

**HAZARDOUS MATERIALS
INVENTORY SURVEY**

OF

**Simon Fraser Hills
Burnaby, BC**

PREPARED FOR:

**Strata Plan NW39
c/o Bayside Property Services Ltd.
#100-6400 Roberts Street
Burnaby, BC
V5G 4C9**

PREPARED BY:

**ACM ENVIRONMENTAL CORPORATION
#217 - 2323 Quebec Street
Vancouver, BC
V5T 4S7
604-873-8599**

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EXECUTIVE SUMMARY

A.C.M. Environmental Corporation (ACM) was retained by Strata Plan NW39, c/o Bayside Property Services Ltd., to perform a Hazardous Materials Inventory Survey for the multi-unit townhouse complex known as Simon Fraser Hills in Burnaby, BC. The complex consists of 122 townhouse units divided amongst several different street addresses.

The survey at this time included all exterior utility rooms, the pool house, the parkade and seven representative units.

WorkSafeBC's Occupational Health & Safety Regulation Section 6.4 (3) states that employers must "(a) ensure that a qualified person prepares an inventory of all asbestos-containing materials in the workplace, (b) keep the inventory at the workplace, and (c) keep the inventory current." This prevents accidental disturbance of asbestos containing materials by workers who may impact the materials during work activities, such as maintenance or renovation.

WorkSafeBC also requires lead exposure risk assessments for any work that may impact paints/coatings with lead levels above 90 mg/kg (0.009%). Such work is often included within the scope of building maintenance or renovation activities.

Renovation activities (such as updating vacated units within the complex) may also potentially impact other hazardous materials such as mercury, PCB's, etc.

Therefore, the objective of this assessment was to identify the types, condition and extent of hazardous materials that may be disturbed during any potential maintenance work activities or upcoming renovation projects.

Note: WorkSafeBC's OH&S Regulation 20.112 requires a hazardous materials assessment to be conducted for any renovation project. The assessment must be specific to the scope of renovation. While the current survey includes an inspection for all potentially hazardous materials, it is not intended to satisfy the requirements of WorkSafeBC's OH&S Regulation 20.112. The current survey is intended to be used for building maintenance purposes only, where "renovation" projects may include minor repairs to vacated units for re-occupancy. Larger scale renovation projects (e.g. interior guts of units, building envelope upgrades, plumbing refits, etc.) will require a separate hazardous materials assessment, specific to the scope of renovation, in order to comply with WorkSafeBC's OH&S Regulations, although the current survey results may be incorporated into such an assessment.

The survey was conducted using both visual and physical assessment techniques. Representative samples of materials suspected of containing asbestos were collected and analyzed in ACM's laboratory in accordance with the WorkSafeBC Occupational Health and Safety Regulations and Guidelines (G20.112), National Institute of Occupational Health and Safety (NIOSH) analytical methods and US Environmental Protection Agency (USEPA) analytical methods. Representative samples of paints were collected and submitted to Maxxam Analytics for lead analysis. The surveyed areas were also inspected for possible PCB containing fluorescent light ballasts, mercury containing switches, and other potentially hazardous materials during the survey.

In summary, the findings from the survey conclude that asbestos, lead and other hazardous materials exist in some of the construction materials within the complex. The materials are present in quantities of significance and are of concern to any contractor or maintenance personnel involved in renovation or repair activities within the complex.

The remaining hazardous materials are not currently considered hazardous to occupants or workers working within the complex, and do not require removal unless work activities are to take place which may disturb the materials. This includes any custodial work or any other renovation/maintenance activities which may disturb the hazardous materials. Before beginning any work that may disturb any asbestos or lead containing materials, a risk assessment must be completed based on the scope of work. Depending on the outcome of the risk assessment, the materials may be required first to be removed and disposed of in accordance with applicable regulations.

Five types of asbestos containing materials were observed during the survey: ceiling texture, Linoleum sheet flooring, drywall taping compounds, vinyl floor tiles and window glazing mastic. Within the context of the report, areas have been detailed as to the locations and content of all asbestos containing materials identified during the survey.

The lead content in the paint samples collected were found to range from <6.0 milligrams per kilogram (mg/kg) to 4450 mg/kg. These levels translate to range from <0.0006% to 0.45% lead content respectively.

Fluorescent light fixtures, some of which contain ballasts with PCBs, were observed in the units. Mercury vapour will also be present within the fluorescent light tubes. Mercury containing thermostat switches were observed within several of the units inspected.

Disturbance of Crystalline Silica containing products (e.g. concrete, cinderblock, stucco, etc.) may require respiratory protection and/or mechanical ventilation during any demolition activities affecting those products.

The ACM hazardous materials survey was conducted using non-destructive testing methods due to the occupancy of the complex. Areas within walls and above fixed ceilings were not inspected. **It must be noted that there is a possibility of asbestos and/or lead containing materials existing within wall and ceiling cavities, as not all areas were accessed during the inspections. Possible asbestos-containing materials which may exist in these areas may include, but are not limited to, insulation materials (mechanical or construction), duct tape, secondary layers of drywall, vermiculite insulation, etc. Possible lead-containing materials which may exist in these areas may include, but are not limited to, paint, electrical wire casings, cast iron piping spigots, etc.**

If any suspect hazardous materials (e.g. asbestos, lead, etc.) are encountered during any renovation or maintenance activities, the work in the immediate area must stop and the supervisor must be contacted for further direction. If the materials are not included in the current survey, the materials must then be inspected by a qualified person prior to beginning any work that may disturb the potentially hazardous materials, as per WorkSafeBC OH&S Regulation 20.112.

A risk assessment will be required prior to any abatement/removal of any identified asbestos or lead containing materials. The abatement of any asbestos or lead containing materials identified in this report, or any other asbestos or lead containing materials encountered during renovation, will require a Notice of Project (NOP) with site-specific work procedures (based on risk assessment) to be submitted to WorkSafeBC a minimum 24 hours prior to impacting said materials. Copies of the NOP and work procedures must also be posted on site during the course of the work. The hazardous materials abatement/removal must be done by a competent, trained abatement contractor.

Please review Section 3 – Results and Discussion, and Section 4 – Recommendations, for more detailed information.

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1.0 INTRODUCTION

A.C.M. Environmental Corporation (ACM) was retained by Strata Plan NW39, c/o Bayside Property Services Ltd., to perform a Hazardous Materials Inventory Survey for the multi-unit townhouse complex known as Simon Fraser Hills in Burnaby, BC. The complex consists of 122 townhouse units divided amongst several different street addresses.

The survey at this time included all exterior utility rooms, the pool house, the parkade and seven representative units.

WorkSafeBC's Occupational Health & Safety Regulation Section 6.4 (3) states that employers must "(a) ensure that a qualified person prepares an inventory of all asbestos-containing materials in the workplace, (b) keep the inventory at the workplace, and (c) keep the inventory current." This prevents accidental disturbance of asbestos containing materials by workers who may impact the materials during work activities, such as maintenance or renovation.

WorkSafeBC also requires lead exposure risk assessments for any work that may impact paints/coatings with lead levels above 90 mg/kg (0.009%). Such work is often included within the scope of building maintenance or renovation activities.

Renovation activities (such as updating vacated units within the complex) may also potentially impact other hazardous materials such as mercury, PCB's, etc.

Therefore, the objective of this assessment was to identify the types, condition and extent of hazardous materials that may be disturbed during any potential maintenance work activities or upcoming renovation projects.

Note: WorkSafeBC's OH&S Regulation 20.112 requires a hazardous materials assessment to be conducted for any renovation project. The assessment must be specific to the scope of renovation. While the current survey includes an inspection for all potentially hazardous materials, it is not intended to satisfy the requirements of WorkSafeBC's OH&S Regulation 20.112. The current survey is intended to be used for building maintenance purposes only, where "renovation" projects may include minor repairs to vacated units for re-occupancy. Larger scale renovation projects (e.g. interior guts of units, building envelope upgrades, plumbing refits, etc.) will require a separate hazardous materials assessment, specific to the scope of renovation, in order to comply with WorkSafeBC's OH&S Regulations, although the current survey results may be incorporated into such an assessment.

The survey was conducted on February 10, 2017 by Ryan Thompson, B.Sc., ABI, Environmental Technician for ACM. A total of fifty eight (58) representative bulk samples of materials suspected of containing asbestos were collected by ACM during this survey. Laboratory analytical results of the suspect asbestos containing materials are included in Appendix A of this report.

The asbestos risk assessment criteria document is included in Appendix B of this report. This document also includes the asbestos maintenance indexing system which provides information on the potential level of hazards that may be encountered and appropriate work requirements when accessing or impinging on areas with a potential for disturbance.

ACM collected nine (9) representative paint samples from the complex and submitted them to Maxxam Analytics in Burnaby, BC for lead analysis. Lead paint sample results are included in Appendix C of this report.

Photographs taken during the survey are included in Appendix D.

2.0 METHODOLOGY

The ACM hazardous materials survey was conducted using non-destructive testing methods due to the occupancy of the complex. Areas within walls and above fixed ceilings were not inspected. **There is a possibility of asbestos and/or lead containing materials existing within wall and ceiling cavities, as not all areas were accessed during the inspections. Possible asbestos-containing materials existing in these areas may include, but are not limited to, insulation materials (mechanical or construction), duct tape, secondary layers of drywall, etc. Possible lead-containing materials existing in these areas may include, but are not limited to, paint, electrical wire casings, cast iron piping spigots, etc.**

The U.S. Environmental Protection Agency (USEPA) Guidance Document for Controlling Asbestos-Containing Materials in Buildings, was selected for use in this study (1) along with ACM's Asbestos Management Indexing System (AMI). The documents identify factors associated with the "condition" and the "potential for disturbance or erosion" of asbestos containing materials. These factors help to define the fibre release potential of the suspect asbestos containing materials and were used in a qualitative evaluation of materials found in the surveyed areas. Recommendations have been substantiated by additional information utilized from other documentation cited in the Reference Section of this report.

Samples of materials suspected of containing asbestos collected by ACM were analyzed in ACM's laboratory in accordance with the WorkSafeBC Occupational Health and Safety Regulations and Guidelines (G20.112) and National Institute of Occupational Health and Safety (NIOSH) or US Environmental Protection Agency (USEPA) analytical methods.

The survey relied on the abilities and experience of the surveyor to gain access and identify possible asbestos containing materials. It must be noted that the current survey does not include all possible asbestos containing materials existing within the complex, as not all areas (e.g. within fixed ceilings, behind walls, etc.) were inspected.

For detailed information on the Asbestos Maintenance Indexing System utilized in this report, please refer to Appendix B.

The OSHA 29 CFR 1926.62 Lead Standard, and the WorkSafeBC publication "Lead Containing Paints and Coatings – Preventing Exposure in the Construction Industry" were selected for use in this study. This standard applies to any work involving demolition, removal, encapsulation, renovation, installation, alteration,

maintenance, transportation, storage, or disposal of Lead Containing Materials (LCMs).

Samples of paints suspected of containing lead were sent to Maxxam Analytics for analysis of lead content. Samples are digested with acids and analyzed using Inductively Coupled Plasma Spectroscopy–Atomic Emission Spectroscopy.

3.0 RESULTS & DISCUSSION

Asbestos containing materials and other hazardous materials were observed in several different forms within the complex and are discussed below.

3.1 ASBESTOS

Five types of asbestos containing materials were observed: ceiling textures, Linoleum sheet flooring, drywall taping compounds, vinyl floor tiles and window glazing mastics.

Descriptions and assessments, using ACM's Asbestos Management Indexing System (AMI), of each identified asbestos containing material observed are presented below. AMI scores are derived from assessing the materials based on six criteria: condition, accessibility, friability, dilution, fibre generating mechanisms, and asbestos type. The scores are used to assess the materials' *current* hazard to building occupants and/or personnel. A score between 0 and 25 would be considered a low risk of asbestos exposure to building occupants. A score between 26 and 45 would be considered a moderate risk of asbestos exposure to building occupants. A score between 46 and 71 would be considered a high risk of asbestos exposure to building occupants.

In addition, each asbestos containing material is also given a maintenance indicator number. If any of the materials are to be removed, this number is used to assess the risk to workers involved in the abatement (i.e. removal) of the materials and provides assistance in determining what procedures are required.

The AMI methodology is included within the Asbestos Risk Assessment Criteria document found in Appendix B of this report.

3.1.1 Ceiling Textures

Ceiling texture materials were observed throughout the complex in the pool house and most of the units during the survey. Four (4) of six (6) ceiling texture samples collected from the complex during the survey were found to contain 1-5% Chrysotile asbestos. **Therefore, all ceiling texture materials found within units and pool house are considered asbestos containing.**

The asbestos containing ceiling texture materials observed were found to have an AMI score of 18.

Action:

All asbestos containing ceiling texture materials observed within the complex were found to have AMI scores below 25 and are therefore not considered to be hazardous to building occupants or workers, provided that the materials remain in their current states and are left undisturbed. Removal of these materials is only required if the materials must be disturbed. For removal of the materials, please refer to the maintenance indicator number below.

Maintenance Indicator = 8 (High Risk)

The removal of any asbestos containing ceiling texture materials must only be conducted by a trained and competent asbestos abatement contractor in accordance with applicable regulations and procedures. High risk asbestos work procedures will be required for the removal of any asbestos containing wall texture materials.

The AMI score for the asbestos containing ceiling texture materials observed during the survey is presented below.

1.) Ceiling Texture – Pool House & Units

	Condition	Accessibility	Friability	Dilution	Fibre Generating Mechanisms	Type	
Score	0	2	1	2	0	1	Total AMI Score
Weight	5	4	4	2	2	2	
Total	0	8	4	4	0	2	

The asbestos containing ceiling texture materials in the areas inspected were observed to be in good condition. The materials in their current state pose a low risk of asbestos exposure (AMI score within the range of 0-25) to workers working within the building. The materials are not considered to be hazardous provided that they remain undisturbed.

3.1.2 Linoleum Sheet Flooring

Linoleum sheet flooring materials were observed in several Units and as underlying layers under some ceramic and hardwood flooring. A sample of Linoleum sheet flooring was collected during the survey from each area it was observed, and several Linoleum sheet flooring samples were found to contain 20-40% Chrysotile asbestos within their backing felts. **Based on the results, all Linoleum sheet flooring materials found within the units of the complex**

must be treated as asbestos containing, unless the materials are specifically sampled and the analytical results determine otherwise.

The asbestos containing Linoleum sheet flooring materials observed were found to have an AMI score of 24.

Action:

All asbestos containing Linoleum sheet flooring materials observed within the building were found to have AMI scores below 25 and are therefore not considered to be hazardous to building occupants or workers, provided that the materials remain in their current states and are left undisturbed. Removal of these materials is only required if the materials must be disturbed. For removal of the materials, please refer to the maintenance indicator number below.

Maintenance Indicator = 6,8 (Moderate Risk with Increased Controls, High Risk)

The removal of any asbestos containing Linoleum sheet flooring materials must only be conducted by a trained and competent asbestos abatement contractor in accordance with applicable regulations and procedures. High risk asbestos work procedures will be required for the removal of any asbestos containing Linoleum sheet flooring materials, where the materials must be scraped off the subfloor. Moderate risk asbestos work procedures with increased controls will be required for the removal of the materials if the materials are removed intact with the subfloor.

The AMI score for the asbestos containing Linoleum sheet flooring materials observed during the survey is presented below.

1.) Linoleum Sheet Flooring – 3rd Floor Bathroom (Units 3027, 3032, 3033 & 9042), Basement Laundry Room & Living Room (Unit 3027), (Kitchen (Units 3036 & 9048), 1st Floor Playroom & closet (Unit 3036), Throughout Basement (Unit 3051), 2nd Floor Bathroom (Unit 9042), 2nd Floor stairwell closet (Unit 9046)

	Condition	Accessibility	Friability	Dilution	Fibre Generating Mechanisms	Type	
Score	0	1	1	2	0	2	Total AMI Score
Weight	5	4	4	2	2	2	
Total	0	4	4	4	0	4	

The asbestos containing Linoleum sheet flooring materials were observed to be in good condition. The materials in their current state pose a low risk of asbestos exposure (AMI score within the range of 0-25) to workers working within the building. The materials are not considered to be hazardous provided that they remain undisturbed.

3.1.3 Drywall Taping Compounds

Drywall materials were observed throughout the complex, on the walls and ceilings, in the pool house, utility rooms and the units. A total of eight (8) samples of the drywall taping compounds were collected during the survey, and six (6) were found to be asbestos containing (1-5% Chrysotile asbestos). In addition, asbestos containing drywall taping compounds were detected in one ceiling texture sample collected. Therefore, all drywall materials found within the building must be treated as asbestos containing, including those found behind any wall/ceiling texture materials.

The asbestos containing drywall taping compounds observed were found to have an AMI score of 22.

Action:

All asbestos containing drywall materials observed within the building were found to have AMI scores below 25 and are therefore not considered to be hazardous to building occupants or workers, provided that the materials remain in their current states and are left undisturbed. Removal of these materials is only required if the materials must be disturbed. For removal of the materials, please refer to the maintenance indicator number below.

Maintenance Indicator = 6 (Moderate Risk with Increased Controls)

The removal of any asbestos containing drywall materials must only be conducted by a trained and competent asbestos abatement contractor in accordance with applicable regulations and procedures. Moderate risk asbestos work procedures, with increased controls (e.g. poly containment, negative air pressure, increased respiratory protection, etc.) will be required for the removal of any asbestos containing drywall materials. High risk asbestos work procedures will be required for the removal of any asbestos containing drywall materials that are textured (see section 3.1.1)

The AMI score for the asbestos containing drywall materials observed during the survey is presented below.

1.) Drywall – Throughout the Pool House, Utility Rooms and Units

	Condition	Accessibility	Friability	Dilution	Fibre Generating Mechanisms	Type	
Score	0	3	1	2	0	1	Total AMI Score
Weight	5	4	4	2	2	2	
Total	0	12	4	4	0	2	22

The asbestos containing drywall materials in the areas inspected were observed to be in good condition. The materials in their current state pose a low risk of asbestos exposure (AMI score within the range of 0-25) to workers working within the complex. The materials are not considered to be hazardous provided that they remain undisturbed.

3.1.4 Vinyl Floor Tiles

Asbestos containing vinyl floor tiles were observed in the Pool House janitor’s closet and as under layers in the Pool House main area/kitchen and the upper floor bathroom of Unit 3033. A sample of each vinyl floor tile was collected during the survey and they were all found to be asbestos containing (1-5% Chrysotile asbestos). No asbestos containing mastic adhesives were detected underneath the vinyl floor tiles.

The asbestos containing vinyl floor tiles were found to have an AMI score of 6 & 18.

Action:

All asbestos containing vinyl floor tiles observed within the buildings were found to have AMI scores below 25 and are therefore not considered to be hazardous to building occupants or workers, provided that the materials remain in their current states and are left undisturbed. Removal of these materials is only required if the materials must be disturbed. For removal of the materials, please refer to the maintenance indicator number below.

Maintenance Indicator = 3 (Moderate Risk)

The removal of any asbestos containing vinyl floor tiles must only be conducted by a trained and competent asbestos abatement contractor in accordance with applicable regulations and procedures. High risk asbestos work procedures will be required for the removal of any asbestos containing vinyl floor tiles with asbestos containing leveling compound underneath and moderate risk asbestos work procedures will be required all other asbestos containing vinyl floor tiles.

The AMI score for the asbestos containing vinyl floor tiles observed during the survey is presented below.

1.) Vinyl Floor Tiles – Unit 3033 Upper Floor Bathroom & Pool House Main Area/Kitchen (Concealed)

	Condition	Accessibility	Friability	Dilution	Fibre Generating Mechanisms	Type	
Score	0	0	0	2	0	1	Total AMI Score
Weight	5	4	4	2	2	2	
Total	0	0	0	4	0	2	6

2.) Vinyl Floor Tiles – Pool House; Janitor’s Closet

	Condition	Accessibility	Friability	Dilution	Fibre Generating Mechanisms	Type	
Score	0	3	0	2	0	1	Total AMI Score
Weight	5	4	4	2	2	2	
Total	0	12	0	4	0	2	18

The asbestos containing vinyl floor tiles in the complex were observed to be in generally good condition. The materials in their current state pose a low risk of asbestos exposure (AMI score within the range of 0-25) to workers working within the building. The materials are not considered to be hazardous provided that they remain undisturbed.

3.1.5 Window Glazing Mastic

Black and grey window glazing mastics were observed on exterior windows of the pool house and units. Four of the six window glazing mastic samples collected during the survey were found to contain 1-5% Chrysotile asbestos in the either the black or grey window glazing mastic. **Therefore, all window glazing mastics found on any windows within the building must be treated as asbestos containing.**

The asbestos containing window glazing mastic materials observed during the survey were found to have an AMI score of 18.

Action:

All asbestos containing window glazing mastic materials observed during the survey were found to have AMI scores below 25 and are therefore not

considered to be hazardous to building occupants or workers, provided that the materials remain in their current states and are left undisturbed. Removal of these materials is only required if the materials must be disturbed. For removal of the materials, please refer to the maintenance indicator number below.

Maintenance Indicator = 3 (Moderate Risk)

The removal of any asbestos containing window glazing mastic materials must only be conducted by a trained and competent asbestos abatement contractor in accordance with applicable regulations and procedures. Moderate risk asbestos work procedures will be required for the removal of any asbestos containing window glazing mastic materials.

The AMI score for the asbestos containing window glazing mastic materials observed during the survey is presented below.

1.) Window Glazing Mastic –Exterior Windows of the Units and Pool House

	Condition	Accessibility	Friability	Dilution	Fibre Generating Mechanisms	Type	
Score	0	3	0	2	0	1	Total AMI Score
Weight	5	4	4	2	2	2	
Total	0	12	0	4	0	2	18

The asbestos containing window glazing mastic materials in the areas inspected were observed to be in good condition. The materials in their current state pose a low risk of asbestos exposure (AMI score within the range of 0-25) to workers working within the building. The materials are not considered to be hazardous provided that they remain undisturbed.

3.2 NON-ASBESTOS CONTAINING MATERIALS

The following materials found within the complex can be considered to be non-asbestos containing. However, as the survey was non-destructive and therefore did not include an inspection of all concealed areas and/or all suites within the building, there is a possibility that exceptions exist with regards to the materials listed below. **If any suspect asbestos containing materials are found (e.g. different underlying layers of flooring, secondary layers of drywall, different patterns of flooring materials from the ones sampled during the current assessment, etc.) during maintenance or renovation activities, the work must stop and the materials must be sampled and analyzed in order to determine if the materials are asbestos containing.**

3.2.1 Stucco

The exterior stucco materials found on the exterior walls and soffits of the complex were sampled and found to be non-asbestos containing during the survey.

3.2.2 Vinyl Flooring Products

The Linoleum sheet flooring materials found within several areas of the complex were sampled and found to be non-asbestos containing. Please refer to the results section for exact locations of non-asbestos containing Linoleum sheet flooring. Different patterns of vinyl flooring must first be sampled by a qualified individual as per WorkSafeBC OH&S Regulation 20.112.

3.2.3 Window Frame Caulking

The window frame caulking found around the sliding door on the exterior of Unit 3033 was sampled and found to be non-asbestos containing.

3.2.4 Penetration Cement

None of the samples of penetration cements collected from pipe penetrations in Unit 3033, Unit 3051 and the parkade were found to be asbestos containing. Therefore, the materials may be treated as non-asbestos containing.

3.2.5 Roof Shingles

The roof shingles found on the units of the complex were sampled and found to be non-asbestos containing.

3.2.6 Wall Texture

While the wall texture sample collected from Unit 9042 is non-asbestos containing this result cannot be extrapolated to the other wall texture materials present within the other units of the complex. Representative samples of the materials will be required to be collected from the other units in order to determine if the materials are indeed non-asbestos containing.

3.3 POLYCHLORINATED BIPHENYLS (PCBS)

Fluorescent light fixtures were observed some units in the complex. The ballasts within the fixtures may contain PCBs.

All PCB containing ballasts, or any suspect PCB containing ballasts, requiring removal during maintenance/renovation activities must be removed from the

fixtures and disposed of in accordance with applicable regulations. If a ballast does not contain PCBs, it will be stated on the ballast label as “no PCBs” or “non-PCB”. All ballasts without such a statement on its label must be treated as PCB containing.

3.4 LEAD CONTAINING MATERIALS

The vent pipes on the roof the buildings are made of lead, and are considered a disposal issue only if they must be removed.

Nine (9) representative samples of the paints existing within the complex were collected and sent to Maxxam Analytics for lead analysis. The locations and sample results are located in the following table.

Location / Description	Lead Concentration (mg/kg)	Lead Concentration (%)
Orange Exterior Wood Siding Paint	2090	0.209
Green/Blue Exterior Wood Siding Paint	4450	0.445
Exterior Brown Trim Paint	522	0.052
Pool House Grey Floor Paint	24.0	0.0024
Parkade White Wall Paint	101	0.010
Unit 3036 – Grey Kitchen Wall Paint	<12	<0.0012
Unit 3051 – Interior Purple Wall Paint	14.8	0.0015
Unit 9046 – White Interior Trim Paint	<9.0	<0.0009
Unit 9046 – Interior Beige Wall Paint	<6.0	<0.0006

WorkSafeBC requires a lead exposure risk assessment for any work that may impact paints/coatings with levels above 90 mg/kg. **Based on the results above, all paints found on the exterior of any units or within the parkade are considered to be lead containing. The lead containing paints will require risk assessments for any work that may impact the paints (e.g. manual demolition, sanding, cutting, etc.).**

Note: Any paint currently on asbestos containing drywall will not need a lead paint risk assessment as it will be dealt with under asbestos work procedures, which supersede lead work procedures.

All glazed ceramic tiles found within the units are also considered to be lead containing, as the glazing often contains lead concentrations above 90 mg/kg. Lead exposure risk assessments will also be required for any renovation work that may directly impact any lead containing glazing on the tiles.

The risk assessments will determine if special lead precautions, such as personal protective equipment for workers and/or dust suppression methods,

are warranted. Lead removal procedures based upon the risk assessment will be required once all work requirements are identified. All work impacting the lead containing paints must be conducted by properly trained personnel, under a lead Exposure Control Plan (ECP).

A leachability test of the lead painted materials will be required if the materials are to be disposed of in a landfill.

3.5 MERCURY CONTAINING MATERIALS

Mercury thermostat switches were observed in some units during the survey. It is assumed that mercury thermostat switches will exist in other suites located in the building. If any renovation activities are to impact the switches, the switches must first be removed and disposed of in accordance with applicable regulations and procedures. The switches are not considered hazardous to the workers removing them, provided that care is taken to ensure that the glass vials housing the liquid mercury are not broken during removal.

Mercury vapour will exist within the light tubes of fluorescent light fixtures. Workers must ensure that care is taken to avoid breaking any light tubes and subsequently inhaling the mercury vapour.

3.6 OTHER POTENTIALLY HAZARDOUS MATERIALS

Disturbance of Crystalline Silica containing products (e.g. cement, ceramic tiles, cinderblock, stucco, brick, etc.) may require respiratory protection and/or mechanical ventilation during maintenance activities affecting those products.

4.0 RECOMMENDATIONS

As a result of the findings discussed in the previous sections of this assessment report, it can be concluded that asbestos, lead and other hazardous materials do exist within the complex.

The asbestos/lead containing materials and other remaining hazardous materials were found to be in good condition, and are currently not hazardous to occupants or workers working within the complex. As a result, immediate removal of the materials is not required. **However, the materials will become hazardous if they become impacted.**

Therefore, prior to beginning any maintenance or renovation work that may impinge upon the asbestos/lead containing materials or the other hazardous materials within the building, the following must be performed:

- 1.) Any *affected* asbestos containing materials identified in this report must be completely removed from the complex and disposed of in accordance with applicable regulations prior to impacting these materials during renovation activities.
- 2.) A risk assessment will be required prior to the disturbance of any identified asbestos and lead containing materials.
- 3.) The disturbance of any asbestos or lead containing materials identified in this report, or any other asbestos and/or lead containing materials encountered during maintenance and/or renovation activities, will require a Notice of Project (NOP) with site-specific work procedures (based on the risk assessment) to be submitted to WorkSafeBC a minimum of 24 hours prior to impacting said materials. Copies of the NOP and work procedures must also be posted on site during the course of the work. Any asbestos removal must be done by a competent, trained abatement contractor. All lead work activities must be done by trained personnel under a lead Exposure Control Plan (ECP).
- 4.) If any suspect asbestos or lead containing materials are encountered within walls, above ceilings, or under floors, the work in the immediate area must stop and the materials must be inspected by a qualified person as per WorkSafeBC OH&S Regulation 20.112 in order potentially to update the risk assessments if the materials are found to be asbestos or lead containing.
- 5.) All *affected* PCB containing ballasts and mercury thermostat switches must be removed and disposed of in accordance with applicable regulations and procedures.

6.) Disturbance of Crystalline Silica containing products (e.g. cement materials, etc.) will require respiratory protection and/or mechanical ventilation during the work activities affecting those products.

7.) Workers must ensure that care is taken at all times to avoid breaking any fluorescent light tubes and subsequently inhaling the mercury vapour.

5.0 STATEMENT OF LIMITATIONS

The A.C.M. Environmental Corporation (ACM) report is intended to direct the Client's attention to recognised environmental conditions and to potential sources of environmental contamination. The findings and conclusion regarding contamination of the properties are based solely on the extent of observations and information gathered during the assessment. Nothing in the report is intended to express any legal opinion upon environmental liabilities relating to the site or whether operations legally conformed with relevant legislative requirements.

Furthermore, it must be understood that changing circumstances in the physical environment, the use of the properties, as well in changes in any substances stored, used, handled at the properties, could radically alter the conclusions and information contained in this report. Therefore, it is important that the properties are periodically re-evaluated and the client kept informed as to developments, which may impact the properties.

ACM makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any properties, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and these interpretations may change over time. ACM accepts no responsibility for consequential financial effects on transactions or property values, or requirements for follow up actions and costs.

The liability of ACM or its staff will be limited to the lesser of the fees paid or actual damages incurred by the client. ACM will not be responsible for any consequential or indirect damages. ACM is only responsible for damages resulting from negligence of ACM.

Information provided by ACM is intended for Client use only. Any use by a third party of reports or documents authored by ACM or any reliance by a third party on or decisions made by a third party based on findings described in said documents is the sole responsibility of such third parties. ACM accepts no responsibility for damages suffered by any third party. **This report is not intended as contract specifications or site specific procedures.**

A.C.M. ENVIRONMENTAL CORPORATION Reviewed By:



Ryan Thompson, B.Sc., ABI
Environmental Technician



David Kwan, B.Sc., B.Tech., Dipl.T., ROHT
Senior Project Manager

6.0 REFERENCES

- 1) USEPA. 1985. U.S. Environmental Protection Agency. "Guidance for Controlling Asbestos-Containing Materials in Buildings". Washington, DC: Office of Toxic Substances, USEPA.
- 2) Lory EE, Coin DC. 1981. "Management Procedure for Assessment of Friable Asbestos Insulating Material". Port Hueneme, CA: Civil Engineering Laboratory, Naval Construction Battalion Center.
- 3) OSHA 29 CFR 1926.62, Lead Standard. Occupational Safety & Health Administration, 200 Constitution Avenue, NW Washington, DC 20210
- 4) WorkSafeBC. Occupational Health and Safety Regulations. including all current amendments and guidelines.
- 5) 2012 Edition - WorkSafeBC. Safe Work Practices for Handling Asbestos.
- 6) 2011 Edition - WorkSafeBC. Lead Containing Paints and Coatings – Preventing exposure in the Construction Industry.

APPENDIX A

Asbestos Bulk Sample Results



Asbestos Bulk Sample Results

Client: **Bayside Property Services Ltd.**

Project #: 3789-15 (Spreadsheet #1)

Location: **Simon Fraser Hills, Burnaby, BC**

Date: 20-Feb-17

Submitted By: **Ryan Thompson (ACM)**

Submission Date: 17-Feb-17

The samples below have been analyzed in accordance with NIOSH Method 9002, Issue 2.

SAMPLE NUMBER	SAMPLE LOCATION & DESCRIPTION	PHASE / LAYER DESCRIPTION	PHASE / LAYER CONTENT % (Vol/Vol)	ASBESTOS RESULT		OTHER FIBRES DETECTED		NON-FIBROUS MATERIALS		LAB ANALYST
				TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	
3789.0739	Electrical Room by 3024 Drywall Taping Compound	1) Paint 2) Grey Mud Compound 3) Paper	2% 96% 2%	None Detected Chrysotile	N/A 1-5% N/A	None Detected None Detected Cellulose	N/A N/A 100%	Paint Mud Compound None Detected	100% 95-99% N/A	PL
3789.0740	Pool Building Janitors Closet Drywall Taping Compound	1) Paint 2) Paper 3) Light Grey Mud Compound	2% 22% 76%	None Detected None Detected None Detected	N/A N/A N/A	None Detected Cellulose None Detected	N/A 100% N/A	Paint None Detected Mud Compound	100% N/A 100%	PL
3789.0741	Pool Building Janitors Closet Ceiling Texture	1) Paint 2) White Texture Compound	2% 98%	None Detected None Detected	N/A N/A	None Detected Cellulose	N/A 2%	Paint Texture Compound, Foam	100% 98%	PL
3789.0742	Pool Building Main Area/Kitchen Multiple Layers of Flooring	1) Beige Vinyl Material 2) Brown Felt Backing 3) White Leveling Compound 4) Red Vinyl Material 5) White Spongy Foam 6) Green Felt Backing 7) Hardened Brown Adhesive 8) Grey Vinyl Material	12% 18% 6% 8% 8% 18% 2% 28%	None Detected None Detected None Detected None Detected None Detected None Detected None Detected Chrysotile	N/A N/A N/A N/A N/A N/A N/A 1-5%	None Detected Glass, Cellulose None Detected None Detected None Detected Glass, Cellulose None Detected None Detected	N/A 20-40% N/A N/A N/A 20-40% N/A N/A	Vinyl Fillers, Binders Leveling Compound, Glass Vinyl Spongy Foam Fillers, Binders Adhesive Vinyl, Glass, Quartz	100% 60-80% 100% 100% 100% 60-80% 100% 95-99%	PL
3789.0743	Pool Building Main Room Windows Window Glazing Mastic	1) Soft Grey Mastic 2) Soft Black Mastic	4% 96%	Chrysotile None Detected	1-5% N/A	None Detected None Detected	N/A N/A	Adhesive Tar, Adhesive	95-99% 100%	PL
3789.0744	Pool Building Corridor Floor Vinyl Floor Coating	1) Paint 2) Grey Vinyl Material	6% 94%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Paint Vinyl, Glass, Quartz	100% 100%	PL
3789.0745	Pool Building Porch Grey Floor Coating	1) Paint 2) Grey Cement/Sand Mixture 3) Paint	2% 96% 2%	None Detected None Detected None Detected	N/A N/A N/A	None Detected None Detected None Detected	N/A N/A N/A	Paint Cement, Sand, Quartz, Glass Paint	100% 100% 100%	PL
3789.0746	Pool Building Janitors Closet 2 Layers of 12" Vinyl Floor Tile	1) Grey Vinyl Material 2) Soft Brown Adhesive 3) Grey Vinyl Material 4) Soft Black Mastic	45% 6% 45% 4%	Chrysotile None Detected Chrysotile None Detected	1-5% N/A 1-5% N/A	None Detected None Detected None Detected None Detected	N/A N/A N/A N/A	Vinyl, Glass, Quartz Adhesive Vinyl, Glass, Quartz Tar, Adhesive	95-99% 100% 95-99% 100%	PL
3789.0747	3027 Basement Living Room Window Window Glazing Mastic	1) Gummy Grey Mastic 2) Wood	98% 2%	Chrysotile None Detected	1-5% N/A	None Detected None Detected	N/A N/A	Adhesive Wood	95-99% 100%	PL
3789.0748	3027 3rd Floor Bathroom Marble Vinyl Flooring	1) Marble Vinyl Material 2) Soft Brown Adhesive 3) Brown Felt Backing	28% 6% 66%	None Detected None Detected Chrysotile	N/A N/A 20-40%	None Detected None Detected Cellulose	N/A N/A 5-10%	Vinyl Adhesive Fillers, Binders	100% 100% 50-75%	PL
3789.0749	3027 Basement Laundry Room Red Linoleum	1) Red Vinyl Material 2) White Spongy Foam 3) Grey Felt Backing	12% 28% 60%	None Detected None Detected Chrysotile	None Detected N/A 20-40%	None Detected None Detected Cellulose	N/A N/A 5-10%	Vinyl Spongy Foam Fillers, Binders	100% 100% 50-75%	PL
3789.0750	3027 Basement Living Room Reddish Brown Linoleum	1) Red/Brown Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing	20% 38% 42%	None Detected None Detected Chrysotile	N/A N/A 20-40%	None Detected None Detected Cellulose	N/A N/A 5-10%	Vinyl Spongy Foam Fillers, Binders	100% 100% 50-75%	PL
3789.0751	3027 Front Entry Foyer Vinyl Flooring under Ceramic	1) Brown Vinyl Sheet 2) White Vinyl Block	2% 98%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Vinyl Vinyl	100% 100%	PL



Asbestos Bulk Sample Results

Client: **Bayside Property Services Ltd.**

Project #: 3789-15 (Spreadsheet #2)

Location: **Simon Fraser Hills, Burnaby, BC**

Date: 21-Feb-17

Submitted By: **Ryan Thompson (ACM)**

Submission Date: 17-Feb-17

The samples below have been analyzed in accordance with NIOSH Method 9002, Issue 2.

SAMPLE NUMBER	SAMPLE LOCATION & DESCRIPTION	PHASE / LAYER DESCRIPTION	PHASE / LAYER CONTENT % (Vol/Vol)	ASBESTOS RESULT		OTHER FIBRES DETECTED		NON-FIBROUS MATERIALS		LAB ANALYST
				TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	
3789.0752	3032 Lower Floor Closet Drywall Taping Compound	1) Paint 2) White Mud Compound 3) Paper	2% 96% 2%	None Detected None Detected None Detected	N/A N/A N/A	None Detected None Detected Cellulose	N/A N/A 100%	Paint Mud Compound None Detected	100% 100% N/A	PL
3789.0753	3032 Upper Floor Corridor Ceiling Texture	1) Paint 2) White Texture Compound 3) Paint 4) Grey Mud Compound	2% 30% 2% 66%	None Detected Chrysotile None Detected Chrysotile	N/A 1-5% N/A 1-5%	None Detected None Detected None Detected None Detected	N/A N/A N/A N/A	Paint Texture Compound, Perlite Paint Mud Compound	100% 95-99% 100% 95-99%	PL
3789.0754	3032 Upstairs Master Bedroom Window Window Glazing Mastic	1) Gummy Grey Putty Compound	100%	None Detected	N/A	None Detected	N/A	Putty Compound	100%	PL
3789.0755	3032 Upper Floor Bathroom Beige Linoleum & Underlayer	1) Brown Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing 4) Hardened Brown Adhesive 5) Grey Cement/Sand Mixture	20% 28% 32% 4% 16%	None Detected None Detected Chrysotile None Detected None Detected	N/A N/A 20-40% N/A N/A	None Detected None Detected Cellulose None Detected None Detected	N/A N/A 5-10% N/A N/A	Vinyl Spongy Foam Fillers, Binders Adhesive Cement, Sand, Glass	100% 100% 50-75% 100% 100%	PL
3789.0756	3032 Lower Floor Office Ceiling Tile	1) Paint 2) Grey Fibrous Mixture	2% 98%	None Detected None Detected	N/A N/A	None Detected Glass, Cellulose	N/A 40-60%	Paint Perlite, Fillers	100% 40-60%	PL
3789.0757	3032 2nd Floor Bathroom Brownish Square Linoleum	1) Brown/Grey Vinyl Material 2) White Spongy Foam 3) Beige/Brown Felt Backing	24% 36% 40%	None Detected None Detected None Detected	N/A N/A N/A	None Detected None Detected Cellulose	N/A N/A 60%	Vinyl Spongy Foam Fillers, Binders	100% 100% 40%	PL
3789.0758	3033 Main Floor Closet Drywall Taping Compound	1) Grey Mud Compound 2) Paper 3) Gypsum	78% 12% 10%	Chrysotile None Detected None Detected	1-5% N/A N/A	None Detected Cellulose Cellulose	N/A 100% 1-5%	Mud Compound None Detected Gypsum	100% N/A 95-99%	PL
3789.0759	3033 Main Floor Living Room Ceiling Texture	1) Paint 2) White Texture Compound	2% 98%	None Detected Chrysotile	N/A 1-5%	None Detected None Detected	N/A N/A	Paint Perlite, Texture Compound	100% 95-99%	EH
3789.0760	3033 Basement Living Room Window Window Glazing Mastic	1) Soft Grey Mastic	100%	Chrysotile	1-5%	None Detected	N/A	Adhesive	95-99%	EH
3789.0761	3033 Upper Floor Bathroom 5 Layers Flooring	1) Beige Vinyl Material 2) White Spongy Foam 3) Grey Felt Backing 4) Soft Beige Adhesive 5) Orange/Brown Vinyl Material 6) Grey Vinyl Material 7) Soft Clear Adhesive 8) Brown Vinyl Material 9) Soft Clear Adhesive 10) Brown Vinyl Material 11) White Spongy Foam 12) Beige Felt Backing	8% 10% 16% 2% 6% 10% 2% 10% 2% 8% 8% 18%	None Detected None Detected None Detected None Detected None Detected None Detected None Detected Chrysotile None Detected None Detected None Detected Chrysotile	N/A N/A N/A N/A N/A N/A N/A 1-5% N/A N/A N/A 20-40%	None Detected None Detected Cellulose, Glass None Detected None Detected Synthetics None Detected None Detected None Detected None Detected None Detected None Detected	N/A N/A 20-40% N/A N/A 4% N/A N/A N/A N/A N/A N/A	Vinyl Spongy Foam Fillers, Binders Adhesive Vinyl Vinyl Adhesive Vinyl, Glass Adhesive Vinyl Spongy Foam Fillers, Binders	100% 100% 60-80% 100% 100% 96% 100% 95-99% 100% 100% 100% 60-80%	EH
3789.0762	3033 Basement Laundry Room Pink Pipe Penetration Cement	1) Stretchy Pink Putty Compound	100%	None Detected	N/A	Synthetics	3%	Putty Compound, Foil	97%	EH



Asbestos Bulk Sample Results

Client: **Bayside Property Services Ltd.**

Project #: 3789-15 (Spreadsheet #3)

Location: **Simon Fraser Hills, Burnaby, BC**

Date: 21-Feb-17

Submitted By: **Ryan Thompson (ACM)**

Submission Date: 17-Feb-17

The samples below have been analyzed in accordance with NIOSH Method 9002, Issue 2.

SAMPLE NUMBER	SAMPLE LOCATION & DESCRIPTION	PHASE / LAYER DESCRIPTION	PHASE / LAYER CONTENT % (Vol/Vol)	ASBESTOS RESULT		OTHER FIBRES DETECTED		NON-FIBROUS MATERIALS		LAB ANALYST
				TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	
3789.0763	3033 Exterior Sliding Door Frame Door Frame Putty	1) Stretchy Brown Putty Compound	100%	None Detected	N/A	None Detected	N/A	Putty Compound	100%	EH
3789.0764	3033 Main Floor Bathroom White Linoleum	1) Pink Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing 4) Brown Vinyl Material 5) Brown Felt Backing	16% 16% 34% 16% 18%	None Detected None Detected None Detected None Detected None Detected	N/A N/A N/A N/A N/A	None Detected None Detected Cellulose, Glass None Detected Cellulose, Synthetics	N/A N/A 20-40% N/A 20-40%	Vinyl Spongy Foam Fillers, Binders Vinyl Fillers, Binders	100% 100% 60-80% 100% 60-80%	EH
3789.0765	3033 Kitchen White Linoleum	1) Pink Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing 4) Hardened Brown Adhesive 5) Grey Vinyl Material	26% 20% 32% 2% 20%	None Detected None Detected None Detected None Detected None Detected	N/A N/A N/A N/A N/A	None Detected None Detected Cellulose, Glass None Detected Synthetics	N/A N/A 20-40% N/A 4%	Vinyl Spongy Foam Fillers, Binders Adhesive Vinyl, Quartz	100% 100% 60-80% 100% 96%	EH
3789.0766	3036 Lower Floor Laundry Room Drywall Taping Compound	1) Paint 2) Grey Mud Compound	2% 98%	None Detected Chrysotile	N/A 1-5%	None Detected None Detected	N/A N/A	Paint Mud Compound	100% 95-99%	EH
3789.0767	3036 3rd Floor Corridor Ceiling Texture	1) Paint 2) White Texture Compound	2% 98%	None Detected Chrysotile	N/A 1-5%	None Detected None Detected	N/A N/A	Paint Perlite, Texture Compound	100% 95-99%	EH
3789.0768	3036 Lower Floor Laundry Room White Linoleum	1) Beige Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing	32% 26% 42%	None Detected None Detected None Detected	N/A N/A N/A	None Detected None Detected Cellulose, Synthetics	N/A N/A 20-40%	Vinyl Spongy Foam Fillers, Binders	100% 100% 60-80%	EH
3789.0769	3036 1st Floor Back Playroom Orange Linoleum	1) Orange Vinyl Material 2) White Spongy Foam 3) Grey Felt Backing 4) Hardened Brown Adhesive	22% 38% 38% 2%	None Detected None Detected Chrysotile None Detected	N/A N/A 20-40% N/A	None Detected None Detected Cellulose None Detected	N/A N/A 5-10% N/A	Vinyl Spongy Foam Fillers, Binders Adhesive	100% 100% 50-75% 100%	PL
3789.0770	3036 Main Floor Kitchen White Linoleum	1) White Vinyl Material 2) White Spongy Foam 3) Grey Felt Backing 4) Hardened Brown Adhesive 5) Beige Vinyl Material 6) White Spongy Foam 7) Beige Felt Backing	20% 24% 30% 2% 6% 8% 10%	None Detected None Detected None Detected None Detected None Detected None Detected Chrysotile	N/A N/A N/A N/A N/A N/A 20-40%	None Detected None Detected Glass, Cellulose None Detected None Detected None Detected Cellulose	N/A N/A 20-40% N/A N/A N/A 5-10%	Vinyl Spongy Foam Fillers, Binders Adhesive Vinyl Spongy Foam Fillers, Binders	100% 100% 60-80% 100% 100% 100% 50-75%	PL
3789.0771	3036 2nd Floor Bathroom White Linoleum on 2nd Layer	1) White Vinyl Material 2) White Spongy Foam 3) Grey Felt Backing 4) Grey Cement/Sand Mixture 5) Soft Brown Adhesive 6) Brown Vinyl Material 7) Green Felt Backing	10% 14% 16% 2% 20% 36% 2%	None Detected None Detected None Detected None Detected None Detected None Detected None Detected	N/A N/A N/A N/A N/A N/A N/A	None Detected None Detected Glass, Cellulose None Detected None Detected None Detected Cellulose, Synthetics	N/A N/A 20-40% N/A N/A N/A 85%	Vinyl Spongy Foam Fillers, Binders Cement, Sand Adhesive Vinyl Fillers, Binders	100% 100% 60-80% 100% 100% 100% 15%	PL
3789.0772	3036 3rd Floor Bathroom White Linoleum	1) White Vinyl Material 2) White Spongy Foam 3) Grey Felt Backing	24% 36% 40%	None Detected None Detected None Detected	N/A N/A N/A	None Detected None Detected Glass, Cellulose	N/A N/A 20-40%	Vinyl Spongy Foam Fillers, Binders	100% 100% 60-80%	PL



Asbestos Bulk Sample Results

Client: **Bayside Property Services Ltd.**

Project #: 3789-15 (Spreadsheet #4)

Location: **Simon Fraser Hills, Burnaby, BC**

Date: 21-Feb-17

Submitted By: **Ryan Thompson (ACM)**

Submission Date: 17-Feb-17

The samples below have been analyzed in accordance with NIOSH Method 9002, Issue 2.

SAMPLE NUMBER	SAMPLE LOCATION & DESCRIPTION	PHASE / LAYER DESCRIPTION	PHASE / LAYER CONTENT % (Vol/Vol)	ASBESTOS RESULT		OTHER FIBRES DETECTED		NON-FIBROUS MATERIALS		LAB ANALYST
				TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	
3789.0773	3036 3rd Floor Bedroom Window Window Glazing Mastic	1) Gummy Grey/Black Mastic	100%	Chrysotile	1-5%	None Detected	N/A	Adhesive	95-99%	PL
3789.0774	3051 Front Entry Drywall Taping Compound	1) Paint 2) Grey Mud Compound	2% 98%	None Detected Chrysotile	N/A 1-5%	None Detected None Detected	N/A N/A	Paint Mud Compound	100% 95-99%	PL
3789.0775	3051 Basement Storage Room Ceiling Texture	1) White Texture Compound 2) Paint 3) Light Grey Mud Compound	86% 2% 12%	None Detected None Detected None Detected	N/A N/A N/A	Cellulose None Detected None Detected	4% N/A N/A	Texture Compound Paint Mud Compound	96% 100% 100%	PL
3789.0776	3051 Basement Red Linoleum	1) Red Vinyl Material 2) White Spongy Foam 3) Grey Felt Backing	20% 28% 52%	None Detected None Detected Chrysotile	N/A N/A 20-40%	None Detected None Detected Cellulose	N/A N/A 5-10%	Vinyl Spongy Foam Fillers, Binders	100% 100% 50-75%	PL
3789.0777	3051 Basement Laundry Room Grey Pipe Penetration Cement	1) Grey Cement/Sand Mixture	100%	None Detected	N/A	None Detected	N/A	Cement, Sand, Quartz, Glass	100%	PL
3789.0778	9042 Top Floor Corridor Wall Texture & Drywall Taping Compound	1) Paint 2) White Texture Compound 3) Paint 4) Grey Mud Compound	2% 16% 2% 80%	None Detected None Detected None Detected Chrysotile	N/A N/A N/A 1-5%	None Detected None Detected None Detected None Detected	N/A N/A N/A N/A	Paint Texture Compound, Perlite Paint Mud Compound	100% 100% 100% 95-99%	PL
3789.0779	9042 Entrance Hallway Wall Texture	1) Paint 2) White Texture Compound	2% 98%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Paint Perlite, Texture Compound	100% 100%	EH
3789.0780	9042 Top Floor Bedroom Window Window Glazing Mastic	1) Stretchy Black Mastic	100%	None Detected	N/A	Cellulose	4%	Tar, Adhesive	96%	EH
3789.0781	9042 Entrance Hallway Ceiling Texture	1) Paint 2) White Texture Compound	2% 98%	None Detected Chrysotile	N/A 1-5%	None Detected Cellulose	N/A 2%	Paint Perlite, Texture Compound	100% 93-97%	EH
3789.0782	9042 Middle Floor Bathroom Linoleum under Ceramic	1) Grey Leveling Compound 2) Beige Vinyl Material 3) White Spongy Foam 4) Beige Felt Backing 5) Hardened Brown Adhesive	4% 24% 26% 44% 2%	None Detected None Detected None Detected Chrysotile None Detected	N/A N/A N/A 20-40% N/A	None Detected None Detected None Detected None Detected None Detected	N/A N/A N/A N/A N/A	Leveling Compound Vinyl Spongy Foam Fillers, Binders Adhesive	100% 100% 100% 60-80% 100%	EH
3789.0783	9042 Top Floor Bathroom Linoleum under Ceramic	1) Beige Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing	28% 32% 40%	None Detected None Detected Chrysotile	N/A N/A 20-40%	None Detected None Detected None Detected	N/A N/A N/A	Vinyl Spongy Foam Fillers, Binders	100% 100% 60-80%	EH
3789.0784	9046 Entry Closet Drywall Taping Compound	1) Paint 2) Grey Mud Compound 3) Paper 4) Gypsum	2% 80% 6% 12%	None Detected Chrysotile None Detected None Detected	N/A 1-5% N/A N/A	None Detected None Detected Cellulose Cellulose	N/A N/A 100% 1-5%	Paint Mud Compound None Detected Gypsum	100% 95-99% N/A 95-99%	EH
3789.0785	9046 Main Floor Kitchen Beige Linoleum	1) Beige Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing 4) Hardened Brown Adhesive	28% 20% 50% 2%	None Detected None Detected Chrysotile None Detected	N/A N/A 20-40% N/A	None Detected None Detected None Detected None Detected	N/A N/A N/A N/A	Vinyl Spongy Foam Fillers, Binders Adhesive	100% 100% 60-80% 100%	EH



Asbestos Bulk Sample Results

Client: **Bayside Property Services Ltd.**

Project #: 3789-15 (Spreadsheet #5)

Location: **Simon Fraser Hills, Burnaby, BC**

Date: 21-Feb-17

Submitted By: **Ryan Thompson (ACM)**

Submission Date: 17-Feb-17

The samples below have been analyzed in accordance with NIOSH Method 9002, Issue 2.

SAMPLE NUMBER	SAMPLE LOCATION & DESCRIPTION	PHASE / LAYER DESCRIPTION	PHASE / LAYER CONTENT % (Vol/Vol)	ASBESTOS RESULT		OTHER FIBRES DETECTED		NON-FIBROUS MATERIALS		LAB ANALYST
				TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	TYPE	CONTENT % (Vol/Vol)	
3789.0786	9046 Stairwell Closet outside Double Bedroom Checkedered Linoleum	1) Beige Checkered Vinyl Material 2) White Spongy Foam 3) Beige Felt Backing 4) Hardened Brown Adhesive	18% 26% 54% 2%	None Detected None Detected Chrysotile None Detected	N/A N/A 20-40% N/A	None Detected None Detected None Detected None Detected	N/A N/A N/A N/A	Vinyl Spongy Foam Fillers, Binders Adhesive	100% 100% 60-80% 100%	EH
3789.0787	9046 Entry Bathroom Brown Linoleum	1) Grey Leveling Compound 2) Brown Vinyl Material 3) Brown Felt Backing	4% 54% 42%	None Detected None Detected None Detected	N/A N/A N/A	Cellulose None Detected Synthetics, Cellulose	2% N/A 20-40%	Leveling Compound Vinyl Fillers, Binders	98% 100% 60-80%	EH
3789.0788	Parking Garage Pipe Chase Surround Stucco	1) Paint 2) Hard Grey Cement/Sand Mixture	2% 98%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Paint Cement, Sand, Glass, Quartz, Vermiculite	100% 100%	EH
3789.0789	Parking Garage Ceiling Pipe Penetrations Pipe Penetration Cement	1) Paint 2) Hard Grey Cement/Sand Mixture	2% 98%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Paint Cement, Sand, Glass, Quartz, Rocks	100% 100%	EH
3789.0790	Exterior Wall outside 9042 Exterior Stucco	1) Paint 2) Hard Grey Cement/Sand Mixture	2% 98%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Paint Cement, Sand, Glass, Quartz	100% 100%	EH
3789.0791	Exterior Wall outside 9030 Exterior Stucco	1) Paint 2) Hard Grey Cement/Sand Mixture	2% 98%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Paint Cement, Sand, Glass, Quartz, Rocks, Vermiculite	100% 100%	EH
3789.0792	Exterior Wall outside 3032 Exterior Stucco	1) Paint 2) Hard Brown Rock 3) Hard Grey Cement/Sand Mixture	2% 40% 58%	None Detected None Detected None Detected	N/A N/A N/A	None Detected None Detected None Detected	N/A N/A N/A	Paint Rock Cement, Sand, Glass, Vermiculite	100% 100% 100%	EH
3789.0793	Garage Ceiling 9030 Ceiling Stucco	1) Paint 2) Hard White Plaster	2% 98%	None Detected None Detected	N/A N/A	None Detected None Detected	N/A N/A	Paint Plaster, Glass	100% 100%	EH
3789.0794	Garage Ceiling 9042 Ceiling Stucco	1) Paint 2) Hard White Plaster 3) Soft Beige Adhesive	2% 86% 12%	None Detected None Detected None Detected	N/A N/A N/A	None Detected None Detected None Detected	N/A N/A N/A	Paint Plaster, Glass Adhesive	100% 100% 100%	EH
3789.0795	Roof of 3029 Roof Shingle	1) Small Brown Rocks 2) Soft Black Mastic 3) Black Fibrous Felt 4) Soft Black Mastic	6% 23% 48% 23%	None Detected None Detected None Detected None Detected	N/A N/A N/A N/A	None Detected None Detected Glass None Detected	N/A N/A 42% N/A	Rocks Tar, Adhesive Tar, Adhesive Tar, Adhesive, Sand	100% 100% 58% 100%	EH
3789.0796	Roof of 9035 Roof Shingle	1) Small Brown Rocks 2) Soft Black Mastic 3) Black Fibrous Felt 4) Soft Black Mastic	6% 21% 52% 21%	None Detected None Detected None Detected None Detected	N/A N/A N/A N/A	None Detected None Detected Glass None Detected	N/A N/A 46% N/A	Rocks Tar, Adhesive Tar, Adhesive Tar, Adhesive	100% 100% 54% 100%	EH

APPENDIX B

Asbestos Risk Assessment Criteria

ASBESTOS RISK ASSESSMENT CRITERIA

The purpose of the Asbestos Risk Assessment is to provide guidance for personnel when assessing areas or when planning any work that may impinge on asbestos containing materials.

The risk assessment procedure is broken down into two main categories:

- A) OCCUPANT RISK LEVEL - Risk to occupants during regular building activities,
- B) ABATEMENT RISK LEVEL - Risk level if the materials are to be impacted / abated.

OCCUPANT RISK LEVEL

ACM Environmental Corporation uses a **Maintenance Indexing Number** to determine risk levels to building occupants during regular activities. The maintenance index identifies the degree of hazard by providing a value to a location. This value is derived from six separate criteria.

Every criterion is given a weighting factor according to its significance. Each criterion is divided into clearly defined sub-classifications. The sub-classifications are then numbered depending on the degree of hazard. The sub-classification number is multiplied by the weighting factor yielding a total number indicating the degree hazard. The totalling of the 6 criteria assigns each area an indexing number. The indexing number can range from 0 to 71. A total between 0 and 25 would be considered a low risk of asbestos exposure to building occupants. A total between 26 and 45 would be considered a moderate risk of asbestos exposure to building occupants. A total between 46 and 71 would be considered a high risk of asbestos exposure to building occupants.

The survey places a strong emphasis as to whether a material is friable or non-friable. Friable asbestos products are determined by their ability to crumble and dislodge fibres from the binding material when only applying hand pressure. Non-friable asbestos products do not crumble nor dislodge fibres from the binding material when using hand pressure.

ABATEMENT RISK LEVEL

Seven numbered categories are used to determine the exposure risk level for an abatement procedure. Categories **1 and 2** are considered to be of low risk, categories **3 to 6** are considered moderate risk, and categories **7 and 8** are considered high risk. These factors follow current WorkSafeBC regulations governing asbestos abatement.

During the survey, strong emphasis is placed on whether the suspect material is friable or non-friable. **Friable asbestos products** are determined by the ability of asbestos fibres to dislodge from the binding material when crumbled using hand pressure. **Non-friable asbestos products** do not crumble or dislodge asbestos fibres from the binding material when hand pressure is applied.

OCCUPANT RISK LEVEL

Assessed Index Level

Ranges: 0-71

<i>Condition</i>	<u>Weight = 5</u>
Good - original, like new	0
Fair - edges fraying, signs of small tears	1
Poor - tears, exposed asbestos, bits of debris	3
Bad - tears, broken or damaged, > 1 sq. ft debris	4
Deplorable - severe delamination and/or deterioration	5

Possible score (0 - 25)

<i>Accessibility</i>	<u>Weight = 4</u>
Not readily - use of ladder or staging	0
Infrequent - not normally accessed	1
Avoidable - arms length, out of the way	2
Routine - easily accessed	3

Possible score (0 -12)

<i>Friability</i>	<u>Weight = 4</u>
No Friability	0
Low Friability	1
Moderate Friability	2
High Friability	4

Possible score (0 - 16)

<i>Dilution</i>	<u>Weight = 2</u>
Unlimited, outside	0
Limited, open areas	1
None, Contained Space	2

Possible score (0-4)

<i>Fibre Generation Mechanisms</i>	<u>Weight = 2</u>
None	0
One	1
More than one	2

Possible score (0 -4)

<i>Asbestos Type</i>	<u>Weight = 2</u>
None (<0.5%)	0
Low Chrysotile or other (0.5 - 30%)	1
Medium % Chrysotile (30 – 60%) & low % Amosite or Crocidolite (0.5 – 30%)	2
Medium % Crocidolite or Amosite (30 – 60%)	3
High % Chrysotile (60 – 100%)	4
High % Crocidolite or Amosite (60 – 100%)	5

Possible score (0 -10)

DEFINITIONS

1. Condition

The condition factor is the most significant factor in determining the hazard posed by asbestos containing materials. The condition of an asbestos containing material determines the potential for a material to release asbestos fibres into the air stream.

The condition can apply to either a complete system or any segment. In most cases, when portions of a system have varying conditions, the conditions are determined per area assessed and remedial action is then identified.

<u>Condition</u>	<u>WEIGHT = 5</u>
Good - original, like new	0
Fair - edges fraying, signs of small tears	1
Poor - tears, exposed asbestos, bits of debris	3
Bad - tears, broken or damaged, > 1 sq. ft. debris	4
Deplorable - severe delamination and/or deterioration	5
	Possible score (0-25)

Good

- i. Manufactured products showing no damage, essentially in new condition.
- ii. Piping or vessel thermal insulation that is covered with canvas or sheet metal with no holes or expose insulation.
- iii. Spray applied asbestos material that is well adhered to the substrate and is completely covered with an encapsulant.

Fair

- i. Manufactured products showing beginning signs of damage and wear.
- ii. Piping or vessel thermal insulation that may have small areas of damaged canvas or sheet metal with no holes or exposed insulation.
- iii. Spray applied asbestos material that is well adhered to the substrate and is completely covered with an encapsulant but with small damage in the form of dents or gouges.

Poor

- i. Manufactured products with broken pieces and/or deteriorated edges.
- ii. Piping or vessel thermal insulation that has small areas of damaged canvas or sheet metal covering with some damaged or frayed insulation.
- iii. Spray applied asbestos material with poor or no encapsulant and/or small damage in the form of debris.

Bad

- i. Manufactured products showing consideration breakage and deterioration.
- ii. Piping or vessel thermal insulation that has areas of damaged and/or missing sheet metal or canvas covering with exposed and damaged insulation.
- iii. Spray applied insulation showing small sections of delamination with/without water damage.

Deplorable

- i. Piping or vessel thermal insulation that has severely damaged or missing sheet metal or canvas covering with delamination, damaged and exposed insulation, and debris.
- ii. Spray applied insulation where delamination and deterioration has occurred in several areas.

Note: This category does not apply to manufactured products.

2. Accessibility

Accessibility indicates the exposure potential of workers within close proximity to the asbestos containing material. Determining whether workers are able to come in contact with asbestos materials can ascertain if inadvertent contact with the materials has the potential of causing a fibre release.

This factor of the indexing system encompasses the concepts of distance and frequency of possible contact.

<u>Accessibility</u>	<u>WEIGHT = 4</u>
Rarely - use of ladder or staging	0
Infrequent - not normally accessed	1
Avoidable - arms length, out of the way	2
Routine - easily accessed	3
	Possible score (0-12)

Rarely

- i. The material cannot be reached without the use of a ladder or some other aid.
- ii. Spray applied material above a suspended or false ceiling.
- iii. The insulation covered by sheet metal or canvas jacketing.

Infrequent

A material that is within reach but is infrequently accessed (i.e. remote areas, crawl spaces).

Avoidable

Material is in an area where contact is possible, but workers/maintenance personnel would not normally contact it during routine work (i.e. material within reach of operating areas).

Routine

Material that is in a work area, and where worker contact is (i.e. doorways with hand operated valves which are used every shift).

3. Friability

This category judges the material friability. Friability is a measurement of how easily a material can dislodge fibres and crumble from the binding substrate by use of hand pressure.

<u>Friability</u>	<u>WEIGHT = 4</u>
No-Friability	0
Low Friability	1
Moderate Friability	2
High Friability	4
Possible score (0-16)	

No-Friability

A non-friable material is a material that cannot be broken by hand. These kinds of materials would include asbestos containing pipe insulation with a good, intact covering, Transite panels, floor tiles, Transite piping and siding.

Low Friability

Materials that are considered to have low friability are materials that are in moderate to good condition. These materials would include some pipe and vessel insulation, drywall taping compounds, and spray applications with a poor encapsulant.

Moderate Friability

Materials that are considered to be moderately friable usually consist of partly damaged pipe insulation, lineal pipe insulation with poor covering, partly damaged spray applications and spray applications with no encapsulant.

High Friability

Materials that are considered to be highly friable are asbestos containing dusts, deteriorated spray applications, pipe insulation, and materials that are delaminating and can easily be reduced to dust.

4. Dilution

Dilution of asbestos fibres into an air stream can vary greatly. More emphasis is put on the dilution if the material in question is in an air handling system where the mixing plenum re-introduces part of the return air from a ceiling space into the building.

The dilution effect is a measure of how readily the asbestos fibres that become airborne are dispersed.

<u>Dilution</u>	<u>WEIGHT = 2</u>
Unlimited, outside	0
Limited, open areas	1
None, contained Space	2
	Possible score (0-4)

Outside, unlimited

- i. An area with a large volume of air that has the effect of diluting airborne fibres (such as any outdoor locations).
- ii. A location with a high number of exchanges per hour (i.e. pulp mills, laboratories, fume hoods).

Limited, open Areas

- i. An area with a fresh air supply that has the effect of diluting airborne fibres.
- ii. Buildings with large unpartitioned areas (i.e. warehouses).

None, contained space

- i. An area with internal air recirculation that has no effect of diluting potential airborne fibres.
- ii. A building or space with outgoing make up air.
- iii. Inside vessels, tanks, boilers, etc.

5. Fibre Generating Mechanisms

This section covers any form of mechanical or airborne action that could cause deterioration of the asbestos containing material resulting in the generation of asbestos fibres. The scoring is as follows:

<u>Fibre Generating Mechanisms</u>	<u>WEIGHT = 2</u>
No mechanisms	0
One	1
Several	2
	Possible score (0-4)

There are many examples of these mechanisms, some of which include:

Water Damage

Situations where water has caused deterioration of the asbestos containing materials create a greater tendency for the asbestos fibres to be released.

Vibration

Situations where the insulation is being subjected to vibration from equipment, piping, or structures have the effect of breaking up the insulation over time.

Air Disturbance

Situations where there is forced air flowing across an asbestos containing surface, which may cause a release of asbestos fibres over time and situations where weather elements in outdoor applications cause the deterioration of materials.

6. Asbestos Type

The type of asbestos is important, as each type has different characteristics and capabilities to become airborne and therefore become a carcinogen. Chrysotile asbestos is considered the least carcinogenic, compared to Amosite or Crocidolite, due to its physical characteristics. Chrysotile is a serpentine type of fibre, which is more flexible than fibres in the amphiboles fibre class. Amphibole fibres, such as Amosite and Crocidolite, are needle like. Crocidolite is considered more hazardous than Amosite due to its consistency and small fibre size.

<u>TYPE OF MATERIAL</u>	<u>WEIGHT = 2</u>
Non Asbestos (<0.5%)	0
Low % Chrysotile (0.5% - 30 %)	1
Moderate % Chrysotile (30 – 60%) or low % Amosite or Crocidolite (0.5 - 30%)	2
Moderate % Amosite or Crocidolite (30 - 60%)	3
High % Chrysotile (60-100%)	4
High % Amosite or Crocidolite (60-100%)	5
Possible Score (0 -10)	

ABATEMENT RISK LEVEL

Assessed Risk Level and Applicable Procedure: **Range: 1 to 8**

- 1. Low Risk** - (< 0.5% considered non-asbestos) Removal - Worker protection required if potential for fibre release.
- 2. Low Risk** - (> 0.5% non-friable) Repair - Cracks or small breaks in cementitious piping or non-friable asbestos materials - worker protection required if potential for fibre release.
- 3. Moderate Risk** - (> 0.5% non-friable) Removal – Restricted to hand powered tools for removal of manufactured products.
- 4. Moderate Risk** - (> 0.5% friable) Vacuuuming - Less than one square foot (< 1 sq ft) friable asbestos debris.
- 5. Moderate Risk** - (> 0.5% friable) Removal - Glovebag procedure for the removal of pipe insulation ≤ 18-inch diameter.
- 6. Moderate Risk with Increased Controls** – (> 0.5% Friable) Removal – Removal of friable asbestos containing materials with limited amounts of asbestos.
- 7. High Risk** - (> 0.5% friable) Clean-up - Delaminated pipe insulation and debris over a square foot in area. May include vacuuming large areas.
- 8. High Risk** - (> 0.5% friable) Removal - Acoustic or textured sprays, block insulation, or other friable products ≥ square foot in area.

DEFINITIONS

- 1. Low Risk** - (< 0.5% considered non-asbestos) A non-asbestos material is a material that contains less than 0.5% asbestos. Materials in this category do not require any special attention related to asbestos or asbestos exposure unless found in a matrix that will crumble and is conducive to fibre release when hand pressure is applied. An example of this is old plaster on wood lath. Worker protection is required if a potential for fibre release exists.
- 2. Low Risk** - (> 0.5% non-friable) A non-friable material that contains more than 0.5 percent asbestos. An example is asbestos cement pipes, transite panels, cement siding and vinyl asbestos floor tiles. These materials may be repaired using low risk work procedures. Worker protection is required if a potential for fibre release exists.
- 3. Moderate Risk** - (> 0.5% non-friable) A non-friable material that contains more than 0.5 percent asbestos. An example is asbestos cement pipes, transit panels, siding and vinyl asbestos floor tiles. These materials require moderate risk work procedures

and worker protection during removal due to the potential for fibre release. Power tools are prohibited when working with asbestos containing products unless a HEPA vacuum dust removal system is connected.

4. Moderate Risk - (> 0.5% friable) A friable material that contains more than 0.5 percent asbestos. This category is reserved for of asbestos debris removal using HEPA vacuuming equipment. The removal of friable asbestos using moderate risk procedures is limited to an area of less than 1 square foot of visible debris. If asbestos-containing dust is suspected on larger surface areas identifiable only with microscopy analysis, then HEPA vacuuming equipment may, in some instances, be used to clean the area followed by an encapsulant.

5. Moderate Risk - (> 0.5% friable) Friable pipe insulation material that contains more than 0.5 percent asbestos. Asbestos materials in this group involve the removal of asbestos containing pipe insulation by use of the glovebag method. More than one square foot of material can be removed safely in this purpose made bag. The glovebag can be used to remove insulated pipe of less than 16" in diameter, adhering to current WorkSafe BC standards. Other techniques used to remove asbestos pipe insulation greater than 16 inches in diameter include a mini enclosure system (modified moderate risk) or a full enclosure system (high risk) complete with shower facilities.

6. Moderate Risk with Increased Controls – (> 0.5% friable) This category is for the removal of asbestos containing materials deemed to be friable but with limited amounts of asbestos in the matrix of the materials, and where increased dust control measures and personal protective equipment are required over and above regular moderate risk requirements (i.e. Removal of drywall with asbestos containing taping compounds on seams, corners, screws/nails, etc.).

7. High Risk - (> 0.5 % - friable) Friable materials that contain in excess of 0.5 percent asbestos. This category is assigned to the clean - up of more than one square foot of asbestos debris using manual methods, HEPA vacuuming, and Vec-Loader vacuuming. The cleanup of friable asbestos using high-risk procedures is conducted when large areas of delamination and debris are identified in an area. Removal of this type requires full enclosure systems with decontamination facilities. Air monitoring is mandatory for all removal projects falling in this classification.

8. High Risk - (> 0.5% friable) Friable material that contains in excess of 0.5 percent asbestos. This category is assigned to the removal of more than one square foot of asbestos containing material from their original installation when glove bag or mini containment systems are not feasible or when delamination and debris may also exist in the area. Materials that are included in this category are spray applied asbestos containing materials to boilers and vessels, large areas of pipe insulation, ceiling texture materials, and felt backed linoleum sheet flooring. Removal of this type requires full enclosure systems with decontamination facilities. Air monitoring is mandatory for all removal projects falling in this classification.

APPENDIX C

Lead Paint Bulk Sample Results

Your Project #: 3789-15
Site Location: SIMON FRASER HILLS
Your C.O.C. #: G111413

Attention: Ryan Thompson

ACM Environmental
217 - 2323 Quebec St
Vancouver, BC
Canada V5T 4S7

Report Date: 2017/02/20
Report #: R2347337
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B711362

Received: 2017/02/15, 16:25

Sample Matrix: PAINT
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICP-AES (acid extr. solid)	9	2017/02/20	2017/02/20	BBY7SOP-00018	EPA 6010c R3 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Graham Rudkin, Project Manager, Environmental

Email: GRudkin@maxxam.ca

Phone# (604)638-5926 Ext:5926

=====
This report has been generated and distributed using a secure automated process.

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Maxxam Job #: B711362
Report Date: 2017/02/20

ACM Environmental
Client Project #: 3789-15
Site Location: SIMON FRASER HILLS
Sampler Initials: RT

LEAD IN PAINT CHIPS (PAINT)

Maxxam ID		QO3842	QO3843		QO3844		
Sampling Date		2017/02/10	2017/02/10		2017/02/10		
COC Number		G111413	G111413		G111413		
	UNITS	ORANGE EXT WOOD SIDING PAINT	GREEN/ BLUE EXT WOOD SIDING PAINT	RDL	EXT BROWN TRIM PAINT	RDL	QC Batch

Total Metals by ICP							
Total Lead (Pb)	mg/kg	2090	4450	3.0	522 (1)	9.0	8557125
RDL = Reportable Detection Limit (1) Detection limits raised due to insufficient sample volume.							

Maxxam ID		QO3845		QO3846		QO3847		
Sampling Date		2017/02/10		2017/02/10		2017/02/10		
COC Number		G111413		G111413		G111413		
	UNITS	POOL HOUSE EXT GREY FLR PAINT	RDL	PARKADE WHITE WALL PAINT	RDL	SUITE 3036 KITCHEN GREY WALL PAINT	RDL	QC Batch

Total Metals by ICP								
Total Lead (Pb)	mg/kg	24.0	3.0	101 (1)	6.0	<12 (1)	12	8557125
RDL = Reportable Detection Limit (1) Detection limits raised due to insufficient sample volume.								

Maxxam ID		QO3848	QO3849		QO3850		
Sampling Date		2017/02/10	2017/02/10		2017/02/10		
COC Number		G111413	G111413		G111413		
	UNITS	3051-INTERIOR PURPLE WALL PAINT	9046-WHITE INTERIOR TRIM PAINT	RDL	9046-INTERIOR BEIGE PAINT	RDL	QC Batch

Total Metals by ICP							
Total Lead (Pb)	mg/kg	14.8 (1)	<9.0 (1)	9.0	<6.0 (1)	6.0	8557125
RDL = Reportable Detection Limit (1) Detection limits raised due to insufficient sample volume.							

Maxxam Job #: B711362
Report Date: 2017/02/20

ACM Environmental
Client Project #: 3789-15
Site Location: SIMON FRASER HILLS
Sampler Initials: RT

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B711362
Report Date: 2017/02/20

QUALITY ASSURANCE REPORT

ACM Environmental
Client Project #: 3789-15
Site Location: SIMON FRASER HILLS
Sampler Initials: RT

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8557125	Total Lead (Pb)	2017/02/20	<3.0	mg/kg	NC	35	91	80 - 120

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B711362
Report Date: 2017/02/20

ACM Environmental
Client Project #: 3789-15
Site Location: SIMON FRASER HILLS
Sampler Initials: RT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Ph.D., P.Chem., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CHAIN OF CUSTODY RECORD

G 111413

BBY FCD-00077/05
Page ___ of ___

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required	
Company Name: <u>ACM Environmental</u>		Company Name: _____				Quotation #: _____				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)	
Contact Name: _____		Contact Name: <u>Ryan Thompson</u>				P.O. #/ AFER: _____				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <u>4217-2323 Quebec St</u> <u>Vancouver BC V5T 4S7</u>		Address: _____ PC: _____				Project #: <u>3789-15</u>				Rush TAT (Surcharges will be applied)	
Phone: <u>604 873 8599</u>		Phone: _____				Site Location: <u>Simon Fraser Hills</u>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days	
Email: <u>admin@acmenvironmental.com</u>		Email: <u>Ryan@acmenvironmental.com</u>				Site #: _____				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days	
Regulatory Criteria		Special Instructions				Analysis Requested				Rush Confirmation #:	
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)				<input type="checkbox"/> VOC/PH <input type="checkbox"/> PCBs <input type="checkbox"/> TPH <input type="checkbox"/> PAHs <input type="checkbox"/> DPM/PCB <input type="checkbox"/> P2-14 <input type="checkbox"/> Dissolved Metals <input type="checkbox"/> Filtered? <input type="checkbox"/> Preserved? <input type="checkbox"/> Dissolved Mercury <input type="checkbox"/> Filtered? <input type="checkbox"/> Preserved? <input type="checkbox"/> Total Metals <input type="checkbox"/> Field Preserved? <input type="checkbox"/> Total Mercury <input type="checkbox"/> Field Preserved? <input type="checkbox"/> Chloride <input type="checkbox"/> Fluoride <input type="checkbox"/> Sulfate <input type="checkbox"/> TDS <input type="checkbox"/> TOC <input type="checkbox"/> BOD <input type="checkbox"/> COD <input type="checkbox"/> pH <input type="checkbox"/> Conductivity <input type="checkbox"/> Alkalinity <input type="checkbox"/> Nitrite <input type="checkbox"/> Nitrate <input type="checkbox"/> Ammonia				LABORATORY USE ONLY	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM										CUSTODY SEAL Y/N	
Sample Identification		Lab Identification		Date Sampled (YYYY/MM/DD)		Time Sampled (HH:MM)		Matrix		COOLER TEMPERATURES	
1 <u>Orange Ext Wood Siding Paint</u>				<u>2017/02/10</u>				<u>Paint</u>		Present Intact	
2 <u>Green/Blue Ext Wood Siding Paint</u>										N/A	
3 <u>Ext Brown trim Paint</u>											
4 <u>Pool house Ext Gray Flo Paint</u>											
5 <u>Porchade White Wall Paint</u>											
6 <u>Suite 3056 Kitchen Gray Wall Paint</u>											
7 <u>3051 - Interior Purple Wall Paint</u>											
8 <u>4046 - White Interior trim Paint</u>											
9 <u>4046 - Interior Beige Paint</u>											
10											
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)	
<u>Ryan Thompson</u>		<u>2017/02/15</u>		<u>16:25</u>		<u>[Signature]</u>		<u>2017/02/15</u>		<u>16:25</u>	
										MAXXAM JOB #	

COC-1020



B711362_COC

APPENDIX D

Site Photographs



Lead containing orange and brown paint with non-asbestos containing stucco on the exterior of a unit on Clarina Place



Lead containing green/blue and brown paint on the exterior of a Unit on Clarina Place



Asbestos containing black window mastic on the basement living room window and asbestos containing drywall in Unit 3033



Asbestos containing ceiling texture and drywall in the main floor living room of Unit 3033



Asbestos containing Linoleum sheet flooring in the upper floor bathroom of Unit 3033



Asbestos containing Linoleum sheet flooring in the upper floor bathroom of Unit 3032



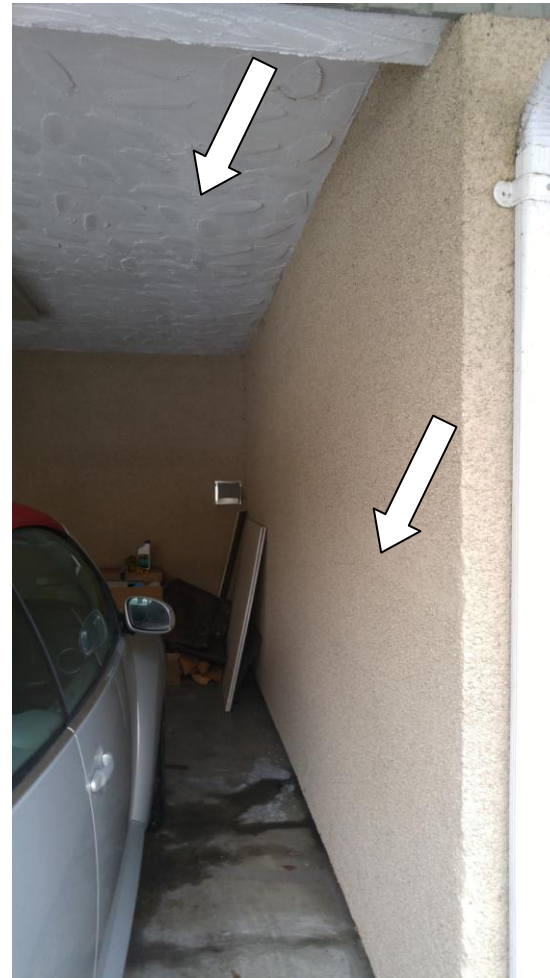
Asbestos containing black window mastic on the 3rd floor bedroom window and asbestos containing drywall in Unit 3036



Asbestos containing Linoleum sheet flooring in the basement play room and asbestos containing Linoleum sheet flooring, drywall and ceiling texture in the kitchen of Unit 3036



Asbestos containing red Linoleum in the basement of Unit 3051 and asbestos containing 12" white and grey vinyl floor tiles in the pool house janitor closet



Non-asbestos containing wall texture on asbestos containing drywall in Unit 9042 and non-asbestos containing white and beige stucco outside Unit 9042



Asbestos containing window glazing mastic on the pool house exterior windows and asbestos containing vinyl flooring in the pool house main area/kitchen



Non-asbestos containing stucco and lead containing white paint in the parkade