HAZARDOUS MATERIALS SURVEY AND 2023 REASSESSMENT
70 LAURIER AVENUE (HAMELIN HALL), OTTAWA, ON.

Project No.: Z2021101HZ / CCC-230252-00

Prepared for:

University of Ottawa

Prepared by:

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Date:

October 31, 2023

McINTOSH PERRY

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REASSESSMENT SURVEY 2023

McIntosh Perry Limited **(MPL)** was retained by the University of Ottawa to complete a Hazardous Materials Survey for the building at 70 Laurier Avenue, Ottawa, ON. MPL was also retained to reassess the condition of hazardous building materials found. The survey was conducted on February 10th, 2020. The reassessment was completed on August 24th, 2023.

The purpose of the reassessment was to evaluate the condition and quantity of previously reported asbestos-containing materials (ACM) and develop corrective action plans as required for the purposes of long-term management.

The assessment and reassessment determined the following findings and recommendations.

Summary of the Reassessment Findings:

- Suspected ACM in Floor Tile Grout, Brick Mortar, Concrete Block Mortar and Roofing Material were observed to be in Good Condition throughout the subject building.
- No mould or water-damaged materials were observed during the site survey.
- All paint surfaces were observed to be in good condition.

Summary of Recommendations:

- Perform a reassessment of asbestos materials on an annual basis.
- Sample any presumed ACM prior to alteration or maintained work if presumed ACM may be disturbed by the work.
- Perform a pre-construction assessment and remove all asbestos-containing materials (ACM) prior to alterations or maintenance work if ACM may be disturbed by the work.

EXECUTIVE SUMMARY

McIntosh Perry Limited **(MPL)** was retained by the University of Ottawa to complete a Hazardous Materials Survey for the building at 70 Laurier Avenue, Ottawa, ON. The survey was conducted on February 10th, 2020. **The Reassessment Survey was conducted on August 24th, 2023.**

The survey aimed to determine the presence of building materials containing Designated Substances and other hazardous materials, as defined under the Ontario Occupational Health and Safety Act. Designated Substances are eleven chemical agents prescribed under Ontario Regulation 490/09. In addition, a visual assessment was conducted for the presence of polychlorinated biphenyls (PCBs), radioactive materials, ozone-depleting substances (ODSs), other halocarbons and mould.

Based on the assessment conducted by MPL, the following asbestos-containing materials (ACMs) were suspected to be present in the building:

Table A: Summary of Asbestos-Containing Materials Identified

Material Description	Friable?	Location	Type of Asbestos
Ceramic Tile/Wall Grout	-	Specific Areas Only	Suspected
Brick/ Block Mortar	-	Specific Areas Only	Suspected
Concrete Block Mortar	-	Specific Areas Only	Suspected
Roofing Material	-	Specific Areas Only	Suspected

Note: Please refer to the complete report for specific details and recommendations.

All repairs or removal of ACMs must be conducted according to Ontario Regulation 278/05, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act. Asbestos-containing waste must also be handled and disposed of according to Ontario Regulation 347/90 as amended – made under the Environmental Protection Act. Any suspect building materials encountered that were not assessed as part of this survey should be assumed to contain asbestos until confirmed otherwise by analytical testing;

Sub-trades working with or in close proximity to ACMs should be informed of their presence;

Given that ACMs have been identified and will likely remain in place, an Asbestos Management Plan is required, and an ACMs inventory must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once every 12 months and as may be required based on expected changing site conditions, abatement and/or renovation activities.

Based on the assessment conducted by MPL, the following Designated Substances and Hazardous Materials were identified or suspected to be present in the building:

Table B: Summary of Designated Substances and Hazardous Materials Identified

Material Description	Location
Mercury Vapour	Specific Equipment
Lead Paint	Specific Areas Only
Lead Acid Batteries	Throughout Building
Silica	Throughout Building
Ozone-depleting Substances	Specific Equipment

Note: Please refer to the complete report for specific details and recommendations.

Designated Substances area regulated under Ontario Regulation 490/09 — Designated Substances, made under the Ontario Health and Safety Act, which applies to controlling designated substances in the workplace.

In addition to Ontario Regulation 490/09, the following guidelines must also be adhered to when conducting work activities that involve disturbance of the materials mentioned above:

- Guideline: Lead on Construction Projects, issued in April 2011 by the Occupational Health and Safety branch of the Ministry of Labour
- Guideline: Silica on Construction Projects issued in April 2011 by the Occupational Health and Safety branch of the Ministry of Labour.

Prior to any renovations or demolition activities within the building, designated substances and hazardous materials must be decommissioned by a licensed contractor such that they are contained and not released to the environment during decommissioning as per O. Reg. 347/09- made under the Environmental Protection Act.

Any suspect building materials encountered that were not assessed as part of this survey should be assumed to contain designated substances or hazardous materials until confirmed otherwise by analytical testing.

This report should be made available to contractors tendering on any renovation or demolition work. In turn, all contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

This executive summary is not to be used alone. This report should be reviewed in its entirety.

October 31, 2023

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via email: martine.bergeron@uottawa.ca

Attention: Martine Bergeron, Senior Specialist, Occupational Health and Safety

Re: 70 Laurier Avenue, Ottawa, ON
Hazardous Materials Survey
McIntosh Perry Limited Reference No. Z2021101HZ / CCC-230252-00

1.0 INTRODUCTION

Under your instructions, McIntosh Perry Limited (MPL) carried out a Hazardous Materials Survey at the building located at 70 Laurier Avenue, Ottawa, ON. The site is situated on the Northeast corner of the intersection of Laurier Ave. E and University Private. The survey of the building was conducted on February 10, 2020. **The Reassessment Survey was conducted on August 24th, 2023.**

The survey aimed to determine the presence of building materials containing Designated Substances and other hazardous materials, as defined under the Ontario Occupational Health and Safety Act. Designated Substances are eleven chemical agents prescribed under Ontario Regulation 490/09. In addition, a visual assessment was conducted for the presence of polychlorinated biphenyls (PCBs), radioactive materials, ozone-depleting substances (ODSs), other halocarbons and mould.

MPL completed the following,

- Visual review of the building to identify materials which could contain Designated Substances and hazardous materials;
- Bulk sampling and analysis of building materials suspected of containing asbestos (if required);
- Bulk sampling and analysis of representative paints and finishes suspected of containing lead (if required);
- Review of previously completed Hazardous Materials Survey(s) and historical building record(s); and,
- Recommendations for appropriate action where required.

2.0 PROPERTY DESCRIPTION

The subject building is a five-storey building originally constructed in 1996 and covers approximately 96,703 square feet. The subject building was observed to be constructed with a concrete slab floor and a metal roof supported by steel trusses, beams and columns. The interior walls were gypsum wallboard and concrete block. Throughout the subject building, ceiling finishes were observed to be suspended ceiling tiles, while open ceilings were observed in other areas of the unit. The flooring was generally observed to be poured concrete, carpet, and vinyl sheet flooring.

3.0 FINDINGS & RECOMMENDATIONS

Designated Substances

3.1 Asbestos

Findings

Forty-six (46) bulk samples were previously collected during the survey and sent to an accredited laboratory for analysis. A summary of potential asbestos-containing samples collected along with the sample location, type and friability are presented in Table 1.

The Laboratory Certificates of Analysis for asbestos are included in Appendix C.

Table 1:

Asbestos Laboratory Results

Sample ID	Location	Material	Type and Content	Friability
BS 1.1	Room 008	Fire Stop	None Detected	N/A
BS 1.2	Room 008	Fire Stop	None Detected	N/A
BS 1.3	Room 008	Fire Stop	None Detected	N/A
BS 2.1	Room 509	VSF (White)	None Detected	N/A
BS 2.1	Room 509	VSF (White)	None Detected	N/A
BS 2.3	Room 509	VSF (White)	None Detected	N/A
BS 3.1	Room 509	VSF (Green)	None Detected	N/A
BS 3.2	Room 509	VSF (Green)	None Detected	N/A
BS 3.3	Room 509	VSF (Green)	None Detected	N/A
BS 4.1	Room 408	VFT (12” X 12” – Beige)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 4.2	Room 408	VFT (12” X 12” – Beige)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 4.3	Room 408	VFT (12” X 12” – Beige)	None Detected	N/A

Sample ID	Location	Material	Type and Content	Friability
		Mastic (Beige)	None Detected	N/A
BS 5.1	Room 220	VFT (12” x 12”– Off-White, Beige & Brown Flakes)	None Detected	N/A
		Mastic (White)	None Detected	N/A
BS 5.2	Room 220	VFT (12” x 12”– Off-White, Beige & Brown Flakes)	None Detected	N/A
		Mastic (White)	None Detected	N/A
BS 5.3	Room 220	VFT (12” x 12”– Off-White, Beige & Brown Flakes)	None Detected	N/A
		Mastic (White)	None Detected	N/A
BS 6.1	Room 400A	VSF (Grey)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 6.2	Room 400A	VSF (Grey)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 6.3	Room 400A	VSF (Grey)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 7.1	Room 031A	VFT (12” x 12” – White, Brown & Grey Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 7.2	Room 031A	VFT (12” x 12” – White, Brown & Grey Flakes)	None Detected	N/A
BS 7.3	Room 031A	VFT (12” x 12” – White, Brown & Grey Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 8.1	Room 019	SCT (2” x 4” – Pinholes w/ Small Fissures)	None Detected	N/A
BS 8.2	Room 019	SCT (2” x 4” – Pinholes w/ Small Fissures)	None Detected	N/A
BS 8.3	Room 019	SCT (2” x 4” – Pinholes w/ Small Fissures)	None Detected	N/A
BS 9.1	Room 030	VFT (12” x 12” – Beige w/ Brown & White Flakes)	None Detected	N/A
BS 9.2	Room 030	VFT (12” x 12” – Beige w/ Brown & White Flakes)	None Detected	N/A
BS 9.3	Room 030	VFT (12” x 12” – Beige w/ Brown & White Flakes)	None Detected	N/A
BS 10.1	Room 019	SCT (2” x 4” – Pinholes w/ Large Fissures)	None Detected	N/A
BS 10.2	Room 019	SCT (2” x 4” – Pinholes w/ Large Fissures)	None Detected	N/A
BS 10.3	Room 019	SCT (2” x 4” – Pinholes w/ Large Fissures)	None Detected	N/A
BS 11.1	Room 131	Carpet Mastic (Gray/white)	None Detected	N/A
BS 11.2	Room 131	Carpet Mastic	None Detected	N/A
BS 11.3	Room 131	Carpet Mastic	None Detected	N/A
BS 12.1	Room 007	VFT (12” x 12” – Beige w/ Red & Blue Specks)	None Detected	N/A
		Mastic (Black)	None Detected	N/A
BS 12.2	Room 007	VFT (12” x 12” – Beige w/ Red & Blue Specks)	None Detected	N/A
		Mastic (Black)	None Detected	N/A
BS 12.3	Room 007	VFT (12” x 12” – Beige w/ Red & Blue Specks)	None Detected	N/A
		Mastic (Black)	None Detected	N/A
14.1	Room 030	Drywall Joint Compound	None Detected	N/A

Sample ID	Location	Material	Type and Content	Friability
14.2	Room 430	Drywall Joint Compound	None Detected	N/A
14.3	Room 455A	Drywall Joint Compound	None Detected	N/A
14.4	Room 100F	Drywall Joint Compound	None Detected	N/A
14.5	Room 200A	Drywall Joint Compound	None Detected	N/A
14.6	Room 358A	Drywall Joint Compound	None Detected	N/A
14.7	Room 509	Drywall Joint Compound	None Detected	N/A
15.1	Room 109	VFT (12" x 12" – Grey w/ Dark Flakes)	None Detected	N/A
		Mastic (Grey/Yellow)	None Detected	N/A
15.2	Room 109	VFT (12" x 12" – Grey w/ Dark Flakes)	None Detected	N/A
		Mastic (Grey/Yellow)	None Detected	N/A
15.3	Room 109	VFT (12" x 12" – Grey w/ Dark Flakes)	None Detected	N/A
		Mastic (Grey/Yellow)	None Detected	N/A

N/A – Not Applicable
VFT– Vinyl Floor Tile
VSF– Vinyl Sheet Flooring
SCT – Suspended Ceiling Tile
*Sample labelled plaster appears to be drywall/sheetrock
*Sample labelled plaster appears to be drywall joint compound
Stop Positive – Material considered being asbestos-containing as per O. Reg. 278/05.

Please refer to Appendix E – Asbestos-Containing Materials Checklist for material conditions, quantities (where applicable), and recommended actions.

The following building materials (if present) were investigated for asbestos content,

3.1.1 Fireproofing

No fireproofing was observed throughout the subject building.

3.1.2 Mechanical Pipe Insulation

3.1.2.1 Mechanical Pipe Straight Insulation

No mechanical pipe straight insulation was observed throughout the subject building.

3.1.2.2 Mechanical Piping Elbows/Fittings Insulation

No mechanical pipe elbows/fittings insulation was observed throughout the subject building.

3.1.2.3 Mechanical Piping Hangers Insulation

No mechanical pipe hanger insulation was observed throughout the subject building.

3.1.2.4 HVAC Duct Insulation

No HVAC duct insulation was not observed throughout the subject building.

3.1.2.5 Other Mechanical Insulation

No other mechanical insulation was observed throughout the subject building.

3.1.3 Flexible Duct Connector

No flexible duct connectors were observed throughout the subject building.

3.1.4 Heat Shield or Heat Shield Insulation

No potential asbestos-containing heat shield insulation was observed throughout the subject building.

3.1.5 Texture Finishes

No texture coat finishes were observed throughout the subject building.

3.1.6 Plaster

No plaster was observed throughout the subject building.

3.1.7 Drywall Joint Compound

Drywall joint compounds were observed throughout the building. Previous laboratory analytical results of drywall joint compound samples collected from Rooms 030, 430, 455A, 100F, 200A, 358A, and 509 indicate that this material does not contain asbestos.

3.1.8 Ceiling Tiles

Suspended ceiling tiles were observed in various locations throughout the subject building.

- Suspended ceiling tiles (2”x4”– Pinholes w/ Small Fissure) were observed in Room 019. Previous laboratory analytical results of the ceiling tiles samples collected from Room 019 indicate that this material does not contain asbestos.

- Suspended ceiling tiles (2”x4” – Pinholes w/ Large Fissure) were observed in Room 019. Previous laboratory analytical results of the ceiling tiles samples collected from Room 019 indicate that this material does not contain asbestos.

- Suspended ceiling tiles (Textured) were observed in Room 030. The date stamp on the back of these tiles indicated that they were manufactured in 2006. Therefore, this material is not considered to contain asbestos.

3.1.9 Vinyl Floor Tiles

Several different types of vinyl floor tiles were observed and sampled throughout the building as follows:

- Vinyl floor tiles (12" X 12"- Beige) were observed in Room 408. Previous laboratory analytical results of the vinyl floor tile samples collected from Room 408 indicate that this material does not contain asbestos. The associated mastic (Beige) was also found not to contain asbestos.

- Vinyl floor tiles (12"x12"- Off-White w/ Beige and Brown Flakes) were observed in Room 220. Previous laboratory analytical results of the vinyl floor tile samples collected from Room 220 indicate that this material does not contain asbestos. The associated mastic (Beige) was also found not to contain asbestos.

- Vinyl floor tiles (12"x12"- Beige w/ Brown & Grey Flakes) were observed in room 031A. Previous laboratory analytical results of the vinyl floor tile samples collected from room 031A indicate that this material does not contain asbestos.

- Vinyl floor tiles (12"x12"- Beige w/ Green & White Flakes) were observed in room 030. Previous laboratory analytical results of the vinyl floor tile samples collected from room 030 indicate that this material does not contain asbestos.

- Vinyl floor tiles (12"x12"- Beige w/ Red & Blue Specks) were observed in Room 007. Previous laboratory analytical results of the vinyl floor tile samples collected from room 007 indicate that this material does not contain asbestos. The associated mastic (black) was also found not to contain asbestos.

- Vinyl floor tiles (12"x12"- Grey w/ Dark Flakes) were observed in Room 109. Previous laboratory analytical results of the vinyl floor tile samples collected from Room 109 indicate that this material does not contain asbestos. The associated mastic (grey/yellow) did not contain asbestos.

- Vinyl floor tiles (1'x1'- White w/ Green & Red Specks) previously sampled and observed in Room 001. Previous laboratory analytical results of the vinyl floor tile samples collected from Room 001 indicate that this material does not contain asbestos.

- Vinyl floor tiles (1'x1'- Grey) previously sampled and observed in Room 018. Previous laboratory analytical results of the vinyl floor tile samples collected from Room 018 indicate that this material does not contain asbestos.

- Vinyl floor tiles (Beige) previously sampled and observed in Room 016. Previous laboratory analytical results of the vinyl floor tile samples collected from Room 016 indicate that this material does not contain asbestos.

- Vinyl floor tiles (1'x1' Beige w/ Green & Red Specks) previously sampled and observed in Room 401. Previous laboratory analytical results of the vinyl floor tile samples collected from Room 401 indicate that this material does not contain asbestos.

3.1.10 Vinyl Sheet Flooring

Several different types of Vinyl Sheet Flooring were observed and sampled throughout the subject building as follows:

- Vinyl sheet flooring (White) was observed in room 509. Previous laboratory analytical results of the vinyl sheet flooring samples collected from room 509 indicate that this material does not contain asbestos.

- Vinyl sheet flooring (Green) was observed in room 509. Previous laboratory analytical results of the vinyl sheet flooring samples collected from room 509 indicate that this material does not contain asbestos.

- Vinyl sheet flooring (Grey) was observed in several locations throughout the building. Previous laboratory analytical results of the vinyl sheet flooring samples collected from room 400A indicate that this material does not contain asbestos. The associated mastic/backing material (Beige) did not contain asbestos.

3.1.11 Brick Mortar

To avoid damage and compromising the structure's integrity, no bulk samples of the brick/stone mortar were collected. Prior to any renovation or demolition, brick/stone mortar should be examined and tested for asbestos content. Therefore, brick/stone mortar should be considered to contain asbestos until bulk samples and analysis until confirm otherwise. All brick mortar was noted in good condition.

3.1.12 Concrete Block Mortar

To avoid damage and compromising the structure's integrity, no bulk samples of the concrete block mortar were collected. Prior to any renovation or demolition, concrete block mortar should be examined and tested for asbestos content. Concrete block mortar should, therefore, be considered to contain asbestos until bulk samples and analysis are confirmed otherwise. All concrete block mortar was noted in good condition.

3.1.13 Ceramic Wall / Floor Tile Grout

No bulk samples of the ceramic wall/ floor tile grout were collected to avoid damage and compromise the structure's integrity. Prior to any renovation or demolition, ceramic wall/ floor tile grout should be examined and tested for asbestos content. Ceramic wall/ floor tile grout should, therefore, be considered to contain asbestos until bulk samples and analysis are confirmed otherwise. All concrete block mortar was noted in good condition.

3.1.14 Transite (Asbestos Cement)

No transite materials were observed throughout the subject building.

3.1.15 Mastic

Mastics were observed and sampled throughout the subject building as follows:

- Carpet mastic (White) was observed and previously sampled in Room 220. Previous laboratory analytical results of the carpet mastic samples collected indicate that this material does not contain asbestos.

- Carpet mastic (Beige) was observed and previously sampled in Rooms 408 and 400A. Previous laboratory analytical results of the carpet mastic samples collected indicate that this material does not contain asbestos.

- Carpet mastic (Yellow) was observed and previously sampled in Room 031A. Previous laboratory analytical results of the carpet mastic samples collected indicate that this material does not contain asbestos.

- Carpet mastic (Grey/White) was observed and previously sampled in Room 131. The laboratory analytical results of the carpet mastic samples collected indicate that this material does not contain asbestos.

- Carpet mastic (Black) was observed and previously sampled in Room 007. Previous laboratory analytical results of the carpet mastic samples collected indicate that this material does not contain asbestos.

- Carpet mastic (Grey/Yellow) was observed and previously sampled in Room 109. Previous laboratory analytical results of the carpet mastic samples collected indicate that this material does not contain asbestos.

3.1.16 Caulking /Fire Stop

No potential asbestos-containing caulking was observed throughout the subject building.

Fire stop was observed in room 008 in the basement. Previous laboratory analytical results of fire stop samples collected from the basement indicate that this material does not contain asbestos.

3.1.17 Cementitious Coating

No potential asbestos-containing cementitious coating finishes were observed throughout the subject building.

3.1.18 Fire Doors

No fire doors were observed throughout the subject building.

3.1.19 Roofing Material

To avoid damage and compromising the integrity of the roofing material, no bulk samples of the roofing materials were collected. Prior to removal and/or replacement, roofing materials should be examined and

tested for asbestos content. Roofing materials should be considered to contain asbestos until bulk samples and analysis are confirms otherwise.

Recommendations

- Please refer to Appendix E – Asbestos-Containing Materials Checklist for material conditions, quantities (where applicable), and recommended actions;
- Prior to any renovation or demolition of materials which are assumed to be asbestos-containing (suspect materials which were not sampled, i.e., roofing materials, brick and concrete block mortar and ceramic wall/floor tile grout), these materials must either be tested for asbestos content or removed following appropriate asbestos abatement work procedures (Type 1/2/3) as detailed in O. Reg. 278/05 and disposed of as asbestos waste under O. Reg. 347;
- All repairs or removal of ACMs must be conducted according to Ontario Regulation 278/05, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act. Asbestos-containing waste must also be handled and disposed of according to Ontario Regulation 347/90 as amended – made under the Environmental Protection Act. Any suspect building materials encountered that were not assessed as part of this survey should be assumed to contain asbestos until confirmed otherwise by analytical testing;
- Sub-trades working with or in close proximity to ACMs should be informed of their presence and
- Given that potential asbestos-containing materials (ACMs) have been identified and will likely remain in place, an Asbestos Management Plan is required, and an ACMs inventory must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once every 12 months and as may be required based on expected changing site conditions, abatement and/or renovation activities.

3.2 Lead

Findings

3.2.1 Paint Finishes

Thirteen (13) paint samples from the subject building were collected and analyzed for lead content. Results of bulk sampling testing and previous lead sample results are summarized in Table 2, and the Laboratory Certificate of Analysis can be found in Appendix C.

Table 2:

Lead Sampling Locations and Laboratory Results

Sample I.D.	Location	Material	Colour	Lead Concentration Weight by Conc. (%)
PB-01	Room 507	Wall	Beige/Yellow	<0.030
PB-02	Room 507	Wall	Grey	<0.012
PB-03	Room 131	Wall	Light Yellow	<0.0099
PB-04	Room 218	Wall	Light grey	<0.044
PB-05	Room 507	Wall	Purple	<0.022
PB-06	Room 032	Wall	Red/Maroon	<0.021
PB-07	Room 005	Cabinet	Blue/Grey	<0.021
PB-08	Room 254	Floor	Green/Grey	<0.035
PB-09	Room 218	Wall	Light Blue/Grey	<0.088
PB-10	Room 146	Wall	Blue/Purple	<0.020
PB-11	Room 029	Cabinet	White	<0.034
PB-12	Room 533	Wall	Light Purple	<0.030
PB-13	Room 030	Wall	Light Blue	<0.018
Previously Collected Samples				
ART-SB-LBP-013108-01	Room 001	Floor	Grey	0.13

The paint finishes highlighted in pink in the above table are considered lead-containing paints or surface coatings with concentrations greater than 0.1% lead by weight. These paint finishes were observed to be in good condition.

All paints tested were below the laboratory limit of detection for lead. However, all other paints throughout the subject building that are not mentioned in this report must be considered to be lead-containing unless sampling and analysis are confirmed otherwise.

The Laboratory Certificates of Analysis for the paint sample is also included in Appendix C.

3.2.2 Battery Packs

Lead-containing acid battery packs were observed throughout the subject building. These battery packs were observed on walls and above exits throughout the surveyed building.

Lead may also be present in the following materials in the building:

- Solder used on copper domestic water lines;
- Solder used in bell fittings for cast iron pipes;
- Solder used in electrical equipment;

- Ceramic tile glaze; and
- Concrete and mortar products, etc.

Recommendations

Paints identified to contain lead that are in poor condition must be immediately repaired and/or stabilized following a minimum Type 1/2 lead abatement procedures as per OMOL "Lead on Construction Project" dated April 2011.

Paints identified to contain lead that are in fair condition should be either repaired (where possible) and/or closely monitored for signs of further deterioration.

Paints identified to contain lead that are in good condition and do not pose a risk to workers or occupants can be managed in place.

Detailed worker protection protocols are outlined in the OMOL Guideline "Lead on Construction Projects" dated April 2011. Generally, removing the lead-based paint using a chemical gel or paste or a power tool equipped with a HEPA filter is considered a Type 1 operation. Removing lead-based paint by scraping or sanding using non-powered hand tools is considered a Type 2 operation. Removing lead-based paint using abrasive blasting or power tools without a HEPA filter is considered a Type 3 operation and requires the most stringent worker protection protocols (similar to asbestos). Furthermore, high-temperature cutting or welding would also require Type 3 Operations under the Guideline for Lead on Construction Projects. If this type of work is required, it may be prudent to chemically remove the lead paint in selected locations prior to performing any high-temperature cutting or welding.

All removed lead materials must follow the Ministry of Labour and Environmental Abatement Council of Canada (EACC) Lead Guidelines.

Please refer to Appendix F – Hazardous Materials Checklist for material conditions, quantities (where applicable), and recommended actions.

Precautions should be taken as required during major renovations and demolition projects to ensure that workers' exposure levels to airborne lead do not exceed 0.05 mg/m3. This can be achieved by:

- providing workers with proper training;
- providing the workers with respiratory protection;
- wetting the surface of the materials to prevent dust emissions; and,
- providing workers with hygiene facilities to properly wash prior to exiting the work area.

Sub-trades working with or in close proximity to lead-based paint should be informed of its presence.

All waste material must be handled and disposed of according to the Revised Regulation of Ontario 347/90 as amended – made under the Environmental Protection Act. Lead waste generated may also be subject to the Leachate Criteria (Schedule 4) of this regulation.

3.3 Mercury

Findings

3.3.1 Thermostat Switches

No thermostats containing liquid mercury were observed throughout the subject building.

3.3.2 Thermometers

No thermometers containing liquid mercury were observed throughout the subject building.

3.3.3 Fluorescent Light Tubes

Fluorescent light fixtures were identified throughout the subject building, containing 2 to 4 tubes per fixture. Mercury is likely to be present in vapour form in fluorescent light tubes.

3.3.4 Pressure Gauges and Float Switches

No pressure gauges or float switches containing liquid mercury were identified in the subject building.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Precautions must be taken to prevent mercury liquid/vapours from becoming airborne during building demolition. Mercury exposure is regulated under Ontario Regulation 490/09, Designated Substances - made under the Occupational Health and Safety Act." Prior to renovations to the building, all mercury-containing fluorescent light tubes, thermostats, and equipment must be removed and stored in a safe, secure location and/or properly disposed of under R.R.O. 1990, Regulation 347 General – Waste Management, made under the Environmental Protection Act.

3.4 Silica

Findings

Silica is expected to be present in building materials such as concrete, brick, mortar and ceramic tiles throughout the structures. Free crystalline silica (α-Quartz) may be a component in ceiling tiles and gypsum boards. Silica (including free crystalline silica) may also be a component of concrete and brick surfaces noted in the building.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Precautions should be taken as required during major renovations and demolition projects on concrete (i.e. coring through concrete slabs, masonry demolition, etc.) to ensure that workers' exposure levels to airborne silica do not exceed 0.05 mg/m^3.

This can be achieved by:

- providing workers with proper training;
- providing the workers with respiratory protection;
- wetting the surface of the materials to prevent dust emissions; and,
- providing workers with facilities to properly wash prior to exiting the work area.

Any demolition work likely to impact silica-containing materials should be carried out under the requirement detailed in the Ontario Ministry of Labour document entitled "Guideline: Silica on Construction Projects," dated April 2011.

Other Hazardous Materials

3.5 Polychlorinated Biphenyls (PCBs)

Findings

3.5.1 Light Ballasts

LED and fluorescent lights illuminate the subject building. Based on the age of the building, PCB-containing ballasts are not expected to be present.

3.5.2 Transformers

No PCBs containing electrical transformers were observed throughout the subject building. Transformers that could be assessed were observed to be dry-type.

Recommendations

Since no PCB-containing equipment was observed or suspected to be present during the site survey, no further action is required.

3.6 Ozone-depleting Substances (ODSs) and Other Halocarbon

Findings

A visual assessment for equipment potentially containing ODSs and other halocarbons was conducted. Equipment containing ODSs or other halocarbons was observed throughout the subject building.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, approximate quantities (where applicable), and recommended actions.

Under the management of a licensed contractor, equipment containing R-134a does not represent a significant threat to human health or the environment; however, a licensed contractor must decommission equipment such that CFCs are contained and not released to the environment during servicing or operation.

3.7 Radioactive Materials

Findings

MPL did not observe any electrical components containing radioactive materials.

Recommendations

No further action is required since no radioactive materials were observed or suspected to be present during the site survey.

3.8 Underground and Above Ground Storage Tanks (USTs and ASTs)

Findings

A visual survey of the subject building was conducted to determine if any USTs and ASTs were present. No USTs and ASTs were present throughout the surveyed area.

Recommendations

Since no underground and/or above-ground storage tanks (USTs and ASTs) were observed or suspected to be present during the site survey, no further action is required.

3.9 Mould

Findings

3.9.1 Mould

A visual survey of the subject building was conducted to determine if any mould was present. No mould growth was identified in any areas throughout the subject site.

3.9.2 Water Damage

A visual survey of the subject building was conducted to determine if water damage was present. MPL did not identify any areas with water damage.

Recommendations

No further action is required since mould/water-damaged materials were not observed during the site survey.

This report should be made available to contractors tendering on any renovation or demolition work. In turn, all contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

4.0 GENERAL CONSIDERATIONS AND LIMITATIONS

The information presented in this report is based on information provided by others, direct visual observation made by personnel with **McIntosh Perry Limited (MPL)**, and laboratory testing results as identified herein.

It should be noted that there might be Designated Substances in locations not visible during our investigation. In the event such material is encountered during demolition operations in the building, this material should be tested and dealt with accordingly.

The findings detailed in this report are based upon the information available at the time of preparation of the report. No investigative method eliminates the possibility of obtaining imprecise or incomplete information. Professional judgement was exercised in gathering and analyzing the information obtained and in the formulation of our conclusions and recommendations.

MPL does not certify or warrant the environmental status of the property nor the building on the property.

Please note that the passage of time affects the information provided in the report. Environmental conditions of a site can change. Opinions relating to the site conditions are based upon information that existed at the time that the conclusions were formulated.

The client expressly agrees that it has entered into this agreement with MPL, both on its own behalf and as agent on behalf of its employees and principals.

The client expressly agrees that MPL's employees and principals shall have no personal liability to the client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the client expressly agrees that it will bring no proceedings and take no action in any court of law against any of MPL's employees or principals in their personal capacity.

We trust that we have detailed our findings clearly and that we have satisfactorily addressed the scope of work you require at this time. In the event you wish us to review our findings with you, or require our services further in this regard, please do not hesitate to contact our office.

Yours truly,

MCINTOSH PERRY LIMITED

Jane Zhang, M.Sc.
Hazardous Materials, EH&S Technician
Hazardous Materials/ Environmental Health & Safety

John Tufts, B.Sc.
Project Manager
Hazardous Materials/ Environmental Health & Safety

APPENDIX A

Regulatory Requirements

REGULATORY REQUIREMENTS

In Ontario, there is a total of eleven Designated Substances. These substances have been regulated under Ontario Regulation 490/09 — *Designated Substances*, made under the Ontario Health and Safety Act, which applies to controlling designated substances in the workplace.

In addition to the Ontario Regulation 490/09 noted above, the following were observed for this survey:

Guideline: Lead on Construction Projects, issued in April 2011 by the Occupational Health and Safety branch of the Ministry of Labour

Guideline: Silica on Construction Projects issued in April 2011 by the Occupational Health and Safety branch of the Ministry of Labour.

The Occupational Health and Safety Act (OHSA), R.S.O. 1990, c.0.1, s.30 (1) specifies that: "Before beginning a project, the owner shall determine whether any Designated Substances are present at the project site and shall prepare a list of all Designated Substances that are present at the site.

Section 30 of The Act requires that the list of Designated Substances be provided to prospective contractors and subcontractors who may do work on a site and come into contact at the site with Designated Substances.

The Ministry of Labour has designated the following substances:

- Acrylonitrile
- Arsenic
- Asbestos
- Benzene
- Coke Oven Emissions
- Ethylene Oxide
- Isocyanates
- Lead
- Mercury
- Silica
- Vinyl Chloride

Ontario Regulation 278/05 (O. Reg. 278/05), the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations, made under the Occupational Health and Safety Act (OHSA), requires owners of a building to identify Asbestos-containing Materials (ACMs) prior to potential disturbance of the materials.

In addition, an owner of a building is required to have an Asbestos Management Plan (AMP) if ACMs (friable or non-friable) are present in the building and are to remain in place. An inventory of ACMs must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once every 12 months and as may be required based on expected changing site conditions, abatement and/or renovation activities. Removal of all asbestos-containing materials is required prior to building demolition.

We understand that this survey has been conducted to comply with the regulatory requirements of Ontario Regulation 278/05.

APPENDIX B

Survey Methodology & Background Information

SURVEY METHODOLOGY

Not all Designated Substances or suspect hazardous materials were sampled for this survey. Selective sampling was carried out only for substances suspected to be present or those deemed to have a likely source of origin in the survey areas.

Materials that were homogeneous and/or similar in appearance to other materials tested were considered to be of similar composition. The likelihood of ACMs being present in inaccessible areas, such as above gypsum board ceilings or behind gypsum wallboards, was determined by assessing the presence of asbestos-containing systems in adjacent areas. Equipment such as boilers, motors, blowers, electrical panels, fire doors, etc., were not de-energized or disassembled to examine internal components or materials. These items should be considered to contain desginated substances until proven otherwise.

During the survey, representative samples of suspect building materials were collected and sent to a CALA-accredited independent laboratory for analysis. Laboratory Certificates of Analysis are attached in Appendix C.

Other potential designated substance were identified by visual observation and/or by reviewing Material Safety Data Sheets (MSDS) and/or safety labels where available.

Investigated Areas

The survey included all accessible areas and ceiling space within 70 Laurier Avenue, Ottawa, ON (Hamelin), as required under our scope of work. No destructive investigations were performed as part of this survey. Photographs of the areas investigated can be found in Appendix D.

The assessment was directed at the interior structure and finishes of the building. It did not consider current or past owner or occupant articles within the building (i.e. contents, furniture, etc.). It did not report on possible contaminants in the soil under and surrounding the building or contents of vessels, drums, etc., that may be concealed.

Sampling and Assessment Methodologies

Sampling was conducted as part of this assessment. Results for asbestos and lead samples can be found in the Findings & Recommendation Section 3.0.

A historical review of previous designated substance survey reports and abatement reports were examined as part of this survey. Due to concerns regarding certain historical analytical results, mainly in 2008 and prior years, confirmatory re-sampling was conducted for selected materials previously identified not to contain asbestos. However, building materials previously identified to be asbestos-containing were not re-sampled. The reports are listed as follows,

- Designated Substance Inventory by Conestoga-Rovers & Associates (dated August 2008), reference # 045870(96);

Asbestos

Background Information on Asbestos

Asbestos is a generic name for a group of naturally occurring fibrous minerals. Asbestos was commonly used in building materials such as insulation, fireproofing and acoustic or decorative panels. Although there are many types of asbestos, Ontario's three primary forms of commercial importance are chrysotile, amosite and crocidolite.

An Asbestos-Containing Material (ACM) is defined by O. Reg. 278/05 as a material that contains 0.5% or more asbestos by dry weight. ACMs are placed into two general classes, "friable" and "non-friable" ACMs. Friable ACMs are those materials that, when dry, can be crumbled, pulverized and reduced to powder by hand pressure. Typical friable ACMs include acoustical or decorative texture coats, fireproofing and thermal insulation. Non-friable ACMs are much more durable as they are held together by a binder such as cement, vinyl or asphalt. Typical non-friable ACMs include floor tiles, fire blankets, roofing materials and cementitious products such as wallboards, pipes or siding.

It has been recognized that hazardous situations may exist in buildings where asbestos-containing materials are found. This is especially true where asbestos fibres may become airborne due to material aging, physical damage, water damage or air movement.

In contrast, there is little reason for concern if the asbestos is in good condition, has not been damaged and is not in a location where it is likely to be disturbed.

Asbestos Survey Methodology

The asbestos survey included identifying potential friable and non-friable asbestos-containing materials within the surveyed areas of the subject building.

The likelihood of ACMs being present in inaccessible areas, such as above gypsum wallboard ceilings and walls, was determined by assessing the presence of asbestos-containing materials in adjacent areas.

Fiberglass insulation was not submitted for analysis as it can be identified visually as non-asbestos material.

Building materials suspected of containing asbestos were identified, and representative sampling and laboratory testing of these materials was conducted. The number of bulk material samples collected from a homogeneous area was in accordance with Table 1. O. Reg. 278/05 s. 3 (3) below. Building materials suspected of containing asbestos were collected using wetting techniques and hand-sampling tools.

Table 1 - O. Reg. 278/05 s. 3(3): Minimum Asbestos Bulk Material Sample Requirements

Item	Type of material	Size of area of homogeneous material	Minimum number of bulk material samples to be collected
1.	Surfacing material, including, without limitation, material that is applied to surfaces by spraying, troweling or, such	Less than 90 square metres	3
		90 or more square metres but less than 450 square metres	5

	as acoustical plaster on ceilings and fireproofing materials on structural members	450 or more square metres	7
2.	Thermal insulation, except as described in item 3	any size	3
3.	Thermal insulation patch	Less than 2 linear metres or 0.5 square metres	1
4.	Other material	Any size	3

Preliminary identification of the samples was made using polarized light microscopy (PLM), confirming the presence and type of asbestos made by dispersion staining optical microscopy. This analytical procedure follows the U.S. Environmental Protection Agency Test Method EPA/600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials, June 1993.

EMSL Canada Inc. (EMSL), an independent laboratory, analyzed all bulk samples for asbestos content. EMSL is an independent laboratory accredited by the National Institute of Standards and Technology/National Voluntary Laboratory Accreditation (NIST/NVLAP) (Lab Code #200877-0).

Vinyl floor tiles were analyzed using the phase light microscopy (PLM) analysis method. However, given the composition of vinyl floor products, the PLM analysis method may be prone to yield false negative analytical results. Therefore, prior to removal or replacement, vinyl floor products previously identified as negative should undergo additional analysis by Transmission Electron Microscopy (TEM) to confirm asbestos content, if any.

Materials identified to contain asbestos were assessed on the relative possibility of fibre release into the air due to their condition and accessibility.

Evaluation of ACMs Based on Condition

In evaluating an ACM's condition, the following criteria were applied:

- **Good** – Material shows no signs of damage and/or is encapsulated. Asbestos-containing material could remain in place until eventual building demolition or major renovation.
- **Fair** – Material shows signs of minor damage (<5% damage) or near the end of useful life. This includes minor shrinking, cracking, delamination and/ or other damage. Material should be monitored closely and scheduled to be repaired, encapsulated or removed.
- **Poor** – Damage is greater than 5% to any ACM material and is highly recommended to be removed, repaired or encapsulated.

Note: The above evaluation criteria were also applied to other Designated Substances where applicable. For further details, please refer to the Asbestos and Hazardous Materials Checklist in Appendix E & F.

Lead

Background Information on Lead

Lead was a common additive in exterior and hard-wearing paint applications. Lead was used to prolong the paint's shelf life and increase its flexibility and durability to wear and weather. Acute exposure to lead by inhalation or ingestion may cause headaches, fatigue, nausea, abdominal cramps and joint pain. Chronic

exposures can cause reduced hemoglobin production and reduced lifespan. It has also been known to impact the body's central and peripheral nervous systems and brain function and has been linked to learning disabilities in children.

No regulatory limit in Ontario determines what lead concentration constitutes a "lead-containing material." On October 21, 2010, Health Canada, under the *Hazardous Products Act*, stated that the lead content in surface-coating materials, furniture, toys and other articles for children should not exceed 90 mg/kg (0.009%, 90 ppm). However, this is intended for the importing or selling of products within Canada. Therefore, this is not to be misconstrued as a limit established to define a lead-containing material or a limitation with respect to lead on construction projects.

The Environmental Abatement Council of Ontario (EACO) has also developed the "*Lead Guideline for Construction, Renovation, Maintenance or Repair*" dated October 2014, which discusses the classification, handling, disturbance and removal of lead-containing materials. For this guideline, paints or surface coatings containing less than or equal to 0.1% lead by weight (1000 mg/kg or 1000 ppm) are considered low-level lead paints or surface coatings. If these materials (and their respective surfaces) are disturbed non-aggressively and performed using adequate dust control procedures. In that case, worker protection from the inhalation of lead is not required.

Furthermore, paints or surface coatings containing greater than 0.1% lead by weight are considered lead-containing paints or surface coatings. If these materials (and their respective surfaces) are disturbed, appropriate lead abatement procedures must always be followed.

Exposure to lead-containing materials is regulated under Ontario Regulation 490/09, *Designated Substances* - made under the Occupational Health and Safety Act. Care must be taken to prevent lead-containing particles from becoming airborne during the disturbance of lead-containing surfaces (i.e., during renovation or demolition projects). All lead abatement work must follow procedures outlined in the Guideline Lead on Construction Projects, issued in September 2004 (amended in April 2011) by the Occupational Health and Safety branch of the Ministry of Labour (Type 1-3). Similarly, the lead abatement work procedures outlined in the EACO Lead Guideline for Construction, Renovation, Maintenance or Repair (October 2014) may also be implemented (Class 1-3).

Lead has been used in solder on copper plumbing fixtures, lead conduit pipes, lead-calcium battery plates, ammunition, and nuclear and X-ray shielding devices. However, these materials were not sampled during this investigation but were noted where applicable.

Representative bulk samples of paint and finishes suspected of containing lead were collected to verify lead content in paints. Bulk samples were scraped down to the building base structure, with all possible layers present, placed in sealed and labelled plastic bags and then submitted to an independent laboratory for analysis. Samples were treated with a dilute nitric acid sample digestion prior to filtration. The analysis utilized for lead detection in filtered samples was inductively coupled plasma optical emission spectrometry (ICP-OES).

Mercury

Background Information on Mercury

Mercury is known to cause human poisoning by inhaling vapours, ingesting contaminated materials, or skin absorption through direct contact with the liquid.

Precautions must be taken to prevent mercury vapours from becoming airborne during renovations or building demolition. Exposure to airborne mercury is regulated under the Revised O. Reg. 490/09 as amended – Regulation respecting Mercury – made under the Occupational Health and Safety Act; and under O. Reg. 558, which amended O. Reg. 347/90 (General - Waste Management), mercury is classified as a Schedule 2(b) Hazardous Waste Chemical. Its hazardous waste number is U151.

Mercury is found in thermostats, temperature and pressure gauges, fluorescent lamps and batteries. Mercury in products can be released to the environment through breakage or disposal at the end of a product's useful life. Improper disposal of these mercury products poses a health and environmental risk to everyone. In addition, the disposal of mercury-containing products can create wastes that are often classified as hazardous. Wastes that leach mercury in concentrations exceeding Ontario Regulation 347/90 (General - Waste Management) limits are also considered hazardous.

The mercury in the thermostat switch contains approximately 3-4 grams in a glass ampoule, typically attached to a metal coil. Mercury-containing switches have been used in thermostats for over 40 years.

Mercury is an essential component in fluorescent lamps and HID lamps. The mercury and the phosphor coating on the lamp tube are in a vapour form. Estimates of the mercury content contained in compact, 4-foot, and 8-foot lamps are 10 mg, 23 mg, and 46 mg, respectively.

Most fluorescent lamps qualify as hazardous waste when removed from service and are prohibited from disposal in the solid waste stream. Fluorescent lamps would be classified as 146T on your facility Generator Registration Report under O. Reg. 347/90 - General Waste Management, as amended by O. Reg. 558/00. Under this regulation, if the leachate results exceed 0.1 milligrams of mercury per litre for a given waste, the facility must treat the waste as hazardous. Most fluorescent and HID lamps will exceed the leachate toxicity limit; therefore, these wastes must be registered and treated as hazardous waste or sent for recycling.

Silica

Background Information on Silica

Silica is expected to be present in building materials such as concrete, brick, mortar and ceramic tiles throughout the structures. Free crystalline silica (□-Quartz) may be a component in ceiling tiles and gypsum boards. Silica (including free crystalline silica) may also be a component of concrete and brick surfaces noted in the building.

Exposure to airborne silica is regulated under Ontario Regulation 490/09, *Designated Substances* - made under the Occupational Health and Safety Act.

Polychlorinated Biphenyls (PCBs)

Background Information on PCBs

Polychlorinated Biphenyls (PCBs) were commonly used as dielectric insulating fluid in electrical equipment such as transformers, capacitors, and fluorescent and HID lamp ballasts. The production of PCBs in North America started in 1929 and was banned at the beginning of 1979. After 1981, no manufacturers produced fluorescent and HID lamps with PCB-containing ballasts.

PCBs are not a designated substance under the Occupational Health and Safety Act.

PCB Regulations (SOR/2008-273)

The *PCB Regulations* (the Regulations) set specific deadlines for ending the use of PCBs in concentrations at or above 50 mg/kg, eliminating all PCBs and equipment containing PCBs currently in storage and limiting the period PCBs can be stored before being destroyed. The Regulations also establish sound practices for the better management of the remaining PCBs in use (i.e. those with content of less than 50 mg/kg) until their eventual elimination to prevent contamination of dielectric fluids and dispersion of PCBs in small quantities into other liquids.

Ozone-depleting Substances (ODSs) and Other Halocarbons

Background Information on ODSs

Within Ontario, the general use of ozone-depleting substances (ODSs) and other halocarbons is controlled through Regulation 463/10 of the Environmental Protection Act. Production of ODSs in the form of hydrochlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs) ceased in Canada in 1993 due to their ozone-depleting characteristics. The importation of CFCs into Canada ceased in 1997, and a total ban was placed on their use in 2010. The use of these materials is still permitted in existing equipment, but equipment must be serviced by a licensed contractor such that CFCs are contained and not released to the environment during servicing or operation.

Radioactive Materials

Two types of smoke detectors are common in buildings (residential, institutional, commercial, industrial, etc.). Photoelectric-type smoke detectors detect smoke using an optical sensor, whereas ionization-type smoke detectors use an ionization chamber containing radioactive material. The ionization type is cheaper and is particularly common in older buildings. A typical modern detector contains about 1.0 microcurie of the radioactive element americium, a decrease from 3 microcurie in 1978. Sealed radioactive material sources in fire detection systems are still permitted and regulated by the Canadian Nuclear Safety Commission and the Canadian Nuclear Safety Act. The radioactive sources in smoke alarms are sealed and contained within a metal case inside the smoke detector and must not be damaged or tampered with.

Mould & Water Damage

Mould growth inside buildings is due to excess moisture caused by leakages, condensation or capillary movement of water into the building. Toxic moulds such as *Stachybotrys chartarum* and some species of *Aspergillus* spp. are greenish-black, wet and slimy moulds that grow on soaking wet cellulose-based materials. They are often found near water leaks or where drying is very slow and can form after flooding if insufficient cleanup and drying occur. They will generally not occur if materials are kept dry.

MPL conducted a general visual assessment for any obvious signs of visible mould and/or water damage. Based on our visual observations, the following guidelines were used in providing our recommendations for remedial action where required:

- Institute of Inspection Cleaning and Restoration Certification (IICRC) S520 Standard and Reference for Professional Mould Remediation,

- The Canadian Construction Association (CCA) Mould Guidelines for the Canadian construction industry (CCA document 82-2004)
- Environmental Abatement Council of Ontario (EACO) Mould Abatement Guidelines.

Other Designated Substances

Select Designated Substances (acrylonitrile, arsenic, coke oven emissions, ethylene oxide, isocyanates, benzene, or vinyl chloride) are not expected to be present in the building in matrix or sufficient quantities to cause an exceedance of Ministry of Labour exposure guidelines. As such, no sampling was conducted for these materials.

Vinyl Chloride

Vinyl chloride (monomer) is likely to be present in stable form within poly vinyl-chloride (PVC) piping and conduits and as a component of interior finishes. Such building materials are not considered to be hazardous in their current matrix/composition.

Acrylonitrile

Acrylonitrile or ACN (vinyl cyanide) is an explosive, flammable liquid used to manufacture acrylic fibres, rubber-like materials and pesticide fumigants. Acrylonitrile was not noted and would not be expected to be present in the project-specific area/surveyed area/subject building.

Arsenic

Arsenic is used in metallurgy for hardening copper, lead and alloys, pigment production, the manufacture of certain types of glass, insecticides, fungicides and rodenticides, as a by-product in the smelting of copper ores, and as a dopant material in semiconductor manufacturing. Arsenic or arsenic compounds were not noted nor expected to be present in the project-specific area/surveyed area/subject building.

Benzene

Benzene or benzol is a colourless liquid. It is used as an intermediate in producing styrene, phenol, cyclohexane, and other organic chemicals and to manufacture detergents, pesticides, solvents, and paint removers. It is also found in gasoline. Benzene may be present in stable form in roofing materials, paints and adhesives located throughout the subject building. Such building materials are not considered to be hazardous in their current matrix/composition.

Coke Oven Emissions

Coke oven emission is a benzene-soluble fraction of the total particulate matter of the substances emitted into the atmosphere from metallurgical coke ovens.

Ethylene Oxides

Ethylene oxide is a colourless gas liquefying below 12°C. It is used generally as a fumigant and sterilizing agent for medical equipment. It is used generally as a fumigant and sterilizing agent for medical equipment.

Isocyanates

Isocyanate compounds may be present in stable form in paint finishes, varnishes, polyurethane plastics, synthetic rubbers, foams and adhesives. Such building materials are not considered to be hazardous in their current matrix/composition.

To reduce the potential for exposure to workers or occupants, any suspect hazardous building material(s) not detailed within this survey due to inaccessibility and/or are discovered during renovation/demolition activities must be properly assessed and/or tested prior to their disturbance.

APPENDIX C

Laboratory Analytical Reports

EMSL Canada Inc.

22 Antares Drive Suite 102 Ottawa, ON K2E 7Z6
Phone/Fax: (343) 882-6076 / (343) 882-6077
http://www.EMSL.com / ottawalab@EMSL.com

EMSL Canada Order 672000384
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

Attn: John Tufts
McIntosh Perry Consulting Engineers Ltd
115 Walgreen Rd RR 3
Carp, ON K0A 1L0

Phone: (613) 836-2184
Fax:
Collected:
Received: 2/24/2020
Analyzed: 3/02/2020

Proj: University of Ottawa 0Z2-021101 (Hamelin Hall) (Ottawa DSS)

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

Client Sample ID: 1.1 ***Lab Sample ID:*** **672000384-0001**
Sample Description: Hamelin Hall/Firestop 008

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Red	0.0%	100.0%	None Detected	

Client Sample ID: 1.2 ***Lab Sample ID:*** **672000384-0002**
Sample Description: Hamelin Hall/Firestop 008

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Red	0.0%	100.0%	None Detected	

Client Sample ID: 1.3 ***Lab Sample ID:*** **672000384-0003**
Sample Description: Hamelin Hall/Firestop 008

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Red	0.0%	100.0%	None Detected	

Client Sample ID: 2.1 ***Lab Sample ID:*** **672000384-0004**
Sample Description: Hamelin Hall/VSF - White 509

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Various	10.0%	90.0%	None Detected	

Client Sample ID: 2.2 ***Lab Sample ID:*** **672000384-0005**
Sample Description: Hamelin Hall/VSF - White 509

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Various	10.0%	90.0%	None Detected	

Client Sample ID: 2.3 ***Lab Sample ID:*** **672000384-0006**
Sample Description: Hamelin Hall/VSF - White 509

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Various	10.0%	90.0%	None Detected	

Client Sample ID: 3.1 ***Lab Sample ID:*** **672000384-0007**
Sample Description: Hamelin Hall/VSF - Green 509

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Various	10.0%	90.0%	None Detected	

EMSL Canada Inc.

22 Antares Drive Suite 102 Ottawa, ON K2E 7Z6
Phone/Fax: (343) 882-6076 / (343) 882-6077
http://www.EMSL.com / ottawalab@EMSL.com

EMSL Canada Order 672000384
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 3.2 ***Lab Sample ID:*** **672000384-0008**
Sample Description: Hamelin Hall/VSF - Green 509

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Various	10.0%	90.0%	None Detected	

Client Sample ID: 3.3 ***Lab Sample ID:*** **672000384-0009**
Sample Description: Hamelin Hall/VSF - Green 509

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Various/Yellow	10.0%	90.0%	None Detected	Result includes a small amount of inseparable attached mastic.

Client Sample ID: 4.1-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0010**
Sample Description: Hamelin Hall/VFT - Beige 2x2 408

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 4.1-Mastic ***Lab Sample ID:*** **672000384-0010A**
Sample Description: Hamelin Hall/VFT - Beige 2x2 408

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 4.2 ***Lab Sample ID:*** **672000384-0011**
Sample Description: Hamelin Hall/VFT - Beige 2x2 408

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Beige	0.0%	100.0%	None Detected	No mastic present.

Client Sample ID: 4.3-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0012**
Sample Description: Hamelin Hall/VFT - Beige 2x2 408

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 4.3-Mastic ***Lab Sample ID:*** **672000384-0012A**
Sample Description: Hamelin Hall/VFT - Beige 2x2 408

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 5.1-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0013**
Sample Description: Hamelin Hall/VFT - Off White, Beige & Brown 220

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	White	0.0%	100.0%	None Detected	

EMSL Canada Inc.

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EMSL Canada Order 672000384
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 5.1-Mastic **Lab Sample ID:** **672000384-0013A**
Sample Description: Hamelin Hall/VFT - Off White, Beige & Brown 220

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Black	<1%	100.0%	None Detected	

Client Sample ID: 5.2-Vinyl Floor Tile **Lab Sample ID:** **672000384-0014**
Sample Description: Hamelin Hall/VFT - Off White, Beige & Brown 220

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.2-Mastic **Lab Sample ID:** **672000384-0014A**
Sample Description: Hamelin Hall/VFT - Off White, Beige & Brown 220

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Black	<1%	100.0%	None Detected	

Client Sample ID: 5.3-Vinyl Floor Tile **Lab Sample ID:** **672000384-0015**
Sample Description: Hamelin Hall/VFT - Off White, Beige & Brown 220

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.3-Mastic **Lab Sample ID:** **672000384-0015A**
Sample Description: Hamelin Hall/VFT - Off White, Beige & Brown 220

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 6.1-Vinyl Sheet Flooring **Lab Sample ID:** **672000384-0016**
Sample Description: Hamelin Hall/VSF - Grey 400A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Various	10.0%	90.0%	None Detected	

Client Sample ID: 6.1-Mastic **Lab Sample ID:** **672000384-0016A**
Sample Description: Hamelin Hall/VSF - Grey 400A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Beige	0.0%	100.0%	None Detected	Result includes a small amount of inseparable attached material.

Client Sample ID: 6.2-Vinyl Sheet Flooring **Lab Sample ID:** **672000384-0017**
Sample Description: Hamelin Hall/VSF - Grey 400A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Various	10.0%	90.0%	None Detected	

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Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 6.2-Mastic **Lab Sample ID:** **672000384-0017A**
Sample Description: Hamelin Hall/VSF - Grey 400A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	2/28/2020	Beige	0.0%	100.0%	None Detected	Result includes a small amount of inseparable attached material.

Client Sample ID: 6.3-Vinyl Sheet Flooring **Lab Sample ID:** **672000384-0018**
Sample Description: Hamelin Hall/VSF - Grey 400A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Various	10.0%	90.0%	None Detected	

Client Sample ID: 6.3-Mastic **Lab Sample ID:** **672000384-0018A**
Sample Description: Hamelin Hall/VSF - Grey 400A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 7.1-Vinyl Floor Tile **Lab Sample ID:** **672000384-0019**
Sample Description: Hamelin Hall/VFT - White, Brown & Grey 031A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.1-Mastic **Lab Sample ID:** **672000384-0019A**
Sample Description: Hamelin Hall/VFT - White, Brown & Grey 031A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 7.2 **Lab Sample ID:** **672000384-0020**
Sample Description: Hamelin Hall/VFT - White, Brown & Grey 031A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	No mastic layer present.

Client Sample ID: 7.3-Vinyl Floor Tile **Lab Sample ID:** **672000384-0021**
Sample Description: Hamelin Hall/VFT - White, Brown & Grey 031A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.3-Mastic **Lab Sample ID:** **672000384-0021A**
Sample Description: Hamelin Hall/VFT - White, Brown & Grey 031A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Yellow	0.0%	100.0%	None Detected	

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Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 8.1 ***Lab Sample ID:*** **672000384-0022**
Sample Description: Hamelin Hall/ACT - Pinholes w/ Small Fiss. 019

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/White	70.0%	30.0%	None Detected	

Client Sample ID: 8.2 ***Lab Sample ID:*** **672000384-0023**
Sample Description: Hamelin Hall/ACT - Pinholes w/ Small Fiss. 019

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/White	70.0%	30.0%	None Detected	

Client Sample ID: 8.3 ***Lab Sample ID:*** **672000384-0024**
Sample Description: Hamelin Hall/ACT - Pinholes w/ Small Fiss. 019

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/White	80.0%	20.0%	None Detected	

Client Sample ID: 9.1 ***Lab Sample ID:*** **672000384-0025**
Sample Description: Hamelin Hall/VFT - Beige w/ Brown & White 030

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 9.2 ***Lab Sample ID:*** **672000384-0026**
Sample Description: Hamelin Hall/VFT - Beige w/ Brown & White 030

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 9.3 ***Lab Sample ID:*** **672000384-0027**
Sample Description: Hamelin Hall/VFT - Beige w/ Brown & White 030

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 10.1 ***Lab Sample ID:*** **672000384-0028**
Sample Description: Hamelin Hall/ACT - Pinholes w/ Large Fiss. 019

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/White	80.0%	20.0%	None Detected	

Client Sample ID: 10.2 ***Lab Sample ID:*** **672000384-0029**
Sample Description: Hamelin Hall/ACT - Pinholes w/ Large Fiss. 019

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/White	80.0%	20.0%	None Detected	

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Client Sample ID: 10.3 ***Lab Sample ID:*** **672000384-0030**
Sample Description: Hamelin Hall/ACT - Pinholes w/ Large Fiss. 019

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/White	80.0%	20.0%	None Detected	

Client Sample ID: 11.1 ***Lab Sample ID:*** **672000384-0031**
Sample Description: Hamelin Hall/Carpet Mastic 131

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Various	<1%	100.0%	None Detected	Result includes a small amount of inseparable attached material.

Client Sample ID: 11.2 ***Lab Sample ID:*** **672000384-0032**
Sample Description: Hamelin Hall/Carpet Mastic 131

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Various	0.0%	100.0%	None Detected	Result includes a small amount of inseparable attached material.

Client Sample ID: 11.3 ***Lab Sample ID:*** **672000384-0033**
Sample Description: Hamelin Hall/Carpet Mastic 131

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 12.1-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0034**
Sample Description: Hamelin Hall/VFT - Beige w/ Red & Blue 007

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 12.1-Mastic ***Lab Sample ID:*** **672000384-0034A**
Sample Description: Hamelin Hall/VFT - Beige w/ Red & Blue 007

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 12.2-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0035**
Sample Description: Hamelin Hall/VFT - Beige w/ Red & Blue 007

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 12.2-Mastic ***Lab Sample ID:*** **672000384-0035A**
Sample Description: Hamelin Hall/VFT - Beige w/ Red & Blue 007

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Black	0.0%	100.0%	None Detected	

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

Client Sample ID: 12.3-Vinyl Floor Tile **Lab Sample ID:** **672000384-0036**
Sample Description: Hamelin Hall/VFT - Beige w/ Red & Blue 007

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 12.3-Mastic **Lab Sample ID:** **672000384-0036A**
Sample Description: Hamelin Hall/VFT - Beige w/ Red & Blue 007

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 14.1 **Lab Sample ID:** **672000384-0044**
Sample Description: Hamelin Hall/DJC 030

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 14.2 **Lab Sample ID:** **672000384-0045**
Sample Description: Hamelin Hall/DJC 430

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 14.3 **Lab Sample ID:** **672000384-0046**
Sample Description: Hamelin Hall/DJC 455A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 14.4 **Lab Sample ID:** **672000384-0047**
Sample Description: Hamelin Hall/DJC 100F

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 14.5 **Lab Sample ID:** **672000384-0048**
Sample Description: Hamelin Hall/DJC 200A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 14.6 **Lab Sample ID:** **672000384-0049**
Sample Description: Hamelin Hall/DJC 358A

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

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Project ID: Ottawa DSS

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Client Sample ID: 14.7 ***Lab Sample ID:*** **672000384-0050**
Sample Description: Hamelin Hall/DJC 509

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 15.1-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0051**
Sample Description: Hamelin Hall/VFT - Grey w/ Dark 109

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 15.1-Mastic ***Lab Sample ID:*** **672000384-0051A**
Sample Description: Hamelin Hall/VFT - Grey w/ Dark 109

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/Yellow	0.0%	100.0%	None Detected	Result includes a small amount of inseparable attached material.

Client Sample ID: 15.2-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0052**
Sample Description: Hamelin Hall/VFT - Grey w/ Dark 109

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 15.2-Mastic ***Lab Sample ID:*** **672000384-0052A**
Sample Description: Hamelin Hall/VFT - Grey w/ Dark 109

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/Yellow	0.0%	100.0%	None Detected	Result includes a small amount of inseparable attached material.

Client Sample ID: 15.3-Vinyl Floor Tile ***Lab Sample ID:*** **672000384-0053**
Sample Description: Hamelin Hall/VFT - Grey w/ Dark 109

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 15.3-Mastic ***Lab Sample ID:*** **672000384-0053A**
Sample Description: Hamelin Hall/VFT - Grey w/ Dark 109

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/02/2020	Gray/Yellow	0.0%	100.0%	None Detected	Result includes a small amount of inseparable attached material

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Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Analyst(s):

Jose Sanchez PLM (22)
Melissa Hartwig PLM (40)

Reviewed and approved by:

Simon Parent, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. Rochester, NY

Report amended: 03/17/202011:58:07 Replaces amended report from: 03/02/202017:19:04 Reason Code: Client-Samples Removed

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Attn: **Stefan Holik**
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Phone: (613) 836-2184
Fax:
Received: 03/04/20 11:26 AM
Collected:

Project: **University of Ottawa - 0Z2-021101 "Ottawa DSS"**

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

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
2		3/4/2020	0.0671 g	0.030 % wt	<0.030 % wt
552002585-0002	Site: Hamelin - Room 507 (Beige/Yellow)				
3		3/4/2020	0.1724 g	0.012 % wt	<0.012 % wt
552002585-0003	Site: Hamelin - Room 507 (Grey)				
4		3/4/2020	0.2027 g	0.0099 % wt	<0.0099 % wt
552002585-0004	Site: Hamelin - Room 131 (Light Yellow)				
5		3/4/2020	0.0451 g	0.044 % wt	<0.044 % wt
552002585-0005	Site: Hamelin - Room 218 (Light Grey)				
6		3/4/2020	0.0926 g	0.022 % wt	<0.022 % wt
552002585-0006	Site: Hamelin - Room 507 (Purple)				
7		3/4/2020	0.0933 g	0.021 % wt	<0.021 % wt
552002585-0007	Site: Hamelin - Room 032 (Red/Maroon)				
8		3/4/2020	0.0945 g	0.021 % wt	<0.021 % wt
552002585-0008	Site: Hamelin - Room 005 (Blue/Grey)				
9		3/4/2020	0.0573 g	0.035 % wt	<0.035 % wt
552002585-0009	Site: Hamelin - Room 254 (Grey/Green)				
10		3/4/2020	0.0226 g	0.088 % wt	<0.088 % wt
552002585-0010	Site: Hamelin - Room 218 (Light Blue/Grey)				
11		3/4/2020	0.1016 g	0.020 % wt	<0.020 % wt
552002585-0011	Site: Hamelin - Room 146 (Blue/Purple)				
12		3/4/2020	0.0587 g	0.034 % wt	<0.034 % wt
552002585-0012	Site: Hamelin - Room 029 (White)				

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. 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. When the information supplied by the customer can affect the validity of the results, it will be noted on the reoprt. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

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

Report Amended: 03/17/2020 14:06:18 Replaces the Inital Report 03/11/2020 10:11:50. Reason Code: Client-Other (see report comment)

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CustomerPO:	0Z2-021101
ProjectID:	

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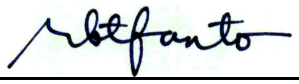
Phone: (613) 836-2184
Fax:
Received: 03/04/20 11:26 AM
Collected:

Project: **University of Ottawa - 0Z2-021101 "Ottawa DSS"**

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

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
13		3/4/2020	0.0674 g	0.030 % wt	<0.030 % wt
552002585-0013	Site: Hamelin - Room 533 (Light Purple)				
14		3/4/2020	0.1092 g	0.018 % wt	<0.018 % wt
552002585-0014	Site: Hamelin - Room 030 (Light Blue)				

Insufficient samples (#0002 to #0014) to reach reporting limit.



Rowena Fanto, Lead Supervisor
or other approved signatory

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

Report Amended: 03/17/2020 14:06:18 Replaces the Inital Report 03/11/2020 10:11:50. Reason Code: Client-Other (see report comment)

APPENDIX D

Site Photographs

Photo 1: Typical view of non-asbestos-containing acoustical ceiling tiles observed in some areas of the subject building.

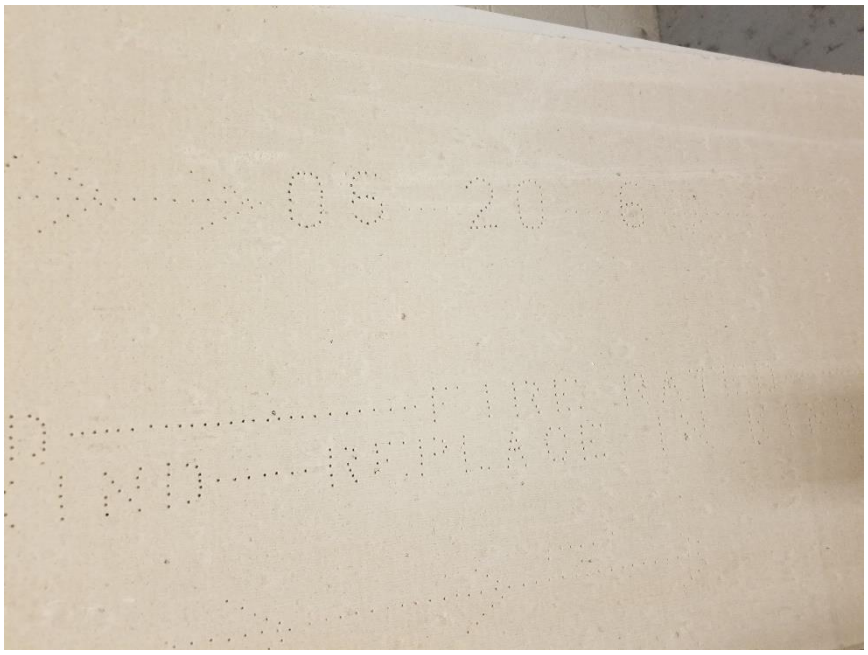


Photo 2: View of non-asbestos-containing suspended ceiling tiles with a date stamp that indicates that they were manufactured in 2006.

Photo 3: View of non-asbestos-containing suspended ceiling tiles (Pinholes w/ Large Fissure).

Photo 4: View on non-asbestos containing vinyl floor tiles (12”x12”-Beige w/ Brown Flakes)

Photo 5: View on non-asbestos containing vinyl floor tiles (12”x12”- White, Brown & Grey Flakes)

Photo 6: View on non-asbestos containing vinyl floor tiles (12”x12”-Grey w/ Dark Flakes)

Photo 7: View on non-asbestos containing vinyl floor tiles (12”x12” - Beige w/ Red & Blue Specks)

APPENDIX E

Asbestos-Containing Materials Checklists

Floor/Level	Room	Type of ACM	Asbestos Confirmed/ Suspected	Friable/Non-Friable	Damaged/ Deteriorated	Accessibility	Level of Work Near Material	Approx. Quantity	Unit	Recommended Action	Comments
All	Throughout Subject Building	Brick Mortar	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place	
All	Throughout Subject Building	Ceramic Floor Tile Grout	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place	
All	Throughout Subject Building	Ceramic Wall Tile Grout	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place	
All	Throughout Subject Building	Concrete Block Mortar	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place	
Roof	Exterior	Roofing Materials	Suspected	-	Good Condition	Difficult	Low	-	-	Manage in Place	

APPENDIX F

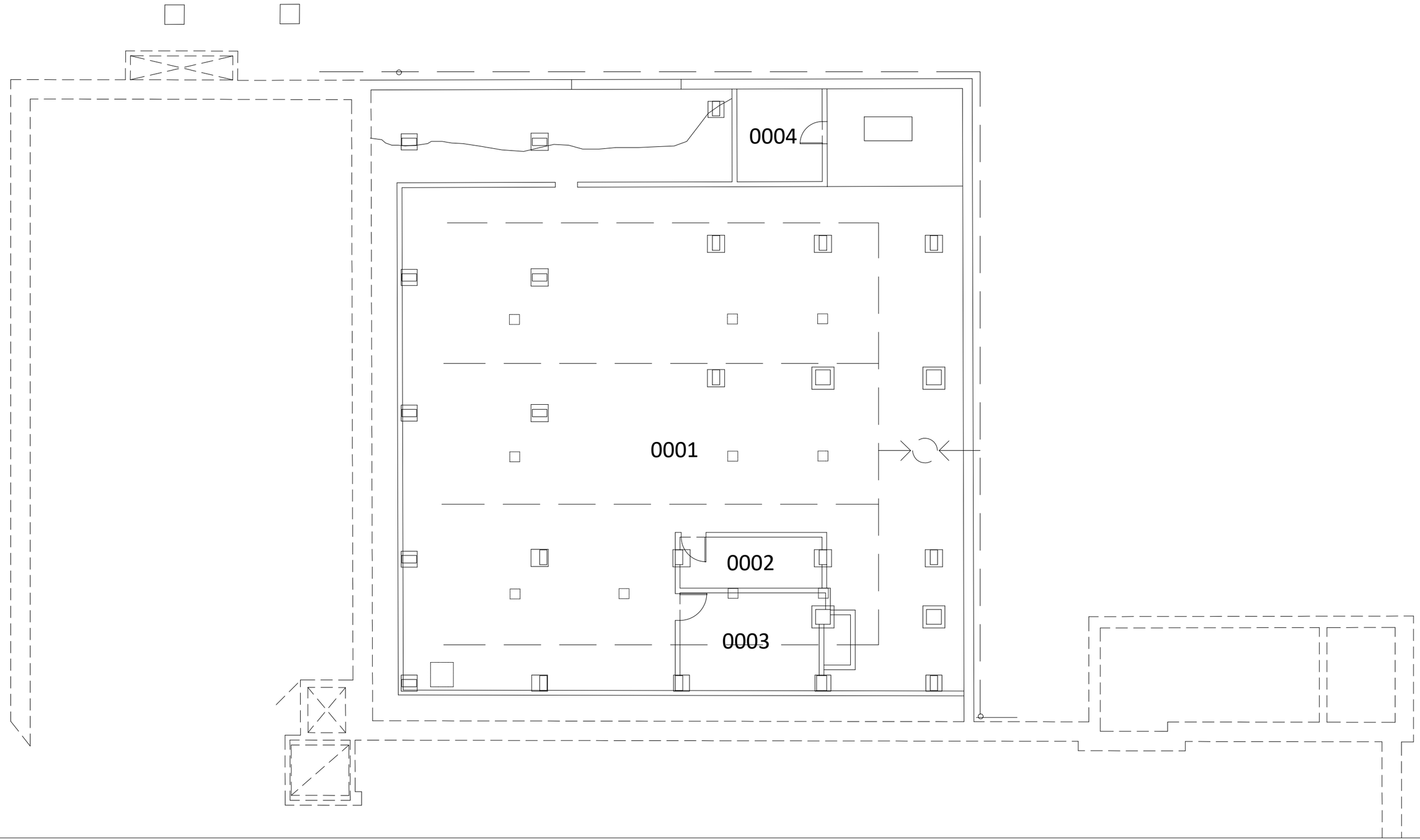
Hazardous Materials Checklists

Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
0	Room 001	Lead	Floor Paint	Grey	Good Condition	N/A	300	SF	Confirmed	Manage in Place	
1	Room 151	Ozone Depleting Substances (ODS)	Water Cooler	-	Good Condition	N/A	1	C	Confirmed	Manage in Place	R134a
1	Room 143	Ozone Depleting Substances (ODS)	Refrigerator	-	Good Condition	LG	1	C	Confirmed	Manage in Place	R134a
2	Room 200A	Ozone Depleting Substances (ODS)	Water Cooler	-	Good Condition	N/A	1	C	Confirmed	Manage in Place	R134a
2	Room 258	Ozone Depleting Substances (ODS)	Water Cooler	-	Good Condition	N/A	1	C	Confirmed	Manage in Place	R134a
3	Room 326	Ozone Depleting Substances (ODS)	Refrigerator	-	Good Condition	N/A	1	C	Confirmed	Manage in Place	R134a
3	Room 321	Ozone Depleting Substances (ODS)	Refrigerator	-	Good Condition	Danby	1	C	Confirmed	Manage in Place	Unknown Refridgerant
3	Room 358	Ozone Depleting Substances (ODS)	Water Cooler	-	Good Condition		1	C	Confirmed	Manage in Place	R134a

Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
3	Room 301	Ozone Depleting Substances (ODS)	Refrigerator	-	Good Condition	N/A	1	C	Confirmed	Manage in Place	Unknown Refridgerant
4	Room 454	Ozone Depleting Substances (ODS)	Water Cooler	-	Good Condition		1	C	Confirmed	Manage in Place	R134a
4	Room 436	Ozone Depleting Substances (ODS)	Refrigerator	-	Good Condition	N/A	3	C	Confirmed	Manage in Place	Unknown Refridgerant
All	Throughout Subject Building	Mercury	Fluorescent Light Tubes	-	Good Condition	N/A	-	-	Confirmed	Manage in Place	
All	Throughout Subject Building	Lead	Battery Pack	-	Good Condition	N/A	-	-	Confirmed	Manage in Place	
All	Throughout Subject Building	Silica	Concrete, Mortar, Etc.	-	Good Condition	N/A	-	-	Confirmed	Manage in Place	

APPENDIX G

Site Sampling & Location Plans



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6240 HIGHWAY 7 SUITE 200 WOODBRIDGE ON L4H 4G3
Tel: 905.856.5200 Fax: 905.695.0221
Toll Free: 1.888.348.8991 www.mcintoshperry.com

Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD

CLIENT: UNIVERSITY OF OTTAWA

PROJECT:
HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING, OTTAWA, ONTARIO

TITLE:
MASTER DRAWING
LEVEL 00
SAMPLE LOCATION

SCALE: 1:150

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A-00

REV.:

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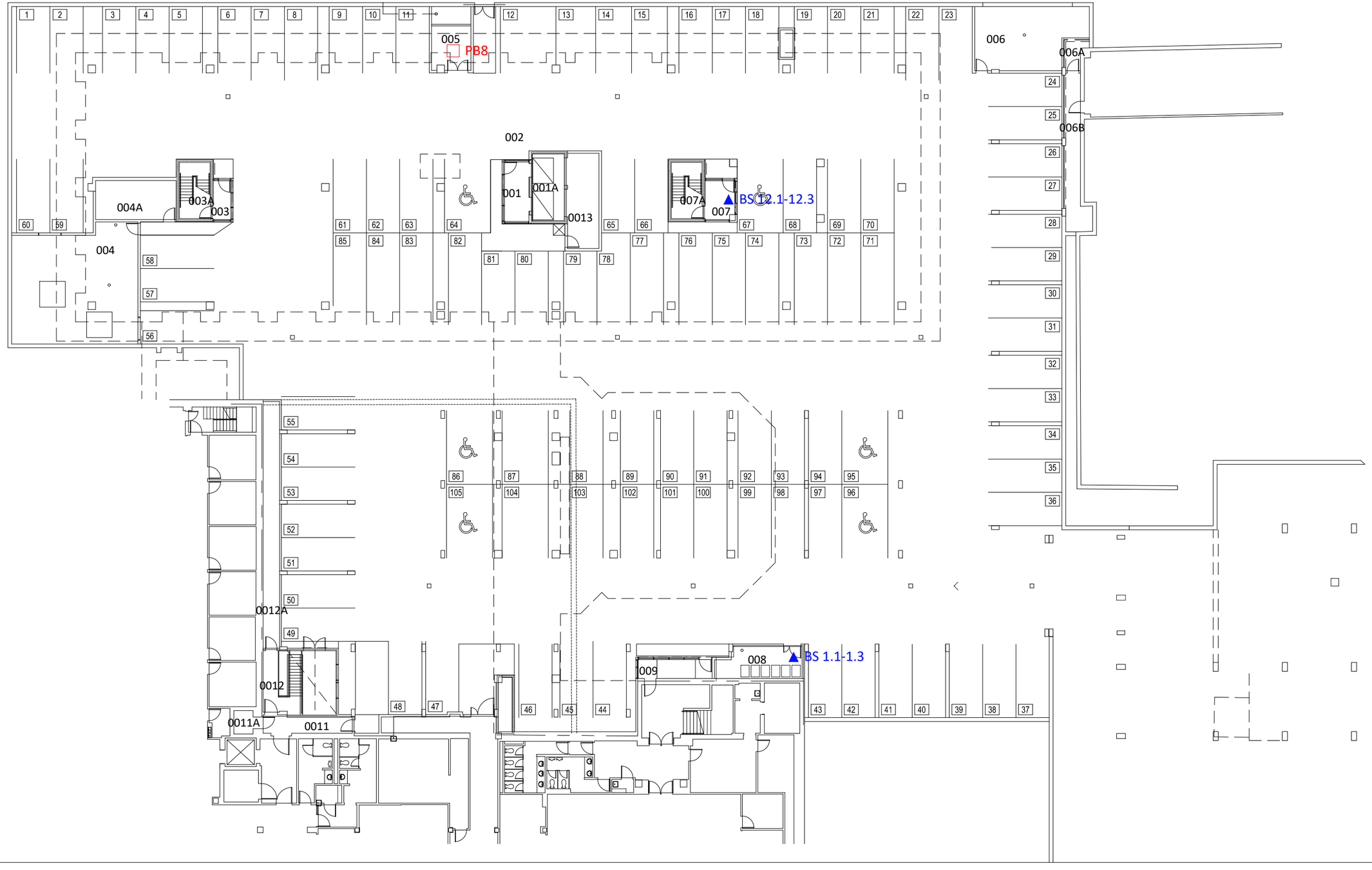

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Legend:

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- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING, OTTAWA, ONTARIO

TITLE: MASTER DRAWING
LEVEL P0
SAMPLE LOCATION

SCALE: 1:300

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

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DRAWING NUMBER: A-P0

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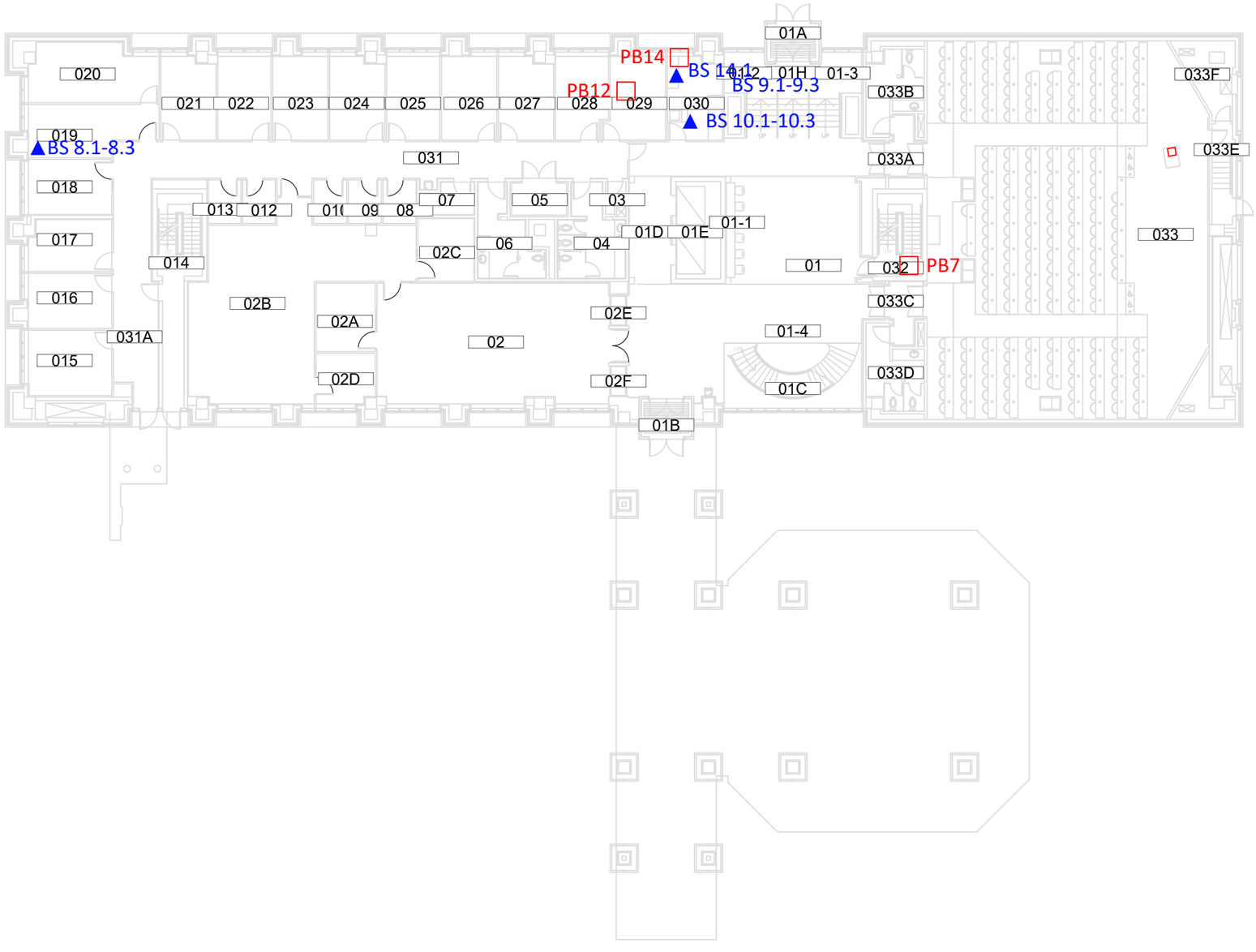

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Legend:

- Asbestos Bulk Sample
- Lead Paint Sample <LOD
- Lead Paint Sample >LOD

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING, OTTAWA, ONTARIO

TITLE: MASTER DRAWING
LEVEL 00
SAMPLE LOCATION

SCALE: 1:300

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A-0

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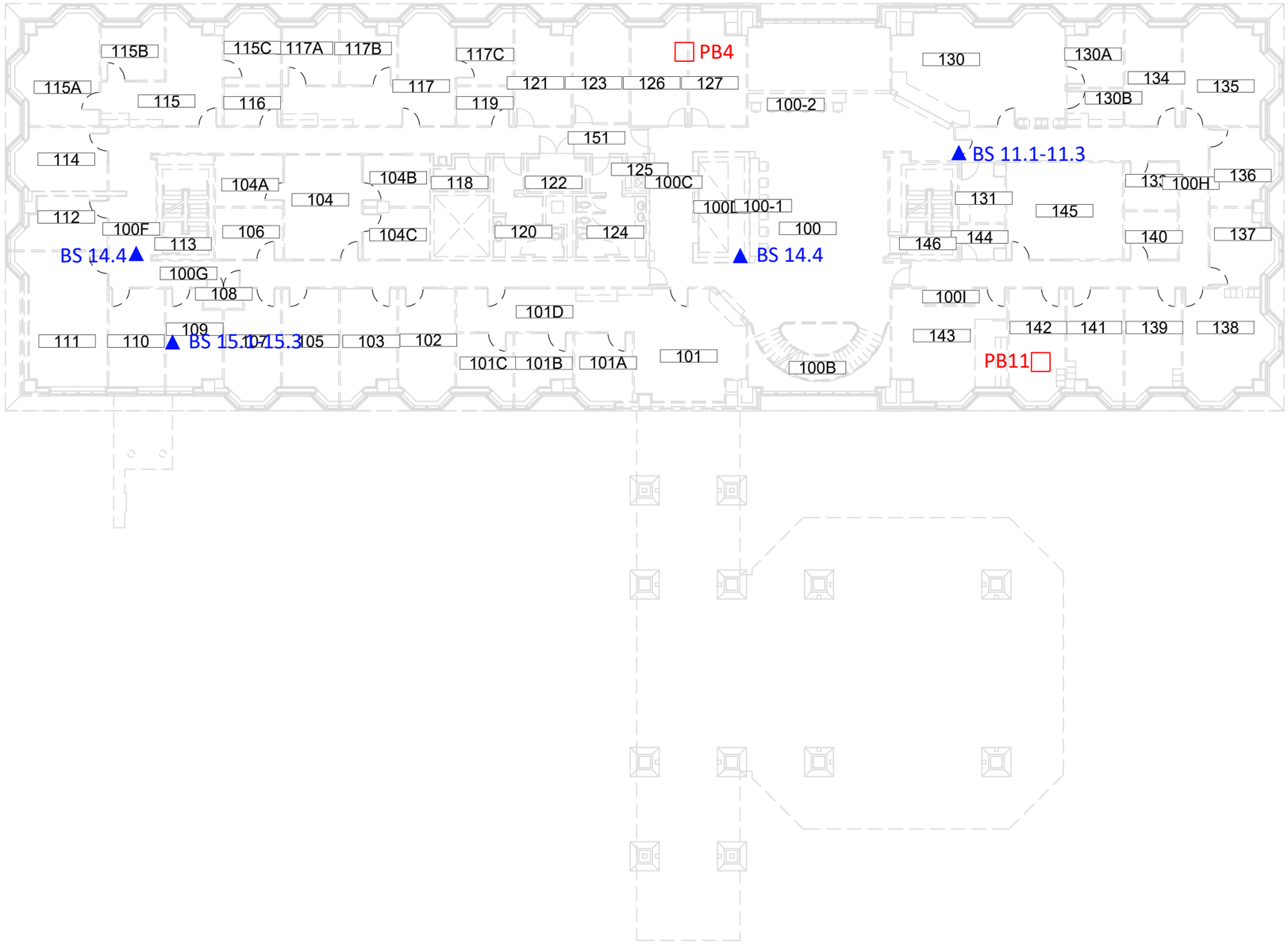

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Legend:

- ▲ Asbestos Bulk Sample
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- ■ Lead Paint Sample >LOD

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING, OTTAWA, ONTARIO

TITLE: MASTER DRAWING
LEVEL 01
SAMPLE LOCATION

SCALE: 1:300

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

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DRAWING NUMBER: A-1

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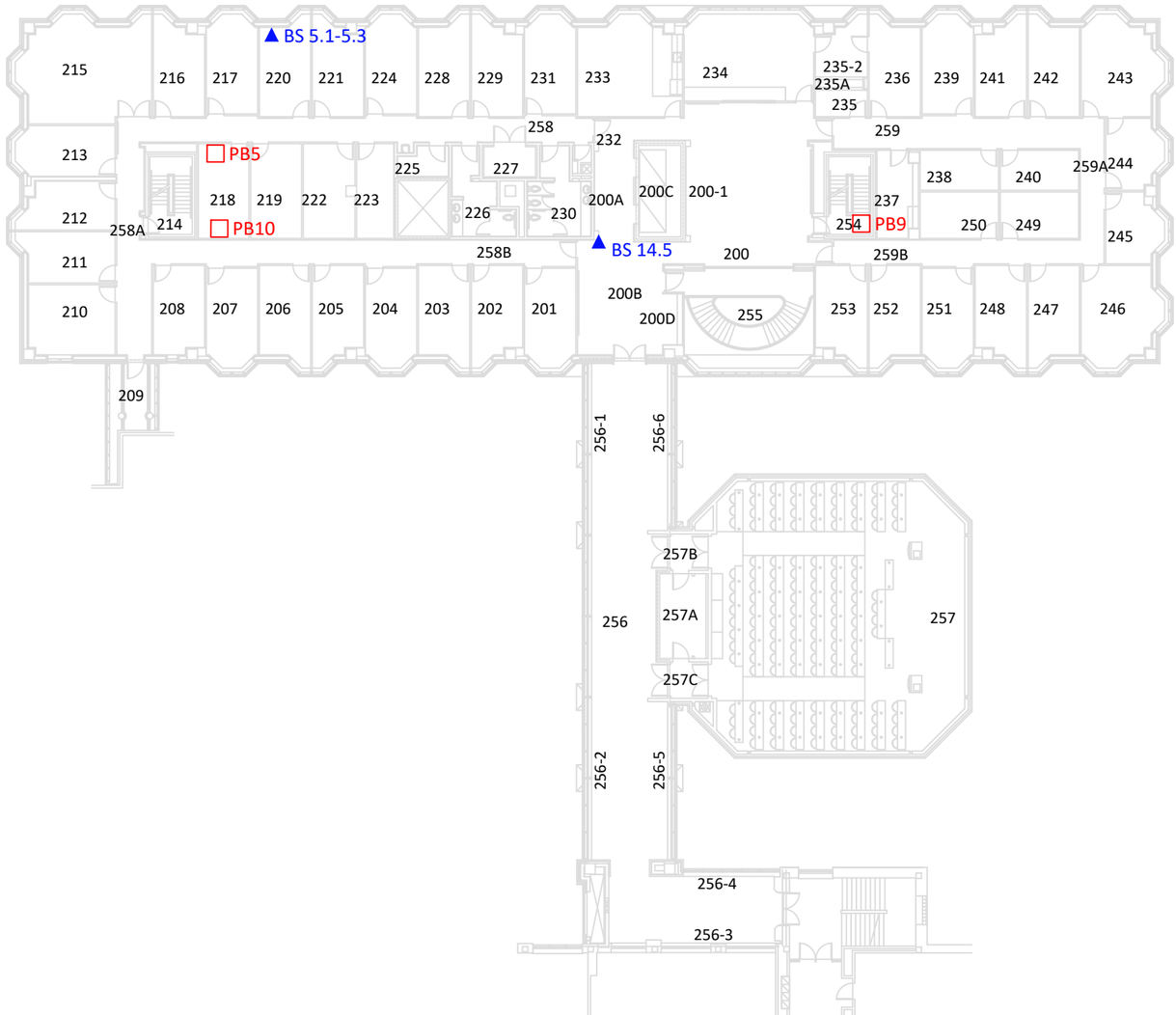

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Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD

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PROJECT: HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING, OTTAWA, ONTARIO

TITLE: MASTER DRAWING
LEVEL 02
SAMPLE LOCATION

SCALE: 1:300

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

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DRAWING NUMBER: A-2

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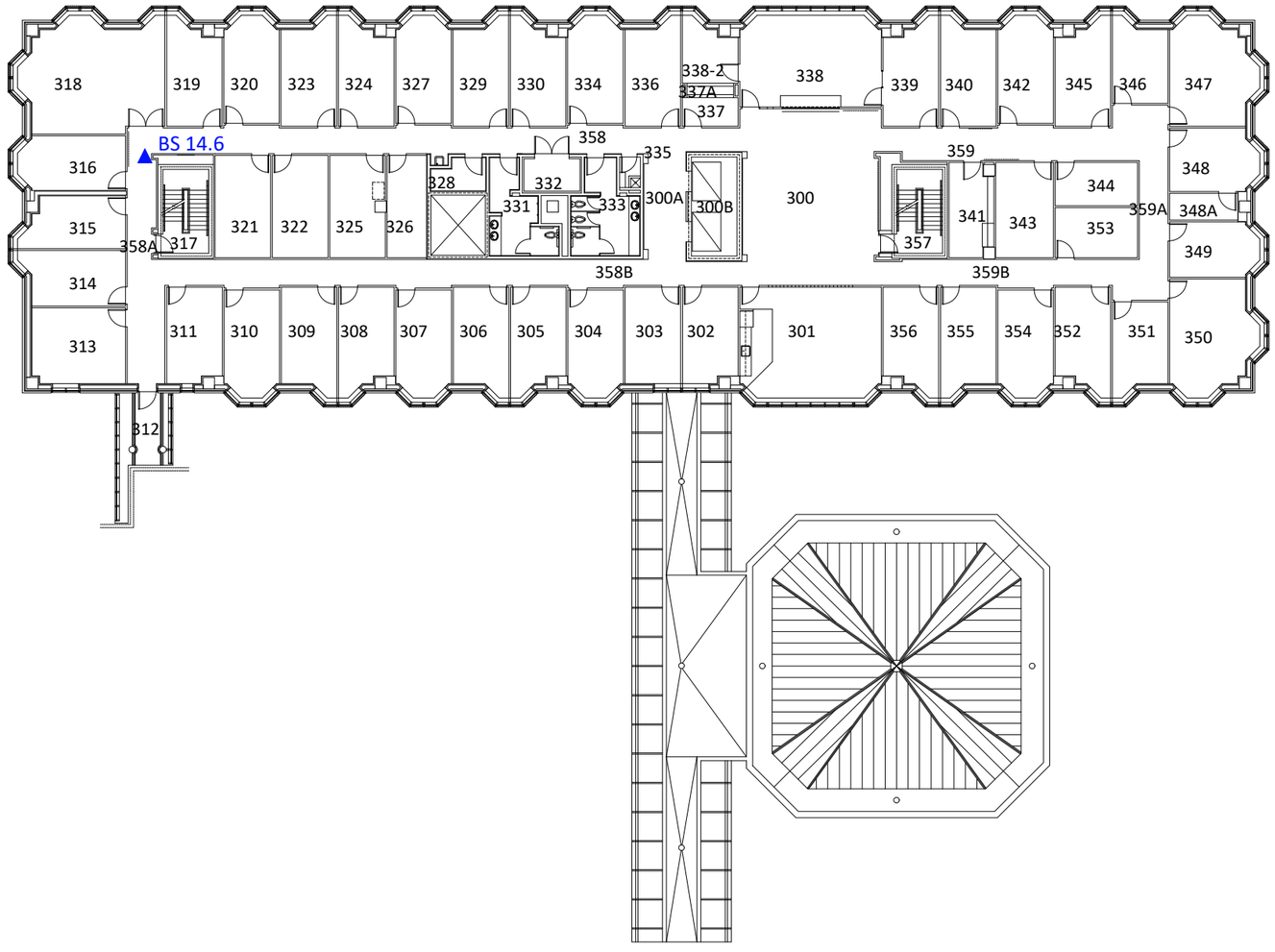

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Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD

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PROJECT: HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING, OTTAWA, ONTARIO

TITLE: MASTER DRAWING
LEVEL 03
SAMPLE LOCATION

SCALE: 1:300

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A-3

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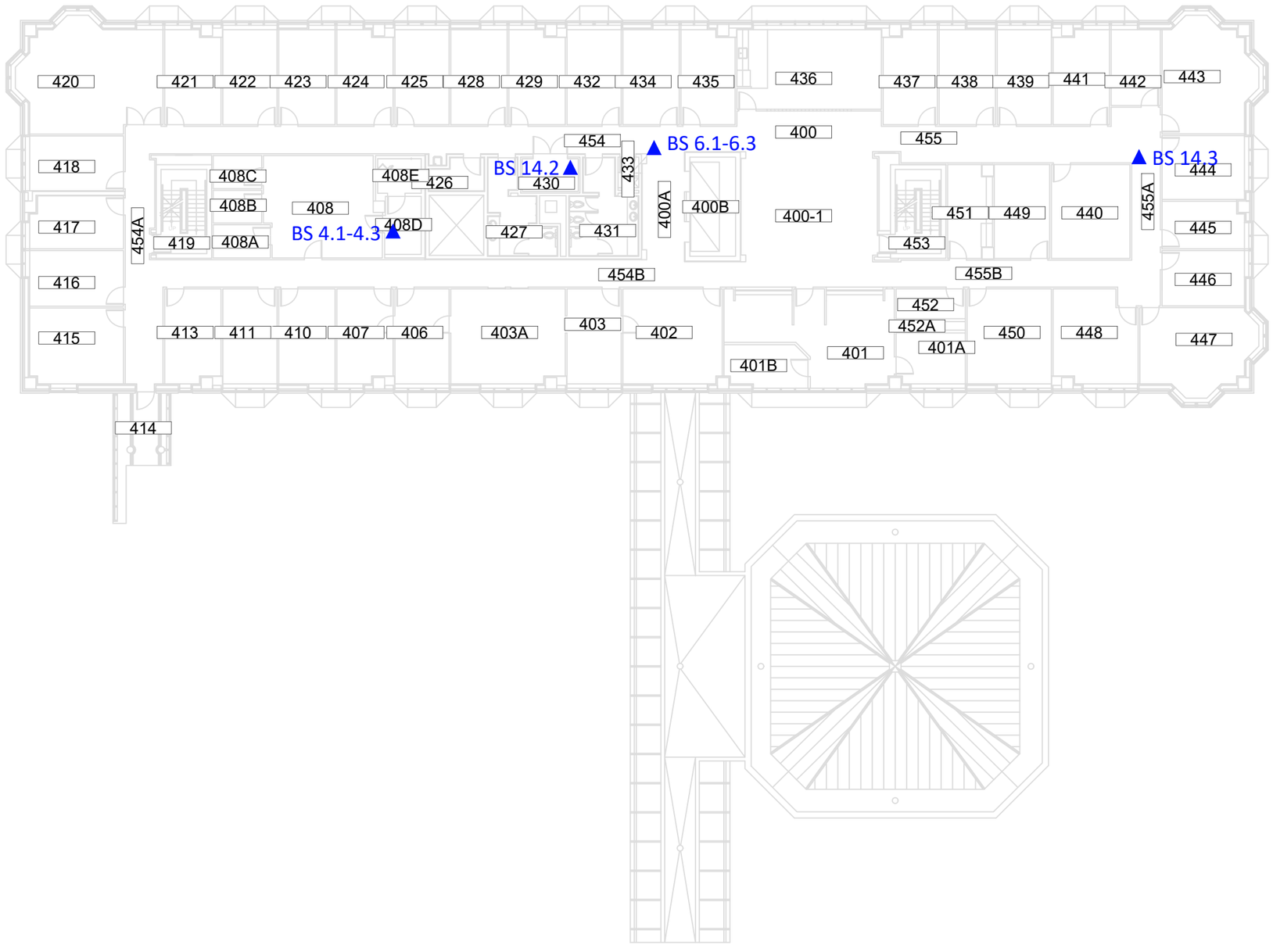

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Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD

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PROJECT: HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING, OTTAWA, ONTARIO

TITLE: MASTER DRAWING
LEVEL 04
SAMPLE LOCATION

SCALE: 1:300

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

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DRAWING NUMBER: A-4

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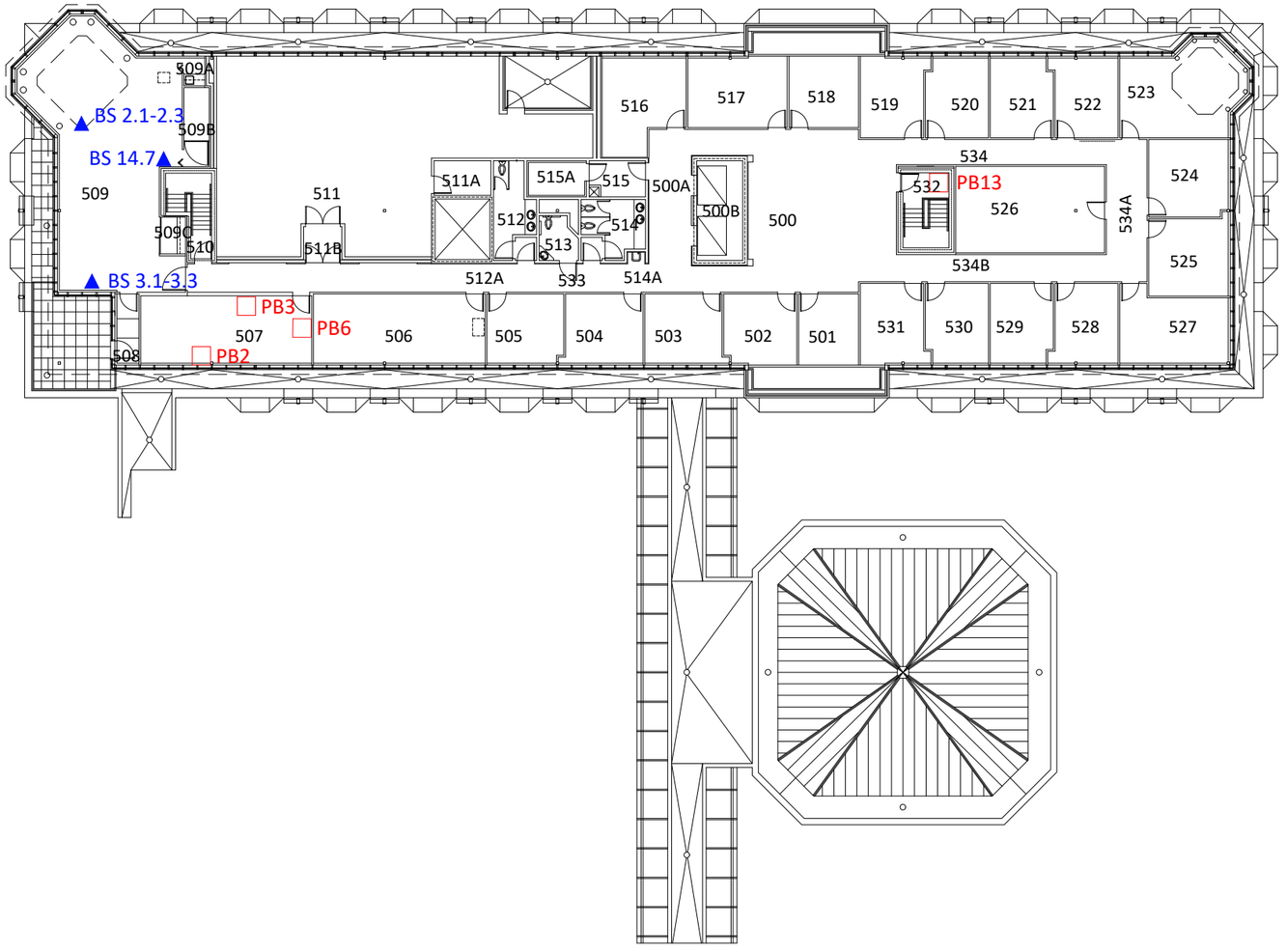

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Legend:

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- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD

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PROJECT: HAZARDOUS MATERIALS SURVEY
HAMELIN BUILDING OTTAWA, ONTARIO

TITLE: MASTER DRAWING
LEVEL 05
SAMPLE LOCATION

SCALE: 1:300

DATE: APRIL 6, 2020

DRAWN: S.G.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

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