

## Diefenbaker Maintenance Shop

Saskatoon, SK



May 30, 2023

**Prepared For:** City of Saskatoon  
Facilities Management, Utilities & Environment Division  
1101 Avenue P North  
Saskatoon, SK  
S7L 7K6

**Attention:** Mandeep Kaur

**Prepared By:** Bersch Consulting Ltd.

**Project No.:** B67AAE30M

## **EXECUTIVE SUMMARY**

Bersch Consulting Ltd. was retained by the City of Saskatoon to conduct an asbestos assessment of the Diefenbaker Maintenance Shop located at 2610 Saint Henry Avenue, Saskatoon, Saskatchewan. The assessment was performed by Bersch Consulting Ltd. on May 30, 2023.

### **Summary of Assessment**

No Asbestos has been identified within the Diefenbaker Maintenance Shop.

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## **1.0 INTRODUCTION**

Bersch Consulting Ltd. was retained by the City of Saskatoon to conduct an asbestos assessment of the Diefenbaker Maintenance Shop located at 2610 Saint Henry Avenue, Saskatoon, Saskatchewan. The assessment was performed by Bersch Consulting Ltd. on May 30, 2023. The assessment entailed the inspection of accessible areas throughout the building.

The assessment was performed by Blake Berschinsky of Bersch Consulting Ltd. on May 30, 2023. This report gives a detailed account of the assessment results and any recommendations resulting from the audit.

## **2.0 METHODOLOGY**

An assessment of the entire building was conducted to identify and sample suspect asbestos-containing materials (ACMs) throughout the building.

Bulk samples were collected, and visual observations of the materials was performed. Samples collected were representative of similar material observed throughout the buildings. A review of this report shall be conducted with all trades that are entering the facility to perform maintenance or renovation activity. This will ensure they are familiar with the types and locations of hazardous materials present and prevent any uncontrolled disturbance and/or possible exposure.

Materials excluded include:

- Buried material or equipment – tanks, pipes vessels or similar materials.

The primary documents for guidance and criteria in this survey were:

- Province of Saskatchewan "The Occupational Health and Safety Act and The Occupational Health and Safety Regulations" Office Consolidation, December 2020.
- Province of Saskatchewan Human Resources, Labor, and Employment "The Management of Asbestos" January 1991.
- Saskatchewan Asbestos Abatement Manual – Guidelines for Asbestos Processes in Building Demolition and Renovation, 2021.
- USEPA, 1985. U.S. Environmental Protection Agency, "Guidance for Controlling Asbestos-Containing Materials in Buildings". Washington, DC: Office of Toxic Substances, USEPA.
- Midwest Centre for Occupational Health & Safety St. Paul's, Minnesota – Asbestos Training for Inspectors & Management Planners.
- McCrone Research Institute Course Hayward California "Asbestos Identification".
- Environment Management and Protection Act, Saskatchewan Environment, 2010.

- Hazardous Substances and waste Dangerous Goods Regulations, Saskatchewan Environment, April 1989

### **3.0 ASBESTOS ASSESSMENT**

Four (4) bulk samples of representative suspect ACM were collected during the site inspection of the maintenance shop. None of the samples were resulted in containing asbestos. Refer to **Appendix I** for the **Bulk Sample Analysis Report**. The results were obtained with the Asbestos analysis of bulk materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using polarized light microscopy. The detection limit of this method is listed as less than 1% by volume.

Refer to **Appendix II** for the **Site Photos**.

The USEPA document identifies factors associated with the “condition” and the “potential for disturbance or erosion” of ACMs. These factors help to determine potential for exposure to ACM and were used to make a qualitative evaluation of the material.

To associate priorities, the personnel performing the survey/assessment must consider six (6) factors: condition of the ACM, potential for disturbance, location, type of asbestos, asbestos content and friability. Bersch Consulting Ltd. defines the six factors as follows:

#### **1. Condition**

The condition of the asbestos-containing material is assessed, based on a visual inspection, as poor, poor to moderate, moderate, moderate to good, and good. In general, material in poor condition will normally receive a higher priority than material in good condition.

#### **2. Potential for disturbance**

The likelihood that the identified asbestos-containing material could be disturbed in the future is relative to:

- a. The frequency with which service workers or building occupants are near the material.
- b. The location with respect to sources of vibration.
- c. The potential for erosion caused by weather conditions or air flow.

#### **3. Location**

The location of the asbestos material is a contributing factor when assigning priority ratings. Visible material will generally be prioritized higher than material above ceiling tile or within plenums/pipe chases.

#### **4. Type of asbestos**

The three most common types of asbestos encountered throughout facilities in Saskatchewan are Chrysotile, Amosite, and Crocidolite. Chrysotile is the least hazardous of the three with Crocidolite labeled as the most hazardous. Actinolite, Tremolite and Anthophyllite or a mixture of the three is commonly found in vermiculite attic/block wall insulation.

#### 5. **Asbestos content**

The concentration of asbestos in a building material is a determining factor in the assessment process. Materials with high concentrations of asbestos content pose more risk than those with low percentage of asbestos content.

#### 6. **Friability**

The measure of whether the material can be crushed with hand pressure producing a powder or significant breakdown of the material.

All six (6) of these factors are evaluated and documented within survey reports. Date of sampling, trade name and recommended action are also included as part of the survey report. All ACMs identified will be given a Priority Rating of 1-4 based on the following protocols.

**Priority 1** – Damaged friable ACM where there is a potential for disruption. Dislodged/exposed boiler insulation would be an example of a Priority 1 item.

**Priority 2** – Damaged ACM in an inaccessible location or one with limited access. Damaged pipe fitting mud compound above a suspended ceiling system would be an example of Priority 2.

**Priority 3** - Friable or non-friable ACM in good condition which could potentially be disrupted. Vinyl asbestos sheet flooring in good condition or boiler insulation with metal jacket are examples of Priority 3.

**Priority 4** – Non-friable ACM in good condition with minimal to no potential for disruption. Asbestos – containing vinyl floor tile or asbestos - containing cement board in good condition are examples of Priority 4.

### **Control/Remediation Strategy**

Control/Remediation Strategies for Priority 1 & 2 items will be brought to the owner's representative as they are identified to give the owner the option to address immediately. These items will reflect ACM that is in a deteriorated state with a high potential for disturbance. The asbestos audit will entail Bersch Consulting Ltd. providing recommendations for control methods to be used on the ACM identified. Control methods consist of the following:

1. **Encapsulation** – spray/brush application of a penetrating or bridging paint-like coating over the asbestos containing materials. Depending on the type of material and application process of the encapsulation, this may require a High Risk Asbestos Process to complete.
2. **Enclosure/Encasement** – the construction/installation of an air-tight, waterproof barrier to isolate the ACM from the adjacent areas. The application of expandable foam to totally seal off an ACM within a wall cavity where there is a pipe penetration would be an example of enclosure / encasement.
3. **Repair** – repairs to minor amounts of damaged/exposed sections of ACM. Applying a canvas jacket/lagging to damaged section of lineal pipe insulation where the canvas jacket is damaged is an example of a repair recommendation.

4. **Removal** – Low, moderate, or high-risk procedures of ACM that is in poor condition with a high potential for future disturbance. This option is recommended when it is not feasible to control the ACM with any of the other control methods. In most major renovation/maintenance activity it is usually recommended to remove the ACM as part of the project since it is usually the most cost-effective time to abate the ACM.
5. **Manage** – Recommendation for management is assigned to ACM observed in good condition with a low potential for disturbance. Management will entail the annual inspection of friable materials to ensure the condition and potential for exposure has not changed.

#### **4.0 ASBESTOS ABATEMENT DISCUSSION**

Asbestos is a known carcinogen and is listed in the Province of Saskatchewan under the Occupational Health and Safety Appendix, Part V as a Hazardous Chemical Substance and any release of asbestos fibres into the atmosphere creates a potential health hazard. Although the mechanism and epidemiology of asbestos carcinogenesis is not yet well defined, accumulating evidence suggests the significance of exposure at even very low fibre concentrations and hence human exposure should be kept to a minimum. It should be noted however that asbestos is a natural mineral and a measurable background concentration can be detected in any location sampled (inside buildings, outside buildings, urban, rural, etc.).

ACMs have been used in a wide variety of applications. Of particular concern, is the group of friable products. A friable product is one that can be crumbled or reduced to powder or smaller fragments by hand pressure. Publications from the U.S.E.P.A. as early as 1977 have indicated the potential hazard of asbestos exposure in buildings containing these friable products. The two main uses of friable asbestos products are as spray insulation (thermal, acoustic or fireproofing) on deck and/or beams or as thermal insulation on piping or mechanical equipment. A large amount of non-friable ACMs has also been used in building construction such as asbestos cement board and asbestos containing vinyl flooring.

The mere presence of a friable ACM does not imply that there is an actual presence of elevated airborne fibre. As numerous studies have indicated, elevated asbestos fibre levels are generally found when settled dust or the actual asbestos containing material itself is disturbed by maintenance, renovation, inadvertent contact or vibration. The factors considered in the Environmental Protection Agency (USEPA) exposure assessment (condition of material, water damage, activity, movement, exposed surface area, accessibility, friability and presence in an air stream) often gives some indication of the likelihood of fibre release but are not in any way definitive in determining whether a hazard exists or not. That is, even if the most friable product exists in a building, elevated fibre levels will not likely occur unless there is some disturbance by physical contact, vibration or an air stream.

There are four possible approaches to control exposure to airborne asbestos once a friable material is identified in a building. These methods briefly are as follows:

**A) Removal** - Asbestos material is removed and disposed of by burial and replaced by non-asbestos materials.

**B) Encapsulation** - Asbestos material is coated with a bridging or penetrating sealant.

**C) Enclosure** – ACMs are separated from the building environment by barriers such as suspended ceilings or cladding materials.

**D) Deferred Action or Management and Custodial Control** - The Province of Saskatchewan Human Resources, Labor and Employment Branch under the Occupational health and Safety Regulations publish a document outlining “The Management of Asbestos.” In the guide for compliance, an action plan is outlined for management of the asbestos materials identified and in summary is:

- *Identification*, which has been accomplished by this report.
- Development of *written handling procedures* for maintenance personnel or often arrangements are made for a qualified contractor to conduct the necessary removal or spot maintenance prior to the regular staff conducting maintenance.
- *Asbestos Abatement Awareness and Process Training* if the regular maintenance personnel are required to conduct asbestos related activities.
- *Inspection* on a regular basis is conducted to determine the ongoing condition of the material.

## **5.0 RECOMMENDATIONS/Additional Information**

Based on the site investigation, sample results, and Saskatchewan Occupational Health and Safety Regulations 2020, the following recommendations were determined:

- No asbestos was identified during the assessment of the Diefenbaker Maintenance Shop.
- The block walls were drilled into to check for vermiculite insulation. No vermiculite was identified.
- If any suspect materials are encountered during future renovations, work should be stopped and Bersch should be contacted to conduct additional testing.

If you require further information or have questions regarding this information and results, please contact our office at (306) 757-6665.

Sincerely,



Blake Berschiminsky  
Bersch Consulting Ltd.



Brad Berschiminsky  
Bersch Consulting Ltd.



## **6.0 REFERENCES**

- 1) Province of Saskatchewan "The Occupational Health and Safety Act and The Occupational Health and Safety Regulations" Office Consolidation, December 2020.
- 2) Province of Saskatchewan Human Resources, Labor, and Employment "The Management of Asbestos" January 1991.
- 3) Saskatchewan Asbestos Abatement Manual – Guidelines for Asbestos Processes in Building Demolition and Renovation, 2021.
- 4) USEPA, 1985. U.S. Environmental Protection Agency, "Guidance for Controlling Asbestos-Containing Materials in Buildings". Washington, DC: Office of Toxic Substances, USEPA.
- 5) Midwest Centre for Occupational Health & Safety St. Paul's, Minnesota – Asbestos Training for Inspectors & Management Planners.
- 6) McCrone Research Institute Course Hayward California "Asbestos Identification".
- 7) Environment Management and Protection Act, Saskatchewan Environment, 2010.
- 8) Hazardous Substances and waste Dangerous Goods Regulations, Saskatchewan Environment, April 1989.

# **Appendix I**

## Bulk Sample Analysis Report

# Bulk Sample Analysis Report

May 30, 2023

**Project Number: B67.23**

**Client: City of Saskatoon**

**Contact: Mandeep Kaur**

**Location: Diefenbaker Maintenance Shop, Saskatoon, SK**

**File Number: B67AAE30M**

Sample #	Sample Date	Sample Material	Sample Location and Information	Asbestos	%	Analyst
1	2023/05/30	Mortar	Exterior Between Bricks	No Asbestos Detected		EMSL/WB
2a	2023/05/30	Floor Tile	Bathroom	No Asbestos Detected		EMSL/WB
2b	2023/05/30	Floor Tile – Mastic	Bathroom Under Floor Tile	No Asbestos Detected		EMSL/WB
2c	2023/05/30	Floor Tile - Leveler	Bathroom Under Floor Tile	No Asbestos Detected		EMSL/WB

**Note:** The results were obtained by examination in accordance with the Asbestos analysis of bulk materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using polarized light microscopy. The detection limit of this method is listed as less than 1% by volume.

## **Appendix II**

### **Site Photos**

**Sample Number**

B67AAE30M - 1

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**Description**

Mortar

Exterior

In Between Bricks

Non-Asbestos Containing Material

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**Sample Number**

B67AAE30M – 2a/b/c

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**Description**

Floor Tile/Mastic/Leveler

Bathroom

Non-Asbestos Containing Material

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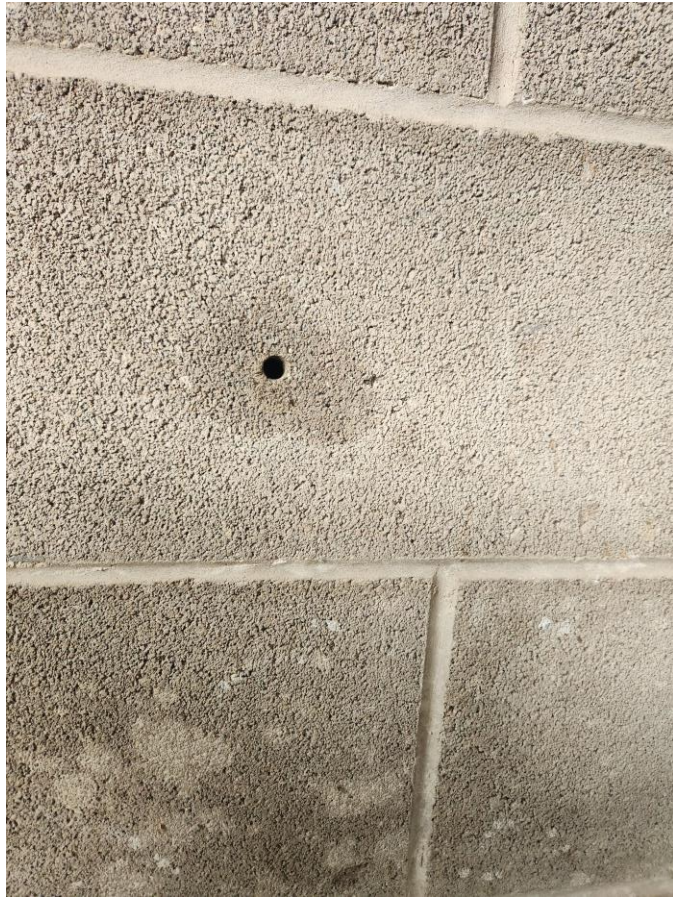
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**Description**

Interior Block Wall  
Checked for Vermiculite

Non-Asbestos Containing Material

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**Description**

Exterior Wall  
Checked for Vermiculite

Non-Asbestos Containing Material

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