	DJC/ 110- classroom	White, joint compound	ND		100
S-02A	A78714-4	Masonry block mortar/ 108-classroom	Grey, cementitious material	ND		100
S-02B	A78714-5	Masonry block mortar/ 108-classroom	Grey, cementitious material	ND		100
S-02C	A78714-6	Masonry block mortar/ 110-classroom	Grey, cementitious material	ND		100
S-03A	A78714-7	CK-01/ 108- classroom	Beige, caulking	ND		100
S-03B	A78714-8	CK-01/ 110- classroom	Beige, caulking	ND		100
S-03C	A78714-9	CK-01/ 110- classroom	Beige, caulking	ND		100
S-04A	A78714-10	Pipe insulation/ 156B- corridor	2 Phases: a) Brown, paper b) Black, fibrous material with tar	ND ND	90 80	10 20
S-04B	A78714-11	Pipe insulation/ 156B- corridor	2 Phases: a) Brown, paper b) Black, fibrous material with tar	ND ND	90 80	10 20

EMC LAB REPORT NUMBER: A78714

Client's Job/Project Name/No.: 13032

Analyst: Joseph Woo

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
S-04C	A78714-12	Pipe insulation/ 156B- corridor	2 Phases: a) Brown, paper b) Black, fibrous material with tar	ND ND	90 80	10 20
S-05A	A78714-13	VFT-03/ 201- mech room	2 Phases: a) Pink, vinyl floor tile b) Black, mastic	Chrysotile ND	1	99 100
S-05B	A78714-14	VFT-03/ 201- mech room	2 Phases: a) NA b) Black, mastic	NA ND		100
S-05C	A78714-15	VFT-03/ 201- mech room	2 Phases: a) NA b) Black, mastic	NA ND		100
S-06A	A78714-16	Masonry block mortar/ 201- mech room	Grey, cementitious material	ND		100
S-06B	A78714-17	Masonry block mortar/ 156C-corridor	Grey, cementitious material	ND		100
S-06C	A78714-18	Masonry block mortar/ 156C-corridor	Grey, cementitious material	ND		100
S-07A	A78714-19	Masonry block mortar/ exterior	Grey, cementitious material	ND		100
S-07B	A78714-20	Masonry block mortar/ exterior	Grey, cementitious material	ND		100
S-07C	A78714-21	Masonry block mortar/ exterior	Grey, cementitious material	ND		100
S-08A	A78714-22	Texture wall finish/ exterior	Red, textured cementitious material	ND		100
S-08B	A78714-23	Texture wall finish/ exterior	Red, textured cementitious material	ND		100

EMC LAB REPORT NUMBER: A78714

Client's Job/Project Name/No.: 13032

Analyst: Joseph Woo

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
S-08C	A78714-24	Texture wall finish/ exterior	Red, textured cementitious material	ND		100
S-09A	A78714-25	CK-02/ exterior	2 Phases: a) Light brown, caulking b) Dark brown, caulking	ND ND		100 100
S-09B	A78714-26	CK-02/ exterior	2 Phases: a) Light brown, caulking b) Dark brown, caulking	ND ND		100 100
S-09C	A78714-27	CK-02/ exterior	2 Phases: a) Light brown, caulking b) Dark brown, caulking	ND ND		100 100
S-10A	A78714-28	CK-03/ 156C- corridor	Beige, caulking	ND		100
S-10B	A78714-29	CK-03/ 156C- corridor	Beige, caulking	ND		100
S-10C	A78714-30	CK-03/ 156C- corridor	Beige, caulking	ND		100
S-11A	A78714-31	DJC/ 156C- corridor	Off white, joint compound	ND		100
S-11B	A78714-32	DJC/ 156C- corridor	Off white, joint compound	ND		100
S-11C	A78714-33	DJC/ 156C- corridor	Off white, joint compound	ND		100

Note:

1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with EPA 600/R-93/116 method.
2. The results are only related to the samples analyzed. **ND** = None Detected (no asbestos fibres were observed), **NA** = Not Analyzed (analysis stopped due to a previous positive result).
3. This report may not be reproduced, except in full without the written approval of EMC Scientific Inc. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.
4. The Ontario Regulatory Threshold for asbestos is 0.5%. The limit of quantification (LOQ) is 0.5%.

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L4T 1G3

Phone/Fax: (289) 997-4602 / (289) 997-4607

<http://www.EMSL.com>torontolab@emsl.com

EMSL Canada Or	552205895
CustomerID:	55PAEN75
CustomerPO:	13032
ProjectID:	

Attn: **Brad Panzer**
Parasol Environmental Inc.
125-1860 Appleby Line
Unit 14
Burlington, ON L7L 7H7

Project: Vaughan Willard P.S. / 13032

Phone: (416) 579-1284
Fax:
Received: 4/14/2022 09:06 AM
Collected:

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

<i>Client Sample Description</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
Pb-01 552205895-0001	4/18/2022	Site: 108 - Classroom / White Paint	0.2530 g	0.0080 % wt	<0.0080 % wt
Pb-04 552205895-0004	4/18/2022	Site: Exterior / Blue Paint	0.2485 g	0.0080 % wt	<0.0080 % wt

Rowena Fanto, Lead Supervisor
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.

* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA-LAP, LLC - ELLAP #196142

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L4T 1G3

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CustomerID:	55PAEN75
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ProjectID:	

Attn: **Brad Panzer**
Parasol Environmental Inc.
125-1860 Appleby Line
Unit 14
Burlington, ON L7L 7H7

Project: Vaughan Willard P.S. / 13032

Phone: (416) 579-1284
Fax:
Received: 4/14/2022 09:06 AM
Collected:

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

<i>Client Sample Description</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
Pb-02 552205895-0002	4/18/2022	Site: 110 - Classroom / Masonry Block Mortar	0.5074 g	40 mg/Kg	<40 mg/Kg
Pb-03 552205895-0003	4/18/2022	Site: Exterior / Masonry Block Mortar	0.5042 g	40 mg/Kg	<40 mg/Kg

Rowena Fanto, Lead Supervisor
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.

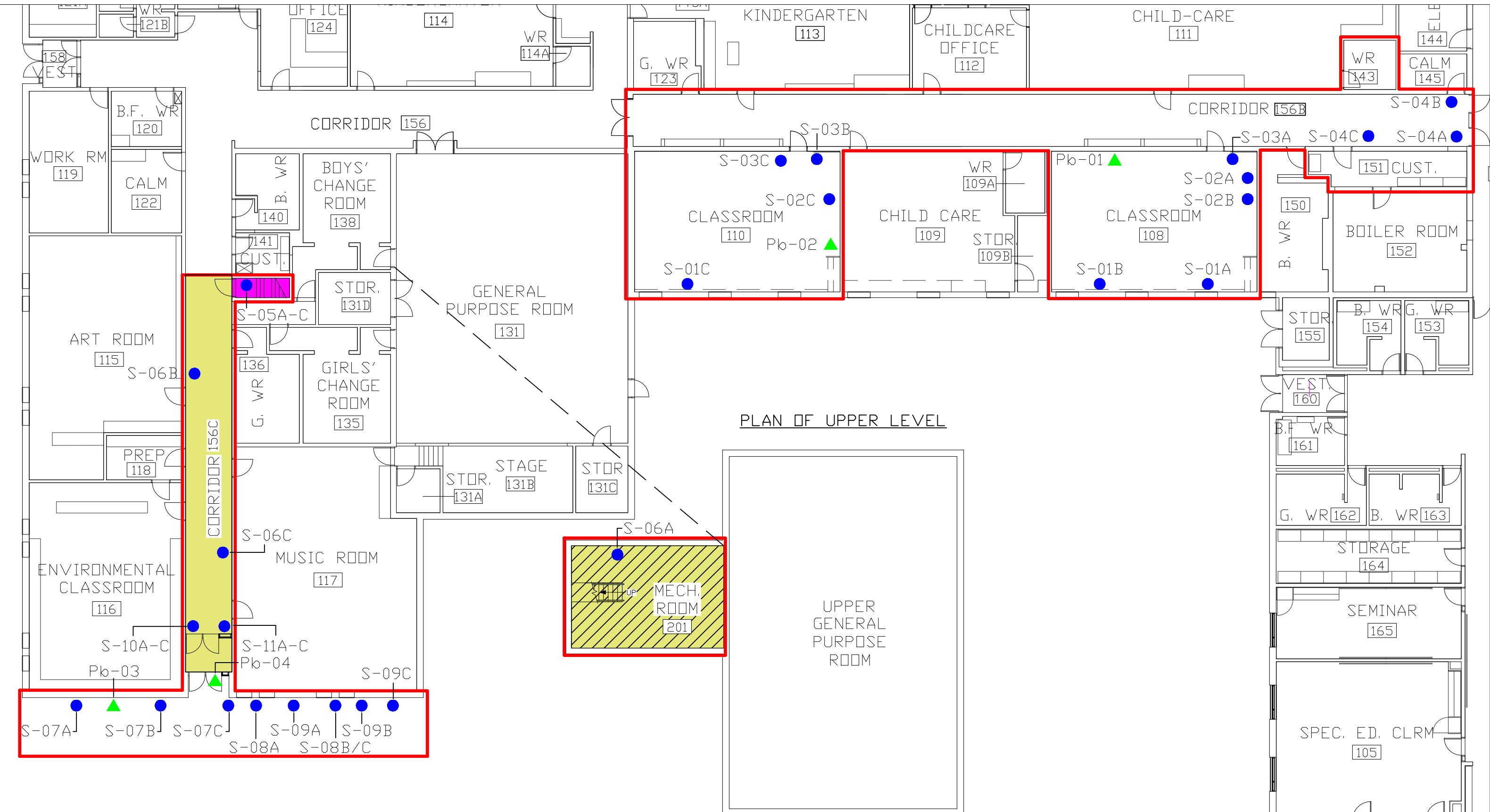
* Analysis following Lead in Soil/Solids by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 40 mg/kg based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA-LAP, LLC - ELLAP #196142

Initial report from 04/22/2022 08:31:24

Appendix B

Site Drawing



TITLE Limited Designated Substance Survey First Floor Plan CLIENT Durham District School Board LOCATION Vaughan Willard Public School 1911 Dixie Road North Pickering, Ontario	LEGEND		CONFIRMED & SUSPECTED ACM		DRAWING NO DSR-01 SCALE NTS DATE April 25, 2022	DRAWN BY: B. PANZER PARASOL PROJECT NO 13032
	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION		
	🚫	NO ACCESS		VINYL FLOOR TILES		
	●	ASBESTOS SAMPLE LOCATION		TRANSITE CEMENT (RAINWATER LEADERS)		
	▲	LEAD SAMPLE LOCATION		MECHANICAL INSULATIONS (PARGING CEMENT)		
	■	SURVEY AREA				