



November 3, 2017

CITY OF SASKATOON

Asbestos-Containing Building Materials Assessment Report - Landfill Main Office



REPORT

Submitted to:

The City of Saskatoon
1101 Avenue P North
Saskatoon, SK S7L 7K6

Report Number: 1667963

Distribution:

One Copy: City of Saskatoon
One Copy: Golder Associates Ltd.





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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by the City of Saskatoon (the Client) to conduct an asbestos-containing building materials assessment of the Landfill Main Office (the Site) located at 115 Power Road in Saskatoon, Saskatchewan. This assessment report details our findings, conclusions and recommendations for the Site. A walkthrough of the Site was conducted on September 7, 2017 and the assessment was conducted on October 13, 2017 by Kody Henderson, OHS Project Manager. Asbestos-containing building materials were identified within the Landfill Main Office during the assessment. Further information is provided in Section 3.0.

2.0 SCOPE OF WORK

In accordance with Tender 16-0844, Golder's scope of work included conducting an asbestos-containing building materials assessment of the Site to evaluate the quantities, locations, and conditions of asbestos-containing building materials.

Following the field work, Golder prepared this assessment report that includes laboratory analysis results, findings of the assessment, conclusions, and recommendations.

2.1 Asbestos-Containing Materials

The assessment involved a non-destructive inspection of the Site to assess the type and extent of suspect ACMs in the facility. The systems that were reviewed as part of the inspections included, but were not limited to:

- *Structural* - systems including: insulation between solid webbed joists, fireproofing, building envelope, and interior/exterior caulking around windows and doors;
- *Mechanical* - systems insulation including: hot water and steam system, condensate system, chilled water system, glycol system, domestic hot and cold water, emergency generator exhaust, boiler units, heat exchangers, and asbestos cement piping; and
- *Architectural* - systems including: texture coats, sheet flooring, vinyl floor tile, acoustical spray-applied materials, condensation control applications, ceiling tile, wall board, drywall joint compound, and asbestos sheet products.

Systematic sampling of suspect ACMs was conducted as part of the assessment. Samples were submitted under chain of custody to International Asbestos Testing Laboratory Inc. (IATL) and analyzed for asbestos type and percentage content using Polarized Light Microscopy (PLM) in accordance with EPA methodologies (EPA 600/R-93/116).

Further information related to the assessment and sample collection methods can be found in the Golder document *Golder Asbestos Assessment General Survey Plan and Protocol* provided to the Client.



3.0 RESULTS AND DISCUSSION

The Landfill Main Office consists of a meeting/lunch room, storage rooms, offices, washrooms, and change rooms and was constructed in 1986 with a 2000 addition. During the assessment, the original construction was treated as one functional space and the 2000 addition as a second functional space.

- The Laboratory Certificate of Analysis report for the bulk asbestos samples is included in Appendix A.
- Photographs collected during the assessment are provided in Appendix B.
- A room by room spreadsheet outlining the locations, quantities, friability, and condition of identified asbestos-containing materials as well as additional information is provided in Appendix C.
- Floor plans outlining the sample locations and locations of identified asbestos-containing materials is provided in Appendix D.
- Please refer to Sections 4.0 and 6.0 of this report for a summary of the limitations encountered.

3.1 Asbestos-Containing Materials

A total of seventeen (17) samples of building materials were collected and tested for asbestos content during the assessment of the Landfill Main Office. One (1) of the samples was found to contain asbestos.

Potential asbestos-containing components may be located within the electrical panels on Site.

3.1.1 List of Identified Asbestos-Containing Materials

A list of the identified asbestos-containing materials is provided below.

- Silver Sink Undercoat.

Further information on the identified asbestos-containing materials listed is provided below.

Silver Sink Undercoat

One (1) sample of silver sink undercoat was collected during the assessment. The sample collected was found to contain 2.0% Chrysotile asbestos. Asbestos-containing silver sink undercoat (see Photograph 1 in Appendix B) was observed in the following location:

- Room 103 (approximately 2 sinks).

3.1.2 Non Asbestos-Containing Materials

The following materials were sampled during this assessment and were found to not contain asbestos or were observed to be non-suspect materials:

- Drywall joint compound;
- Off-white, turquoise, and black vinyl sheet flooring;
- Yellow floor mastic;
- Red duct mastic;
- Loose fill attic insulation;



- Construction paper;
- Grey firestop;
- Brown building caulking;
- Black foam pipe insulation; and
- The walls and ceilings were observed to be constructed of drywall with non-asbestos-containing joint compound with a non-asbestos-containing vinyl sheet flooring.

4.0 EXCLUDED AREAS AND MATERIALS

The following is a list of the areas and/or materials excluded during the assessment.

- The roof and associated components were not assessed by Golder during the assessment as per Tender 16-0844. If the roof and associated components are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.
- The crawlspace was deemed a confined space and was not assessed by Golder during the assessment as per Tender 16-0844. If materials within the crawlspace are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.
- The electrical panels and associated components were not inspected by Golder during the assessment. If the panels are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the visual assessment and the laboratory analytical results, the following project specific conclusions and recommendations are provided.

5.1 Asbestos-Containing Materials

Asbestos was positively identified within the silver sink undercoat on Site. Asbestos was not identified in the remaining samples collected and analyzed.

If the building is scheduled for renovations that will impact the identified or potential asbestos-containing materials, it must be removed. If additional suspect asbestos-containing building materials are encountered during renovation activities, additional sampling should be undertaken to evaluate asbestos content.

Removal work should be completed by workers that are adequately trained in the hazards and proper methods of working with asbestos. Throughout the abatement activities, appropriate air monitoring and inspections should be conducted by a competent person to document that contamination is contained and that ACM are disposed of appropriately. Ensure asbestos waste is disposed of in accordance with the requirements of the Government of Saskatchewan.

All quantities listed in the report are approximate and are based on the conditions at the time of the assessment. Prior to abatement work it is recommended that a competent person conduct a review of the site to quantify and obtain all measurements of all building materials detailed in this report for cost estimating purposes.



In anticipation of potential abatement, Golder's recommendations for the asbestos-containing materials identified during the assessment are outlined below.

Silver Sink Undercoat

If scheduled for impact, asbestos-containing silver sink undercoat should be abated following low-risk abatement work procedures as outlined in the *Saskatchewan Asbestos Abatement Manual* (2017). Alternatively, as the silver sink undercoat was observed in good condition, and with a priority rating of 5 (please see the room by room spreadsheet provided in Appendix C for a description of the priority ratings), it can be managed in place if not scheduled for impact.

6.0 SURVEY LIMITATIONS

This report is based on data and information collected by Golder during the assessment conducted on October 13, 2017 and is based solely on site conditions encountered at the time of the assessment. Any use of this document or the findings, conclusions or recommendations provided in this report by any person other than the City of Saskatoon is at the sole risk of such user.

The conclusions and recommendations contained in this survey report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with currently accepted environmental assessment standards and practices applicable to these locations and are subject to the following inherent limitations:

The data and findings presented in this report are valid as of the dates of the investigations. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the properties, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report. No assurance is made regarding changes in conditions or practices subsequent to the time of the investigation. It was beyond the scope of this assessment to conduct a risk assessment and the potential health risks that may be associated with asbestos exposure for building occupants.

The data reported and the findings, observations and conclusions expressed in this report are limited by the Scope of Work. The Scope of Work was defined by Tender 16-0844 and the initial site walkthrough with the Client, the time and budgetary constraints imposed by the Client, and availability of access to the property.

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

No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and conclusions, which are based solely upon site conditions in existence at the time of investigation.

Golder's assessment reports present professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations or policies of federal, provincial, or local governmental agencies. Any use of the survey report constitutes acceptance of the limits of Golder's liability.

Golder's liability extends only to its client and not to other parties who may obtain this survey report. Issues raised by the report must be reviewed by appropriate legal counsel.



7.0 CLOSURE

We trust the information presented in this report meets your requirements. If you have any questions, please contact Kody Henderson at (780) 483-3499 or email at kody_henderson@golder.com. Thank you for the opportunity to be of service. We look forward to working with you again in the future.



ASBESTOS-CONTAINING BUILDING MATERIALS ASSESSMENT REPORT - LANDFILL MAIN OFFICE

Report Signature Page

GOLDER ASSOCIATES LTD.

Prepared by:

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OHS Project Manager

Reviewed by:

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Associate, OHS Project Director

KH/AG/ba

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APPENDIX A

Laboratory Certificate of Analysis Report

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Client: GOL572

Report Date: 10/27/2017
Report No.: 550070 - PLM
Project: Landfill Office
Project No.: 1667963

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6369298	Analyst Observation: Grey Vinyl Sheet Flooring	Location: Hallway
Client No.: A-001	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	10 Cellulose	90

Sample material different than client description

Lab No.: 6369298(L2)	Analyst Observation: Yellow Mastic	Location: Hallway
Client No.: A-001	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

Sample material different than client description

Lab No.: 6369299	Analyst Observation: White Joint Compound	Location: Hallway
Client No.: A-002	Client Description: Off-White, Turquoise And Black Vinyl Sheet Flooring	Facility:
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100


Sample material different than client description

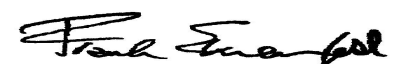
Lab No.: 6369300	Analyst Observation: White Joint Compound	Location: Rm 108
Client No.: A-003	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

Lab No.: 6369301	Analyst Observation: White Joint Compound	Location: Rm 107
Client No.: A-004	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

Lab No.: 6369302	Analyst Observation: White Joint Compound	Location: Rm 106
Client No.: A-005	Client Description: Drywall Joint Compound	Facility:
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

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

Date Received: 10/18/2017
Date Analyzed: 10/27/2017
Signature: 
Analyst: Tom Barkley

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3


Client: GOL572

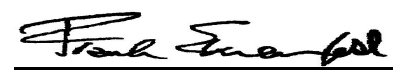
Report Date: 10/27/2017
Report No.: 550070 - PLM
Project: Landfill Office
Project No.: 1667963

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6369303 Client No.: A-006 <u>Percent Asbestos:</u> <i>None Detected</i>	Analyst Observation: White Joint Compound Client Description: Drywall Joint Compound <u>Percent Non-Asbestos Fibrous Material:</u> None Detected	Location: Rm 106 Facility: <u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6369304 Client No.: A-007 <u>Percent Asbestos:</u> <i>None Detected</i>	Analyst Observation: Red Caulk Client Description: Red Duct Mastic <u>Percent Non-Asbestos Fibrous Material:</u> None Detected	Location: Rm 106 Facility: <u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6369305 Client No.: A-008 <u>Percent Asbestos:</u> <i>None Detected</i>	Analyst Observation: White Joint Compound Client Description: Drywall Joint Compound <u>Percent Non-Asbestos Fibrous Material:</u> None Detected	Location: Rm 103 Facility: <u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6369306 Client No.: A-009 <u>Percent Asbestos:</u> <i>PC 2.0 Chrysotile</i>	Analyst Observation: Silver Sink Undercoating Client Description: Silver Sink Undercoat <u>Percent Non-Asbestos Fibrous Material:</u> None Detected	Location: Rm 103 Facility: <u>Percent Non-Fibrous Material:</u> 98
Lab No.: 6369307 Client No.: A-010 <u>Percent Asbestos:</u> <i>None Detected</i>	Analyst Observation: White Joint Compound Client Description: Drywall Joint Compound <u>Percent Non-Asbestos Fibrous Material:</u> None Detected	Location: Rm 104 Facility: <u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6369308 Client No.: A-011 <u>Percent Asbestos:</u> <i>None Detected</i>	Analyst Observation: White Joint Compound Client Description: Drywall Joint Compound <u>Percent Non-Asbestos Fibrous Material:</u> None Detected	Location: Rm 104 Facility: <u>Percent Non-Fibrous Material:</u> 100

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

Date Received: 10/18/2017
Date Analyzed: 10/27/2017
Signature: 
Analyst: Tom Barkley

Approved By: 
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Laboratory Director

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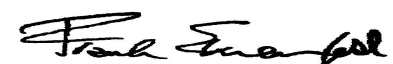
Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6369309 Client No.: A-012	Analyst Observation: Pink Insulation Client Description: Attic Insulation	Location: Attic Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 100 Fibrous Glass	<u>Percent Non-Fibrous Material:</u> None Detected
Lab No.: 6369310 Client No.: A-013	Analyst Observation: Grey Vinyl Sheet Flooring Client Description: Off-White, Turquoise And Black Vinyl Sheet Flooring	Location: Rm 104 Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	<u>Percent Non-Fibrous Material:</u> 90
Lab No.: 6369310(L2) Client No.: A-013	Analyst Observation: Tan Mastic Client Description: Off-White, Turquoise And Black Vinyl Sheet Flooring	Location: Rm 104 Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6369311 Client No.: A-014	Analyst Observation: Brown Paper Client Description: Construction Paper	Location: Exterior Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 75 Cellulose	<u>Percent Non-Fibrous Material:</u> 25
Lab No.: 6369312 Client No.: A-015	Analyst Observation: Grey/Brown Insulation Client Description: Grey Firestop	Location: Exterior Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 5 Cellulose	<u>Percent Non-Fibrous Material:</u> 95
Lab No.: 6369313 Client No.: A-016	Analyst Observation: Clear/White Caulk Client Description: Brown Bldg Caulking	Location: Exterior Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

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

Date Received: 10/18/2017
Date Analyzed: 10/27/2017
Signature: 
Analyst: Tom Barkley

Approved By: 
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Client: GOL572

Report Date: 10/27/2017
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Project: Landfill Office
Project No.: 1667963

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6369314

Client No.: A-017

Percent Asbestos:

None Detected

Analyst Observation: Black Foam

Client Description: Black Foam Pipe Insulation

Percent Non-Asbestos Fibrous Material:

None Detected

Location: Exterior

Facility:

Percent Non-Fibrous Material:

100

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

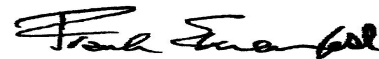
Date Received: 10/18/2017

Date Analyzed: 10/27/2017

Signature:

Analyst: Tom Barkley

Approved By:



Frank E. Ehrenfeld, III
Laboratory Director

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Client: Golder Associates Ltd
16820 107 Ave
Edmonton AB T5P 4C3

Client: GOL572

Report Date: 10/27/2017
Report No.: 550070 - PLM
Project: Landfill Office
Project No.: 1667963

Appendix to Analytical Report

Customer Contact:

Analysis: US EPA 600, R93-116

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

iATL Customer Service: customerservice@iatl.com

iATL Office Manager: cdavis@iatl.com

iATL Account Representative: Pete Lesniak

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Bulk Building Materials

Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

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

Certifications:

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

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

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

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

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

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

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

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

Disclaimers / Qualifiers:

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

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

Recommendations for Vermiculite Analysis:

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

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

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

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

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

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.
- 2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 3) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.
- 4) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 5) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004

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16820 107 Ave
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Client: GOL572

Report Date: 10/27/2017
Report No.: 550070 - PLM
Project: Landfill Office
Project No.: 1667963

Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).



APPENDIX B

Site Photographs



APPENDIX B

Site Photographs



Photograph 1: Asbestos-Containing Silver Sink Undercoat.

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APPENDIX C

Landfill Main Office Room by Room Spreadsheet

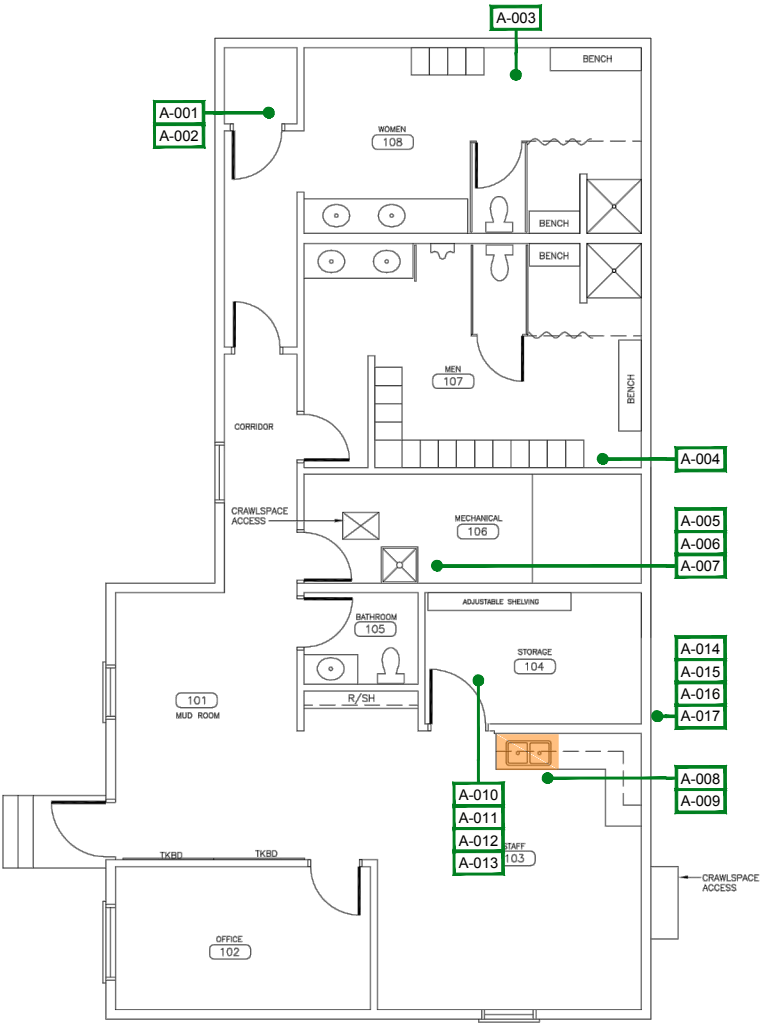
Appendix C
Landfill Main Office
ACM Inventory

Included/ Excluded	Floor	Room #	Area Description	Elements	Subelements	Material Description	Accessibility	Suspect?	Sampled?	Asbestos Containing Material?	Condition	Field Notes	Sample Type	Sample ID	Sample Date	Asbestos Type	ACM Product	% of asbestos	Friable	Sprayed-on	Maintenance	Inspection	Priority	Potential for Disturbance	Recommended Action	Quantity	Photograph ID	Labelling Type
Included	M	All	All	Doors	Regular Door	Non Suspect Door	High	No	No	No	Good	Non-suspect doors.																
Included	M	101	Mud Room	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	101	Mud Room	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good																	
Included	M	101	Mud Room	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	101	Mud Room	Windows	Caulking	No Suspect Window Caulking Observed	High	No	No	No	Good																	
Included	M	102	Office	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	102	Office	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good																	
Included	M	102	Office	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	102	Office	Windows	Caulking	No Suspect Window Caulking Observed	High	No	No	No	Good																	
Included	M	103	Lunch Room	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-003	13-Oct-17													
Included	M	103	Lunch Room	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good																	
Included	M	103	Lunch Room	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	103	Lunch Room	Windows	Caulking	No Suspect Window Caulking Observed	High	No	No	No	Good																	
Included	M	103	Lunch Room	Plumbing	Sink	Silver Sink Undercoat	High	Yes	Yes	Yes	Good		Bulk	A-009	13-Oct-17	Chrysotile	Silver Sink Undercoat	2.00%	No	No	No	Annually	5	Moderate	Manage in place.	2 Sinks	Photograph 1	Door Jamb
Included	M	104	Storage Room	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-010	13-Oct-17													
Included	M	104	Storage Room	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good		Bulk	A-013	13-Oct-17													
Included	M	104	Storage Room	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-011	13-Oct-17													
Included	M	104	Storage Room	Mechanical	Piping	Uninsulated Piping	High	No	No	No	Good																	
												Not sampled due to safety concerns.								No	No		Annually		Low	Inspect and sample if scheduled for removal.		
Included	M	104	Storage Room	Electrical	Electrical	Electrical Panel and Components	High	Yes	No	Potential	Good																	
Included	M	105	Washroom	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	105	Washroom	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good																	
Included	M	105	Washroom	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	106	Mechanical Room	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-005	13-Oct-17													
Included	M	106	Mechanical Room	Floor	Floor	Wood	High	No	No	No	Good																	
Included	M	106	Mechanical Room	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-006	13-Oct-17													
Included	M	106	Mechanical Room	Mechanical	Piping	Uninsulated Piping	High	No	No	No	Good																	
Included	M	106	Mechanical Room	Mechanical	Duct Work	Red Duct Mastic	High	No	Yes	No	Good		Bulk	A-007	13-Oct-17													
Included	M	107	Washroom	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-004	13-Oct-17													
Included	M	107	Washroom	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good																	
Included	M	107	Washroom	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	108	Washroom	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-003	13-Oct-17													
Included	M	108	Washroom	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good																	
Included	M	108	Washroom	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	M	Hallway	Hallway	Walls	Walls	Drywall Joint Compound	High	No	Yes	No	Good		Bulk	A-002	13-Oct-17													
Included	M	Hallway	Hallway	Floor	Floor	Off-White, Turquoise, and Black Vinyl Sheet Flooring	High	No	Yes	No	Good		Bulk	A-001	13-Oct-17													
Included	M	Hallway	Hallway	Ceiling	Ceiling	Drywall Joint Compound	High	No	Yes	No	Good																	
Included	A	Attic	Exterior	Ceiling	Ceiling	Wood	High	No	No	No	Good																	
Included	A	Attic	Exterior	Insulation	Insulation	Loose Fill Attic Insulation	High	No	Yes	No	Good		Bulk	A-012	13-Oct-17													
Included	E	Exterior	Exterior	Walls	Walls	Vinyl Siding	High	No	No	No	Good																	
Included	E	Exterior	Exterior	Walls	Walls	Construction Paper	High	No	Yes	No	Good		Bulk	A-014	13-Oct-17													
Included	E	Exterior	Exterior	Walls	Walls	Grey Firestop	High	No	Yes	No	Good		Bulk	A-015	13-Oct-17													
Included	E	Exterior	Exterior	Walls	Walls	Brown Building Caulking	High	No	Yes	No	Good		Bulk	A-016	13-Oct-17													
Included	E	Exterior	Exterior	Mechanical	Piping	Black Foam Pipe Insulation	High	No	Yes	No	Good		Bulk	A-017	13-Oct-17													
Excluded		Crawlspace	Crawlspace	Crawlspace	Crawlspace							Not assessed due to scope of work.																
Excluded		Exterior	Roof	Exterior Roof	Exterior Roof							Not assessed due to scope of work.																



APPENDIX D

Floor Plans



LEGEND

ASBESTOS - CONTAINING SILVER SINK UNDERCOAT

ASBESTOS SAMPLE LOCATION

NOTE(S)

1. ASBESTOS IS A CARCINOGEN. DO NOT BREATHE ASBESTOS DUST.

REFERENCE(S)

PLAN OBTAINED FROM INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON. DATED: 07/11/2016.

CLIENT
CITY OF SASKATOON

CONSULTANT



YYYY-MM-DD	2017-11-03
DESIGNED	KH
PREPARED	YW
REVIEWED	KH
APPROVED	AG

SCHEMATIC ONLY, NOT TO SCALE

PROJECT
ASBESTOS ASSESSMENT
LANDFILL MAIN OFFICE
115 POWER ROAD

TITLE
MAIN FLOOR

PROJECT NO.	CONTROL	REV.	FIGURE
1667963	1000-HM-0001	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

25 mm

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T: +1 (780) 483 3499



BERSCH & ASSOCIATES LTD.

November 26, 2016

City of Saskatoon
Facilities & Fleet Management
1101 Avenue P North
Saskatoon, SK
S7L 7K6

ATTENTION: Hazel Fernandez

**SUBJECT: Asbestos Site Investigation - 2011 Spadina Crescent West, Saskatoon, SK.
Emergency Exit Installation Project.**

Brad Berschiminsky of Bersch & Associates Ltd. conducted a site visit on November 23, 2016 to investigate and collect bulk samples of material to confirm there was no asbestos content. The facility was constructed in 1986 with the 2000 addition of the area being sampled. The wall construction consists of drywall, poly vapor barrier, fiberglass batt insulation, OSB sheathing, tar paper and vinyl siding. Refer to the attached photos.

Two samples were collected and analyzed for the identification of asbestos. Asbestos **was not** detected within either sample. Based on the bulk sampling and site investigation there does not appear to be an asbestos concern that would reflect on the emergency exit install proposed for the area.

Refer to the attached laboratory results for the bulk samples collected November 23, 2016 from the Main Office Building at the Saskatoon Landfill. The samples were analyzed for the identification of asbestos. Asbestos **was not** detected within the samples.

The results for the samples submitted were obtained by examination in accordance with the current USEPA 600/R-93/116 Method for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1% by volume.

This test report relates only to the materials sent for examination and any use or extension of the information by the client of these results is the responsibility of the client.

If any questions arise on the results of the attached information, please contact our office. Thank you for this opportunity of service!

Sincerely,



Brad Berschiminsky
Bersch & Associates Ltd.
File No. – B67BLK23F S'toon Landfill

**BERSCH & ASSOCIATES LTD. 244-2002 QUEBEC AVENUE, SASKATOON, SK S7K 1W4
Ph: (306) 978-6665 Fax: (306) 978-6664**

SITE PHOTOS

PHOTO 1 – EXTERIOR MAIN OFFICE



PHOTO 2 – EXTERIOR TAR PAPER SAMPLE #2



SITE PHOTOS

**PHOTO 3 – INTERIOR 108 WOMEN’S WASHROOM STORAGE ROOM
DRYWALL MUD COMPOUND SAMPLE #1**



**PHOTO 4 – INTERIOR 108 WOMEN’S WASHROOM STORAGE ROOM
NORTH WALL COMPOSITION**



Bersch & Associates Ltd.

B67BAK23F

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO: B67.16

CLIENT: CITY OF SASKATOON

CONTACT: HAZEL FERNANDEZ

LOCATION: SASKATOON LANDFILL - MAIN OFFICE 2011 SPADINA CRESCENT WEST

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	23-Nov-16	108 Women's Washroom Storage Room - Drywall Mud Compound On North Wall	No Asbestos Detected		WB
2	23-Nov-16	Main Office Building Exterior - Tar Paper Behind The Vinyl Siding On The North Wall At The Location Of The Emergency Door.	No Asbestos Detected		WB

- GENERAL NOTES:
1. All dimensions are in millimetres
 2. Drawings are not to be scaled.
 3. All drawings to be read in conjunction with the specifications, unless otherwise noted.
 4. Verify site conditions and location of all utilities prior to the start of construction.
 5. Report all discrepancies to the Consultant.
 6. If in doubt, ask.

REV	ISSUED FOR	DATE
-----	------------	------

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REQUESTED BY:
As-Built	stoft		
SCALE:	DATE:		
1:75	16/03/2004		

SHEET NAME

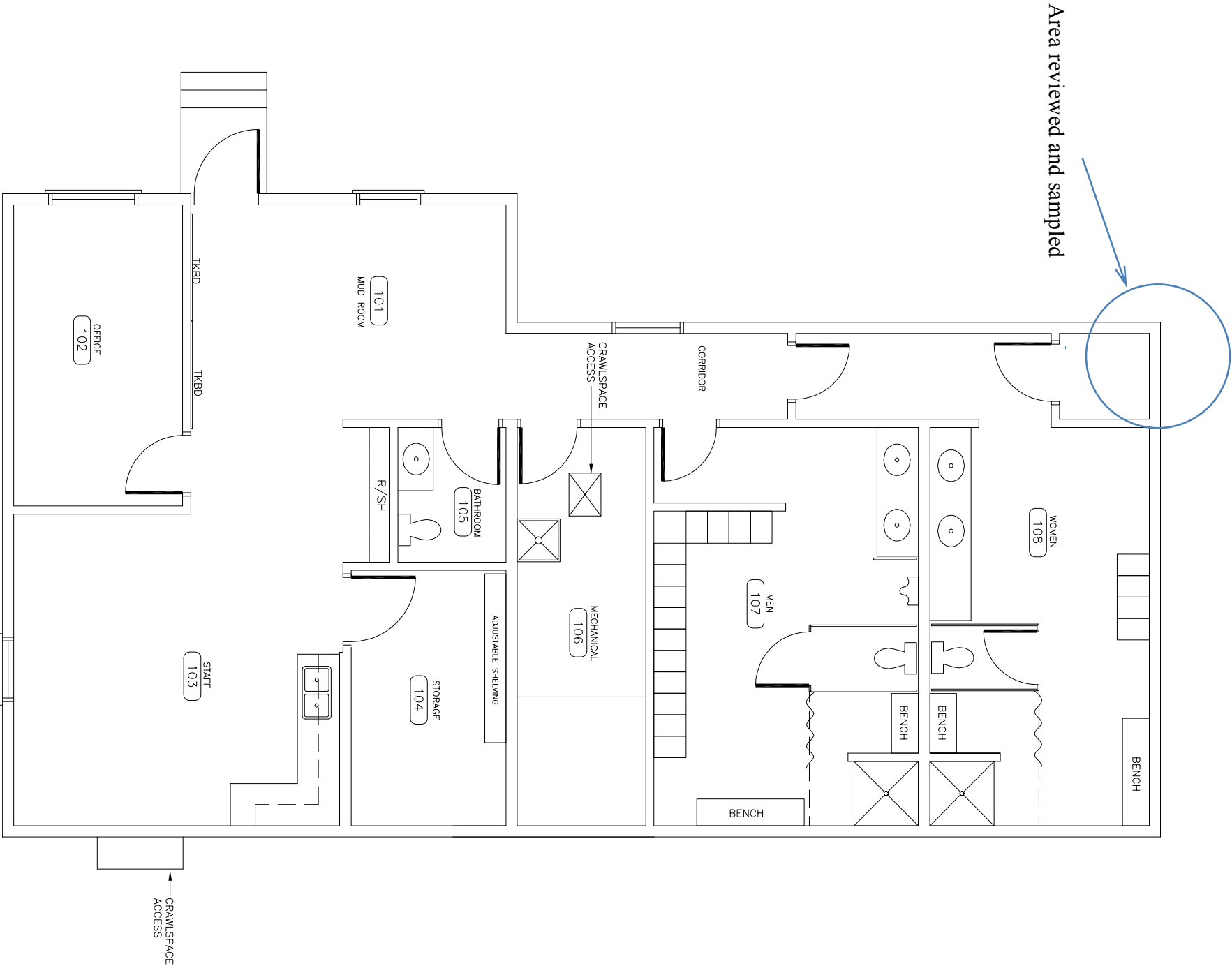
Main Floor
Base Plan

Asduitt

PROJECT TITLE

901
Landfill
Office

PROJECT NO.	SHEET
	REV. NO.



BERSCH

CONSULTING LTD.

June 2, 2017

City of Saskatoon
Roadways & Operations
330 Ontario Avenue
Saskatoon, SK
S7K 1S3

ATTENTION: Jim Gray

SUBJECT: Asbestos Site Investigation – Landfill Main Office

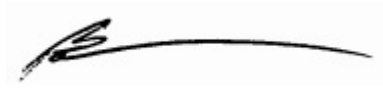
Evan Westad of Bersch Consulting Ltd. conducted a site visit on May 31, 2017 to investigate and collect a bulk sample of the drywall mud compound along the south wall of the main office for the analysis of asbestos. The facility was constructed in 1986 and is located at 2011 Spadina Crescent West, Saskatoon, SK. A compilation sample was collected from three (3) areas along the south wall. Asbestos **was not** detected within the sample of the drywall mud compound. Based on the bulk sampling and site investigation there is no asbestos concern that would reflect on the installation of a window in the south wall.

The results for the bulk sample was obtained by examination in accordance with the current USEPA 600/R-93/116 Method for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1% by volume.

In a previous site visit, prior to the exit door installation in the northwest corner of the changeroom area (2004 construction), an investigation was conducted resulting in samples analyzed and recorded as no asbestos detected. Referencing the 2 site investigations, future renovations to the interior/exterior walls will not require bulk sampling prior to renovations. The attic insulation remains an area of suspect asbestos containing material. Precautionary measures should be followed if access is required to the attic space until the scheduled inspection for the area is completed. Vermiculite attic insulation may be present in the space. During the window installation project, if the workers encounter any suspicious material, instruct them to stop their activity to determine if additional site investigation is required.

This test report relates only to the materials sent for examination and any use or extension of the information by the client of these results is the responsibility of the client. If any questions arise on the results of the attached information, please contact our office 306.222.7477. Thank you for this opportunity of service!

Sincerely,

A handwritten signature in black ink, appearing to be 'EW' with a long horizontal stroke extending to the right.A handwritten signature in black ink, appearing to be 'B' followed by a long horizontal stroke extending to the right.

Evan Westad / Brad Berschiminsky
Bersch Consulting Ltd.
File: B67BLE31G- Landfill Main Office

Bersch Consulting Ltd.

B67BAE31G

244-2002 Quebec Avenue
Saskatoon, SK S7K 1W4

BULK SAMPLE ANALYSIS REPORT

PROJECT NO: B67.17
CLIENT: CITY OF SASKATOON
CONTACT: JIM GRAY
LOCATION: LANDFILL MAIN OFFICE

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	31-May-17	Main Office South Wall - Compilation Sample of Drywall Mud Compound	No Asbestos Detected		WB